



**NOVA SCOTIA
GROUNDWATER
OBSERVATION WELL
NETWORK**

2008 REPORT

Prepared: December 2008

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EXECUTIVE SUMMARY

The Nova Scotia Groundwater Observation Well Network was established in 1965 to monitor groundwater levels across the province. The network currently monitors both groundwater levels and groundwater quality and the results are used to: manage groundwater resources; assess drought conditions; evaluate the impact of human activities on groundwater; and, evaluate long-term groundwater trends. At the beginning of 2007 the network included 24 observation wells and three additional wells were added during 2007. This report presents the monitoring results collected up to the end of 2007.

The observation wells are monitored with telemetric dataloggers that record water levels and groundwater temperature every hour and transmit the data to a central computer. The number of years of groundwater level data available at each observation well ranges from one to 41 years. Groundwater samples are collected from the wells periodically and tested for a number of parameters, including: general chemistry, metals, pesticides, volatile organic compounds (VOCs), tritium and perchlorate.

The groundwater level monitoring results indicate that seven of the 27 observation wells exhibit statistically significant groundwater level trends, with four having small upward trends and three having small downward trends. The downward trends tend to be larger than the upward trends, however, the size of the trends in all cases is relatively small. The maximum observed water level decline was approximately 1.0 m. The three wells with downward trends are located in municipal wellfields and, therefore, groundwater levels in these areas have probably been lowered due to wellfield pumping.

The groundwater quality monitoring results indicate that five of the 27 wells exceeded health-based drinking water guidelines. The parameters that exceeded health-based guidelines included: arsenic (at two wells), lead (one well), nitrate (one well) and uranium (one well). Arsenic and uranium are known to occur in groundwater in certain areas of the province due to their naturally-occurring presence in soil and bedrock. Nine of the 27 wells exceeded aesthetic drinking water guidelines for the following parameters: manganese (at six wells), iron (four wells), chloride (one well), pH (two wells) and turbidity (four wells). All of these parameters are naturally-occurring water quality

problems that are routinely encountered in water wells in Nova Scotia and elsewhere.

The water quality results show that none of the observation wells exceeded drinking water guidelines for VOCs, pesticides or perchlorate. However, two VOCs were detected in three observation wells at very low levels (i.e., chloroform at 3.2 ug/L in one well, and toluene at 1 ug/L in two other wells). Perchlorate was also detected at two observation wells at very low levels (i.e., 100 times less than the recommended Health Canada guidance value for perchlorate). No pesticides were detected in any of the observation wells.

The tritium tests were used to assess the age of the groundwater in the observation wells. The results indicated that most of the wells tested for tritium (i.e., 13 of 17 wells) contained either recent water (recharged after 1952), or a mix of recent and old water (recharged before and after 1952). Only four of the 17 wells tested for tritium contained purely old water (recharged before 1952). The results suggest that groundwater in these aquifers is recharged relatively quickly. This is encouraging from a water quantity point of view because it suggests the aquifers are being regularly replenished with new water. However, it also indicates that the aquifers are vulnerable to contamination because contaminants released at the surface will be carried into the aquifer relatively quickly. This emphasizes the importance of source water protection plans in the province to ensure that groundwater is kept clean.

ACKNOWLEDGMENTS

This report was prepared by staff at Nova Scotia Environment. Both the report and the operation of the Nova Scotia Groundwater Observation Well Network have benefitted from the valuable input of many dedicated individuals. In particular, we gratefully acknowledge the cooperation of the many property owners with observation wells located on their properties. Their continued participation in the program is vital to the success of the network.

We would also like to thank Natural Resources Canada (Groundwater Program) for assistance with the groundwater level trend analysis methods used in this report, Environment Canada (National Water Research Institute) for completing the perchlorate analyses, and the Canada-Nova Scotia Water Supply Expansion Program for providing financial assistance for purchasing groundwater monitoring equipment to expand the network.

1.0 INTRODUCTION

The Nova Scotia Groundwater Observation Well Network was established in 1965 to monitor groundwater levels across the province. The size of the network has varied over the years, however, at the beginning of 2007 the network included 24 observation wells, with three additional wells being added during 2007. The network is currently operated by Nova Scotia Environment (NSE) and is used for monitoring both groundwater levels and groundwater quality. The monitoring results are used to help manage groundwater resources, assess drought conditions, evaluate the impact of human activities on groundwater and evaluate long-term groundwater trends. This report presents the monitoring results up to the end of 2007.

1.1 Historical Background

When the observation well network was initially established in 1965, it consisted of wells that were installed as part of the International Hydrologic Decade (1965-1974) and as part of regional groundwater resource evaluation studies undertaken in Nova Scotia during the 1960's and 1970's. Most of these wells were constructed specifically for observation purposes or drilled as test holes and then converted to observation wells. During the 1970's and 80's the network continued to expand until it included as many as 40 active wells, but many of these were abandoned in the 1990's. By 2003, the network consisted of 11 active wells.

After 2003, the network began expanding again. Three wells were added between 2003 and 2005, bringing the total number of wells to 14. Ten observation wells were added to the network in 2006, bringing the total number of wells to 24. All of the wells added to the network up to the end of 2006 were existing wells that were once part of the historic network, but were no longer being actively monitored.

Up until the 1990's, groundwater levels in each well were monitored using mechanical Stevens F Type chart recorders, which recorded water level changes on a paper chart that was retrieved from the field on a monthly or quarterly basis. In the late 1990's the chart recorders began to be replaced with electronic dataloggers and in 2003 an initiative began to equip the entire network with telemetric dataloggers which are capable of transmitting the monitoring results by cell phone to a

central computer.

Two reports have been previously published on the network: "Groundwater Hydrographs in Nova Scotia 1965-1981" (McIntosh, 1984) and "Nova Scotia Groundwater Observation Well Network - 2007 Report" (NS Environment and Labour, 2007).

In 2006, a web page was launched that provides public access to the network's results. The website can be found at: <http://www.gov.ns.ca/nse/water/groundwater/groundwaternetworkwells.asp>. The webpage is updated with new groundwater level data on a quarterly basis. The majority of the historical hard copy water level data has been digitized and is available in spreadsheet format on the above referenced webpage.

1.2 Activities Completed in 2007

Three wells were added to the network in 2007, including: Sheet Harbour (056), Atlanta (074) and Sheffield Mills (075). Sheet Harbour (056) was an existing well that was once part of the historic observation well network, but was no longer being monitored. Atlanta (074) and Sheffield Mills (075) were drilled in 2007 by NSE. Water quality sampling was carried out at five observation wells, including: Wilmot (005), Monastery (028), Kentville (048), Annapolis River (062), Atlanta (074) and Sheffield Mills (075).

1.3 Description of the Current Network

As of December 31st, 2007 the observation well network consisted of 27 wells. The wells are listed in Table 1.1 and the well locations are shown in Figure 1.1. As shown in Table 1.1, the number of years since monitoring began at each well is variable, but ranges from one to 41 years and can be summarized as follows: wells with more than 40 years of data (3 wells); 30 years (4 wells); 20 years (8 wells); 10 years (9 wells); and less than 10 years (3 wells). Note that these figures do not necessarily reflect the number of years of monitoring data available for each well because there are data gaps in the records.

Table 1.1: Wells in the NS Groundwater Observation Well Network (as of Dec 2007)

No.	Well Name	Observation Well ID Number	County	Year Monitoring Started	No. of Years Since Monitoring Began
1	Greenwood (003)	003	Kings	1966	41
2	Fraser Brook (004)	004	Colchester	1966	41
3	Wilmot (005)	005	Annapolis	1966	41
4	Wolfville (010)	010	Kings	1969	38
5	Truro (014)	014	Colchester	1971	36
6	Monastery (028)	028	Antigonish	1976	31
7	Point Aconi (030)	030	Cape Breton	1976	31
8	Lawrencetown (043)	043	Halifax	1978	29
9	Durham (045)	045	Pictou	1979	28
10	Kentville (048)	048	Kings	1980	27
11	Sydney (050)	050	Cape Breton	1984	23
12	North Grant (054)	054	Antigonish	1987	20
13	Stillwater (055)	055	Guysborough	1987	20
14	Sheet Harbour (056)	056	Halifax	1987	20
15	Charleston (058)	058	Queens	1988	19
16	Hayden Lake (059)	059	Shelburne	1988	19
17	Meteghan (060)	060	Digby	1987	20
18	Annapolis Royal (062)	062	Digby	1990	17
19	Hebron (063)	063	Yarmouth	1990	17
20	Margaree (064)	064	Inverness	1990	17
21	Ingonish (065)	065	Victoria	1996	11
22	Debert (068)	068	Colchester	1993	14
23	Dalem Lake (069)	069	Victoria	1992	15
24	Amherst (071)	071	Cumberland	1993	14
25	Kelley River (073)	073	Cumberland	2006	1
26	Atlanta (074)	074	Kings	2007	<1
27	Sheffield Mills (075)	075	Kings	2007	<1

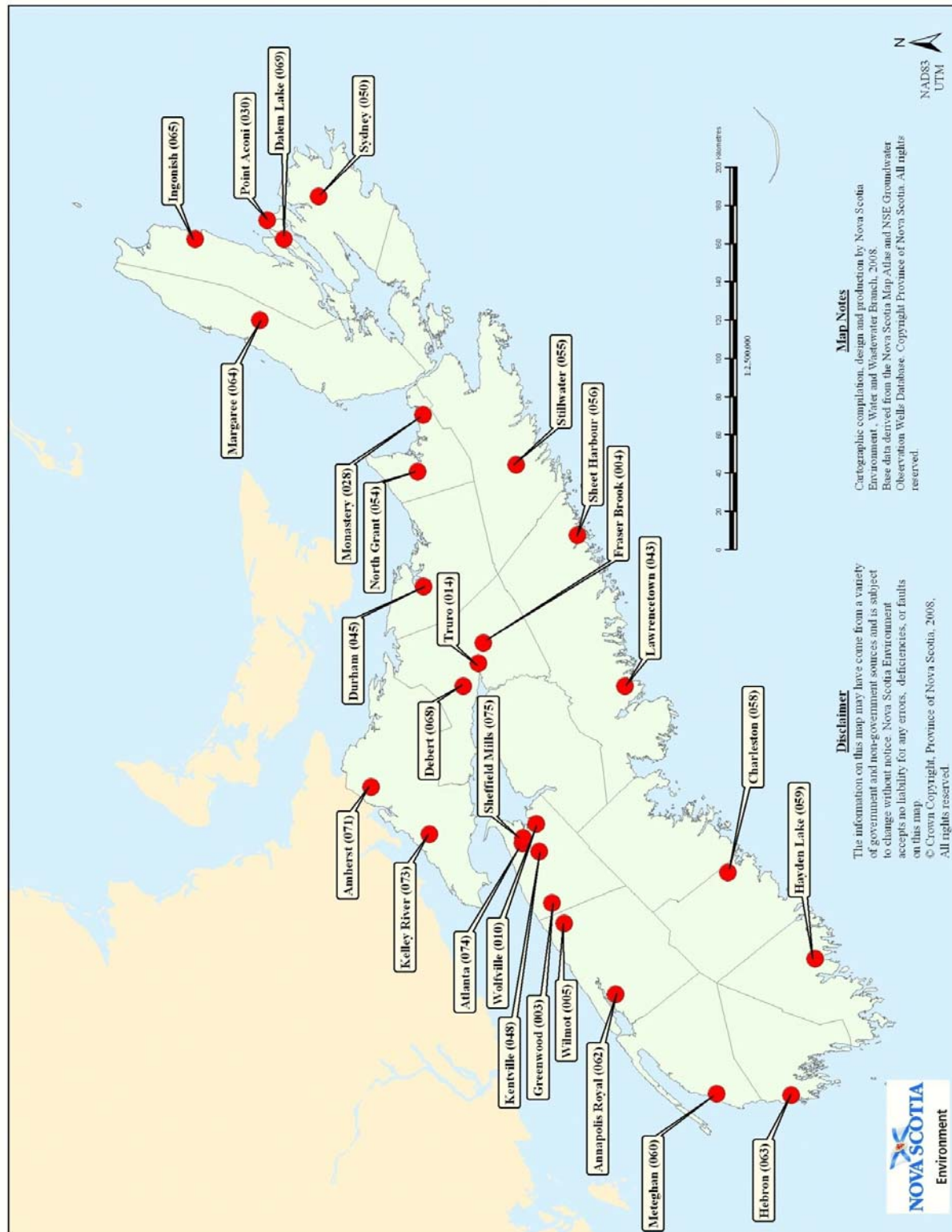


Figure 1.1: Map of Observation Well Locations

Currently, all of the observation wells in the network have dataloggers that record water levels and temperature every hour. The majority of wells also have telemetric systems that transmit the data by cell phone to a central computer. Groundwater samples are collected from the wells periodically and tested for a number of parameters, including general chemistry, metals, pesticides, volatile organic compounds, tritium and perchlorate. Most of the wells in the network have been sampled once and each well will be re-sampled at approximately two to five year intervals to monitor changes in water quality.

Note that the observation wells listed in Table 1.1 are named based on the nearest town or water body and the observation well number that is assigned to the well when it is added to the network. For example, “Truro (014)” is located in Truro and its network well ID number is 014. The three digit observation well ID numbers have been in use since the network was developed in 1965. They are unique and are not reused, even if a well is abandoned. Some of the observation wells in this report have been renamed since the initial 1984 network report in order to adhere to a consistent naming protocol. For example, “Truro (014)” was originally named “Truro 421” in the 1984 network report. The “421” was originally included in the well name because it was called “Department of Mines Test Hole 421” at the time of drilling. Because some of the original well names have changed, readers who wish to compare historical results from the 1984 network report with this report should cross-reference wells using the three digit observation well ID number.

2.0 METHODS

2.1 Groundwater Level Monitoring

2.1.1 Field Methods

Each observation well in the network is equipped with a pressure transducer, temperature sensor and electronic datalogger that records water levels and water temperature every hour. There is also a second pressure transducer located above the water in each well that monitors atmospheric pressure so the water level measurements can be adjusted for atmospheric pressure changes. The majority of wells are also equipped with telemetric systems that transmit the monitoring data by cell phone to a central computer system once a week.

The wells are visited approximately every six months for field verification of the water level data and to change the telemetric system batteries. Water levels are verified in the field with a manual electronic water level tape.

After the raw water level data is collected, it goes through several adjustments before being added to the spreadsheet database. Data corrections are applied if the field measurement differs from the pressure transducer readings by more than 2.1 cm, which is the reported accuracy of the pressure transducers. If corrections are necessary, they are made by applying a linear adjustment between two field verified water levels. Next, the hourly water level data is averaged to obtain a single average daily water level for each day. Finally, the water level data are converted to a water level elevation (relative to mean sea level) using the elevation of the top of the well casing.

2.1.2 Data Assessment Methods

The water levels at each well were assessed for changes and long-term trends for the entire period on record, up to the end of 2007. The water level assessments were carried out by visual inspection of the water level graphs and statistical tests. The Mann-Kendall trend test (Gilbert, 1987) was used to determine if there was a trend in the water level data (i.e. upward trend, downward trend or no trend). This test is one of the most commonly used statistical methods to evaluate trends in environmental data and has been used in other studies in Nova Scotia to assess groundwater level trends (Rivard et. al., in progress). The rate of annual change at each well was determined using the

Sen's slope estimator (Gilbert, 1987), a commonly-used linear slope estimator in environmental statistics.

The results of the statistical trend analyses are presented in Appendix D. Trend analyses were only completed for wells with four or more "usable" years of data. A year was considered usable if groundwater level data were available for at least 75% of the days in the year. A trend for a well was considered "statistically significant" if there was 10 or more "usable" years. Trends were considered "statistically significant" if there was at least an 80% confidence that the trend was real. Note that "statistically significant" means there is statistical evidence that there is a trend present, but it does not necessarily mean the trend is large.

If groundwater level changes or trends were identified, possible reasons for the change or trend were evaluated. Several factors can cause groundwater levels to fluctuate. The most common causes of groundwater level changes in Nova Scotia include: precipitation, seasonal variations, groundwater pumping and tidal effects. Each of these factors is discussed in further detail in the following paragraphs.

Fluctuations Due to Precipitation

Precipitation, such as rainfall or melting snow, will either run off into streams and surface water bodies, be intercepted by vegetation, or seep into the ground. The portion that seeps into the ground is known as groundwater recharge. Groundwater recharge is difficult to measure, however, it has been estimated that recharge rates in Nova Scotia range from about 8 to 25% of precipitation. Groundwater recharge causes the groundwater levels in an aquifer to rise, although there is usually a delay between the precipitation event and when the groundwater level rises. The amount of precipitation and groundwater recharge varies throughout the province. Nova Scotia weather stations show the following mean annual total precipitations at selected locations between 1971 and 2000: Greenwood 1127 mm, Halifax 1452 mm, Sydney 1505 mm, and Yarmouth 1274 mm (Environment Canada, 2007).

Long-term trends in precipitation due to climate change can result in corresponding trends in groundwater levels. In cases where observation wells showed a significant groundwater level trend, the nearest climate station data was also evaluated for precipitation trends to assess whether or not climate change could be affecting groundwater levels.

Seasonal Fluctuations

In Nova Scotia, the spring and fall tend to have the highest amounts of precipitation and the summers tend to be drier. This seasonal variation is reflected in groundwater levels in the province's aquifers, which usually have higher water levels in the spring and lower levels in the summer. The lower groundwater levels in the late months of summer are the result of several factors, including: decreased precipitation, increased evaporation and the increased interception of water by vegetation. The typical seasonal variation in groundwater levels in Nova Scotia aquifers is usually less than about three metres.

Season fluctuations in groundwater levels in Nova Scotia can often be observed in the three typical patterns they produce in observation well hydrographs. These usually include two wet seasons (spring and fall) with rising groundwater levels, and a dry season in the summer with declining groundwater levels, as described below:

1. Spring Recharge - rising groundwater levels between March and May due to spring rainfall and melting snowpack . Maximum groundwater levels usually occur during this period.
2. Fall Recharge - rising groundwater levels between October and December due to fall precipitation.
3. Summer Recession - declining groundwater levels beginning in June and reaching minimum levels in September. Winter conditions of snowfall and frost can also limit recharge, resulting in a minor groundwater level recession in February.

Groundwater Pumping

The removal of water from an aquifer, by a well or wellfield, results in the lowering of the water level in the well and the surrounding aquifer. The lowering of groundwater levels as a result of pumping is referred to as drawdown. The amount of drawdown depends on how much is being pumped, the distance from the pumping well, and the characteristics of the aquifer (e.g., transmissivity, storativity, aquifer boundaries). In Nova Scotia, large wellfields in bedrock aquifers have been observed to cause groundwater drawdown in wells as far away as two to three kilometres.

Tidal Fluctuations

Aquifers and wells near the ocean can experience tidal fluctuations. Even though the water in a well may be fresh, the water level may rise and fall with the tide. The amount of water level fluctuation (i.e., amplitude) depends on the distance between the well and the ocean and aquifer properties. There is also a delay (i.e., time lag) between the rise or drop in the tide and the corresponding rise or drop in the well.

2.2 Groundwater Quality Monitoring

2.2.1 Field Methods

The observation wells have been tested for various parameters including: general chemistry, metals, volatile organic compounds (VOC), pesticides, tritium and perchlorate. The general chemistry, metals, VOC and pesticides analyses were carried out at Maxxam Analytics in Bedford, NS; the tritium analyses were carried out at the Environmental Isotope Laboratory, University of Waterloo, Waterloo, ON; and, the perchlorate analyses were carried out by the National Water Research Institute in Burlington, ON.

The groundwater samples were collected using either a disposable bailer or a submersible pump that was cleaned after each sample was collected. Prior to collecting the samples each well was purged by either removing three well volumes, or by purging until electrical conductivity (EC) and temperature (T) have become stable based on the following approach: 1) begin to purge the well; 2) record the EC and T values after purging 0.5 well volumes; 3) repeat EC and T measurements after purging 1 well volume; 4) continue purging and recording EC and T values at 0.5 well volume intervals until EC and T values are within 10% of previous values. If a well was pumped completely dry, purging was considered complete.

The groundwater samples were collected into laboratory supplied bottles, stored in a chilled cooler and delivered to the laboratory within the specified holding times. Samples for general chemistry and metals were filtered in the field using 0.45 micron filters. Samples collected for metals were also preserved in the field using nitric acid.

2.2.2 Data Assessment Methods

The groundwater sample results for general chemistry, metals, VOCs and pesticides were assessed by comparison to the Canadian Drinking Water Quality Guidelines. Tritium and perchlorate results were assessed separately, as described in the paragraphs below. Note that the observation wells in the network are not used for drinking water, however, the drinking water guidelines are the most commonly used guidelines applied to water wells and they provide a useful reference point to judge the general water quality at each well.

Tritium is a short-lived isotope of hydrogen with a half-life of 12.43 years that is commonly used to assess the relative age of groundwater and how vulnerable an aquifer is to contamination (Clark and Fritz, 1997) . During the 1950's, hydrogen bomb testing caused tritium levels to become elevated above naturally-occurring background levels in the earth's atmosphere. The elevated tritium levels are picked up by precipitation and carried into aquifers as the precipitation infiltrates in to the ground. Groundwater with tritium levels of less than 1.0 Tritium Units (TU) is considered relatively old, being recharged before hydrogen bomb testing began in 1952. Groundwater with more than 5.0 TU is considered to be predominantly recent water, being recharged after 1952 (Clark and Fritz, 1997). Groundwater with tritium levels between 1.0 and 4.0 TU is considered to be a mix of recent and old water. Groundwater with tritium levels between 4.0 and 5.0 TU is considered to be a mix of mostly recent water with a small measure being old water

Water wells with tritium levels less than 1.0 TU are considered to be recharged by older water and, therefore, are not as vulnerable to contamination as other wells. Water wells that contain recent water, or a mix of recent and old water, are more vulnerable to contamination because rapid recharge allows contaminants to move relatively quickly from the ground surface into the aquifer. Many of the wells in the observation well network have short casing lengths (i.e., less than seven metres) and long open-hole intervals that allow both shallow and deep groundwater to enter the well and, therefore, it is likely that these wells will contain a mix of recent and old water. This type of well construction is similar to the majority of water wells in Nova Scotia , which have a minimum casing length of 6.1 m, as required by the Well Construction Regulations.

Perchlorate is an emerging contaminant that has received significant attention since 1997 when it was found in several water supplies in the United States. It is a compound consisting of one chlorine

and four oxygen atoms that can exist as the solid salt of ammonium, potassium, or other metals, and it readily dissolves in water to produce the perchlorate ion (ClO_4^-). Perchlorate has been used in products such as rocket fuels, munitions, explosives, fireworks, road flares, fertilizers and air bag inflation systems. It can also occur naturally at low levels in the environment.

Recent sampling has detected the presence of very low levels of perchlorate in some Canadian drinking water sources (Health Canada, 2007). Groundwater samples from the Nova Scotia Observation Well Network were tested for perchlorate in order to evaluate the occurrence of perchlorate in Nova Scotia groundwater. There is currently no national drinking water guideline for perchlorate either in Canada or in the United States, however, Health Canada recommends a drinking water guidance value of 6 ug/L. Therefore, the perchlorate results from the observation well network were assessed by comparison to the recommended Health Canada value of 6 ug/L.

For wells that had elevated chloride levels, an assessment of the possible source of salt was carried out by calculating the bromide (Br) to chloride (Cl) ratio. Wells were considered to have elevated chloride levels if chloride concentrations exceeded typical background levels for groundwater in coastal Nova Scotia (i.e., <50 mg/L). A commonly used guide for distinguishing salt sources in Nova Scotia is to calculate the ratio of $\text{Br}(\text{mg/L})/\text{Cl}(\text{mg/L}) \times 10,000$, and compare the result to the following three ranges:

1. Ratio <10 indicates road salt or halite brine;
2. Ratio >10 indicates formation brines;
3. Ratio = 35 indicates a sea water influence.

3.0 RESULTS

This section presents the monitoring results for each observation well. Please refer to the appendices for well logs, groundwater chemistry tables, groundwater temperature graphs and groundwater level trend analysis details.

3.1 Greenwood (003)

Well Description

The Greenwood (003) observation well is located near Greenwood, Kings County. It was constructed in 1966 as part of a regional groundwater resource evaluation project (Trescott, 1968) and was originally named "Nova Scotia Department of Mines Test Hole 88". The well is completed in an overburden aquifer comprised of outwash sand. It is 7.6 m deep and has 6.6 m of casing. The well location and construction information is shown in Table 3.1 and the well log is provided in Appendix A.

Table 3.1: Greenwood (003) Well Construction Information

Well Name	Greenwood (003)
Observation Well ID Number	003
NSE Well Log Number	661225
County	Kings
Nearest Community	Greenwood
UTM - Easting (m)	350680
UTM - Northing (m)	4985498
Year Monitoring Started	1966
Casing Depth (m, bgs)	6.6
Well Depth (m, bgs)	7.6
Elevation - top of casing (m, asl)	24.15
Geologic Unit	Pleistocene Outwash
Aquifer Material	Overburden - sand

Notes: bgs = below ground surface; asl = above sea level

The location of the Greenwood (003) observation well is shown in Figure 3.1. It is situated in a rural area where land use is primarily agricultural or undeveloped. The well is located in a wooded area behind a house (see Figure 3.2), with all other development at least a kilometre away. The nearest water well is a private well located approximately 120 m away.

Monitoring Results - Water Levels

The historical water level graph for Greenwood (003) is shown in Figure 3.3 and the 2007 water level graph is shown in Figure 3.4. This well has been monitored since 1966 and water levels have remained essentially the same. The average water level elevation is approximately 21.8 m above sea level and the annual water level fluctuation is about 1 m. The depth to water in this well is approximately 2.4 m below ground surface. There is no visually obvious long-term water level trend in Figure 3.3 and the statistical trend analysis for this well (Appendix D) indicates that there is no statistically significant trend present. The 2007 water levels, shown in Figure 3.4, were within the normal range for this well.

Monitoring Results - Water Chemistry and Temperature

The Greenwood (003) well was last sampled in November 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. Iron (8,700 µg/L) and manganese (140 µg/L) were above the aesthetic drinking water guidelines of 300 µg/L and 50 µg/L, respectively. Also, turbidity and pH did not meet the aesthetic drinking water guidelines. The elevated turbidity levels are expected due to the high iron and manganese. Note that the ion balance error reported in the general chemistry analysis is 19%, which exceeds the generally acceptable level of 5% and, therefore, these results should be viewed with caution.

VOCs, pesticides and perchlorate were not detected at the Greenwood (003) well. The tritium level in this well was 5.76 TU, indicating that the water in this well is relatively recent (i.e., recharged after 1952). The average groundwater temperature at the Greenwood (003) well is 7.96 °C and fluctuates annually between 5.5 and 10 °C. A graph of daily average temperature data collected since April 2005 is presented in Appendix C.

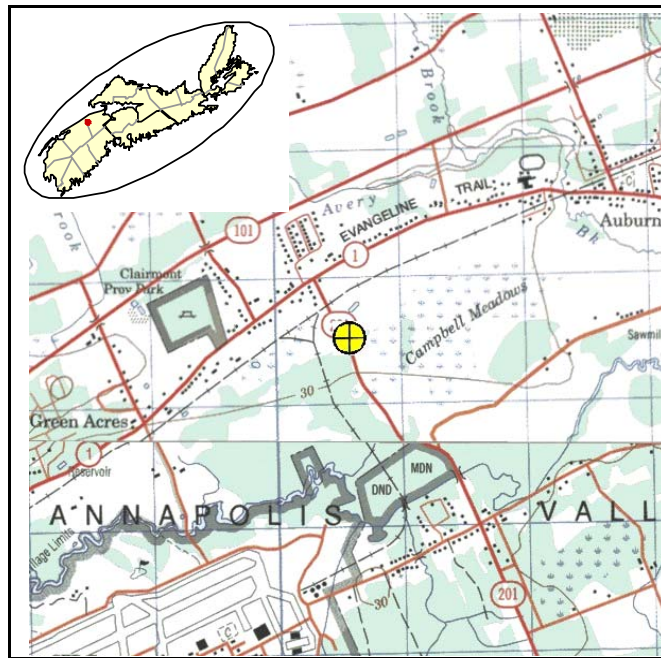


Figure 3.1: Greenwood (003) Well Location



Figure 3.2 Greenwood (003) Site Photo

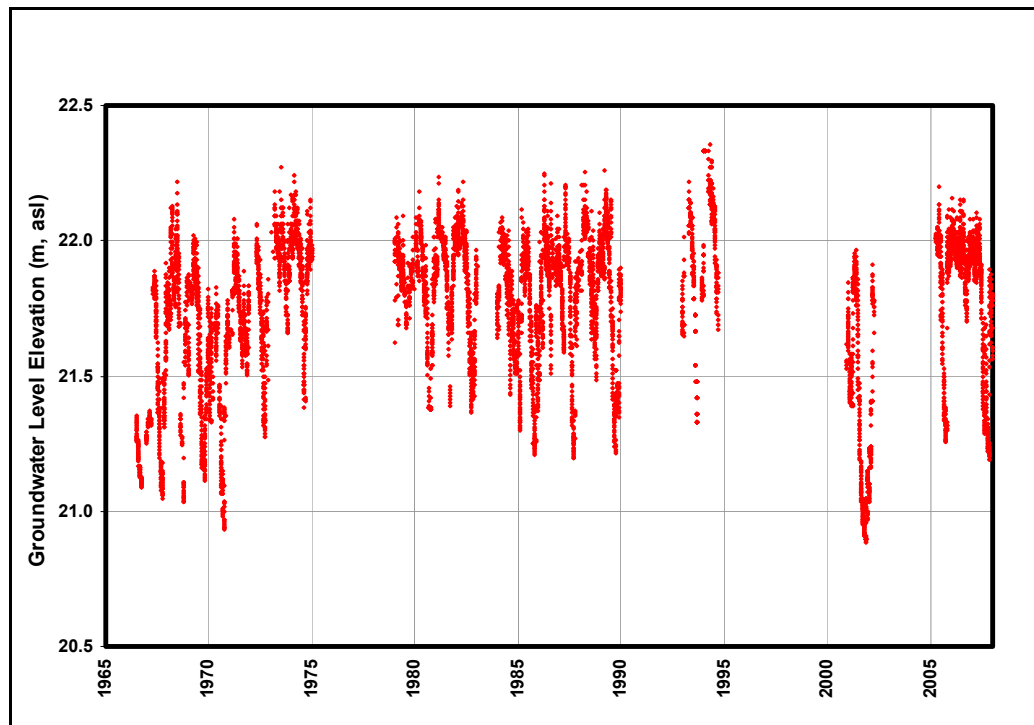


Figure 3.3: Greenwood (003) Historical Water Level Graph

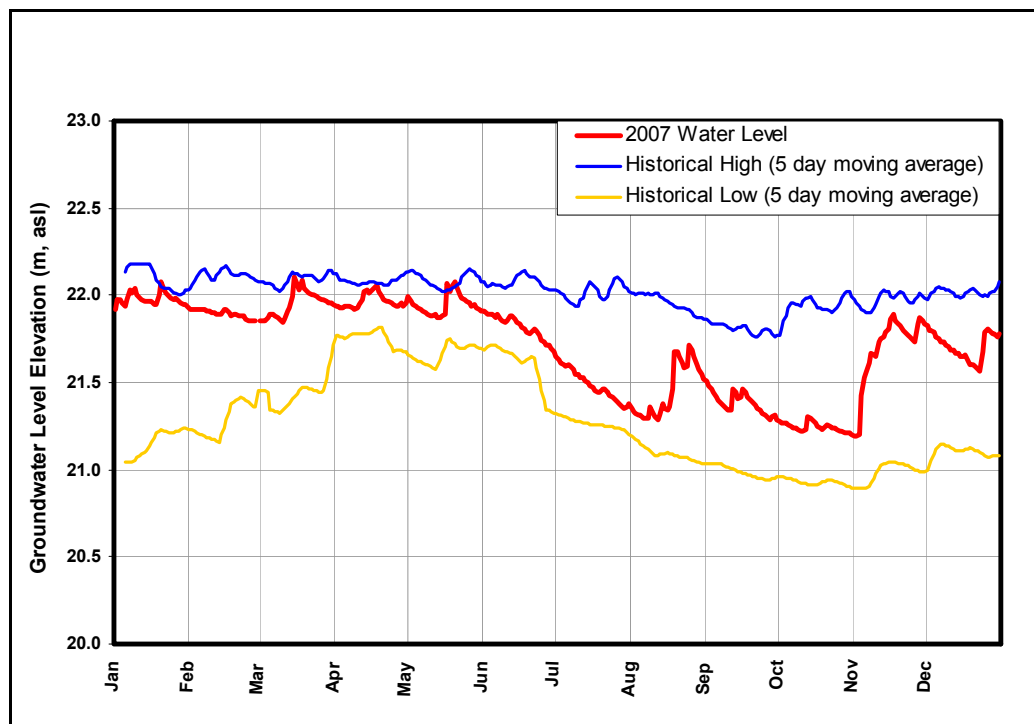


Figure 3.4: Greenwood (003) 2007 Water Level Graph

3.2 Fraser Brook (004)

Well Description

The Fraser Brook (004) observation well is located near Lower Harmony, Colchester County. It was constructed in 1966 as part of a water resources study (Hennigar, 1966) that was carried out under the International Hydrologic Decade Program. It was originally named "Test Hole 100" and was one in a series of test wells installed in the Fraser Brook watershed.

The well is completed in siltstone. It is 18.3 m deep and the casing extends to a depth of 9.3 m. Well location and construction information is provided in Table 3.2 and the well log is provided in Appendix A. A 24-hour pump test conducted at this well indicated a transmissivity of 4.8 m²/day and a safe yield of 42 m³/day (6.5 igpm) (McIntosh, 1984).

Table 3.2: Fraser Brook (004) Well Construction Information

Well Name	Fraser Brook (004)
Observation Well ID Number	004
NSE Well Log Number	661226
County	Colchester
Nearest Community	Lower Harmony
UTM - Easting	486889
UTM - Northing	5021100
Year Monitoring Started	1966
Casing Depth (m, bgs)	9.3
Well Depth (m, bgs)	18.3
Elevation - top of casing (m, asl)	109.27
Geologic Unit	Canso Group
Aquifer Material	Bedrock - siltstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Fraser Brook (004) observation well is shown in Figure 3.5. It is situated in a rural area where land use is primarily agricultural or undeveloped. The well was located in a wooded area (see Figure 3.6), however, in 2005 the majority of the trees were removed due to damage sustained during Hurricane Juan in 2003. The nearest water well is a domestic well, located approximately 1,000 m away.

Monitoring Results - Water Levels

The historical water level graph for Fraser Brook (004) is shown in Figure 3.7 and the 2007 water level graph is shown in Figure 3.8. This well has been monitored since 1966. The average water level elevation at this well is approximately 104.9 m above sea level and the annual water level fluctuation is about 1 m. The depth to water in this well is approximately 4.4 m below ground surface. There is no visually obvious long-term water level trend, however, the statistical trend analysis for this well (Appendix D) indicates that there is a very small statistically significant upward trend about 0.3 cm/year. This is equivalent to a total rise of about 0.1 m since monitoring began at this well.

The 2007 water levels generally fluctuated within the typical range for this well, however, water levels exceeded historical highs in January and on several occasions in the months between May and September.

Monitoring Results - Water Chemistry and Temperature

The Fraser Brook (004) well was last sampled in December 2004. Water chemistry results are presented in Appendix B. The results indicate that arsenic (14 µg/L) exceeded the drinking water guideline of 10 µg/L. No other parameters exceeded guidelines at this well. VOCs, pesticides and perchlorate were not detected. This well has not been tested for tritium.

The average groundwater temperature at the Fraser Brook (004) well is 7.0 °C and fluctuates annually between 5.5 and 8.7 °C. A graph of daily average temperature data collected since June 2004 is presented in Appendix C.

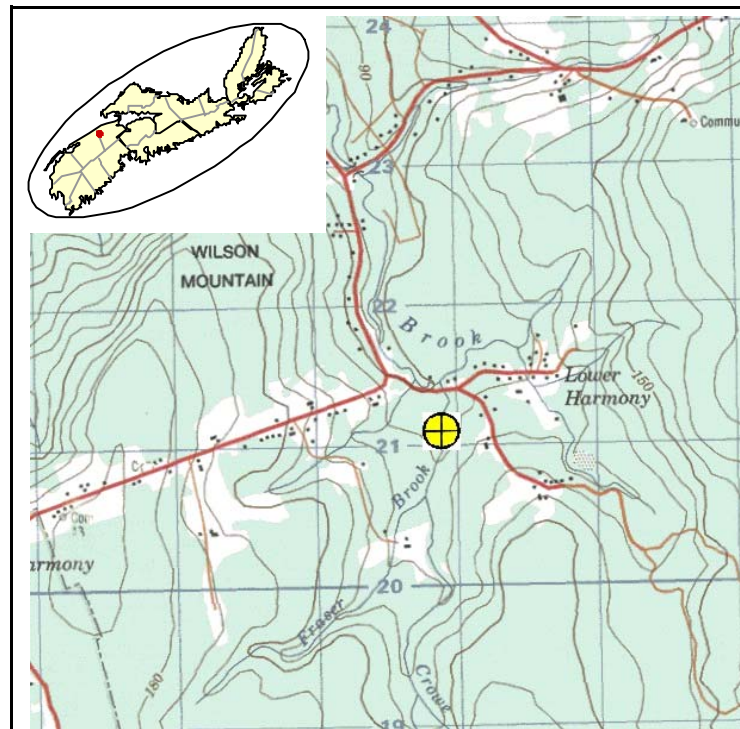


Figure 3.5: Fraser Brook (004) Well Location



Figure 3.6: Fraser Brook (004) Site Photograph

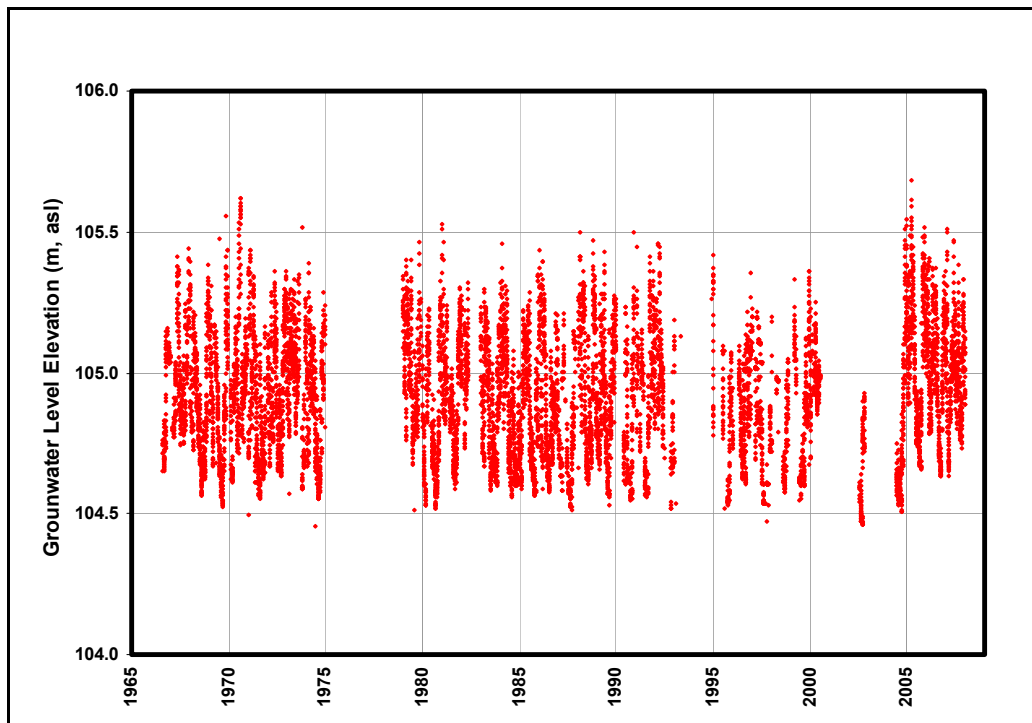


Figure 3.7: Fraser Brook (004) Historical Water Level Graph

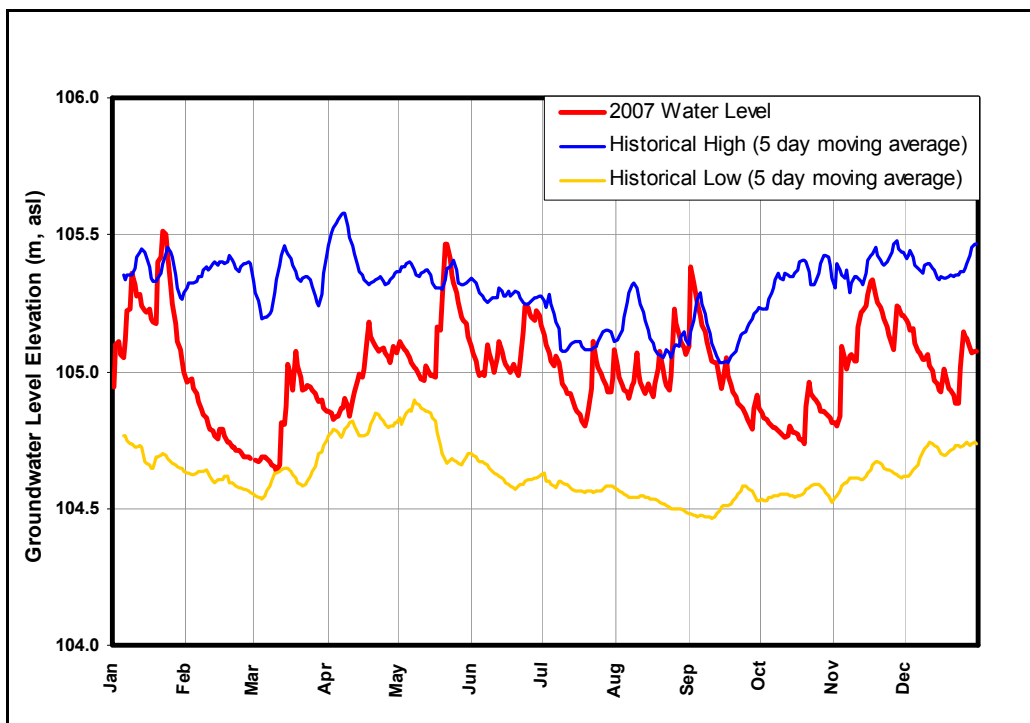


Figure 3.8: Fraser Brook (004) 2007 Water Level Graph

3.3 Wilmot (005)

Well Description

The Wilmot (005) observation well is located in Wilmot, Annapolis County. It was constructed May 1966 as part of a regional groundwater resource evaluation project (Trescott, 1968) and was originally named “Nova Scotia Department of Mines Test Hole 51”. The well is completed in an overburden aquifer comprised of fine to coarse outwash gravel. It is 18.3 m deep and the casing depth extends to 6.4 m. The surficial geology of the area was classified as a stream alluvium deposit of the Quaternary Period. The alluvium deposit consisted of several feet of clay overlying a fine to coarse gravel deposit.

Table 3.3: Wilmot (005) Well Construction Information

Well Name	Wilmot (005)
Observation Well ID Number	005
NSE Well Log Number	661267
County	Annapolis
Nearest Community	Wilmot
UTM - Easting	340015
UTM - Northing	4979368
Year Monitoring Started	1966
Casing Depth (m, bgs)	6.4
Well Depth (m, bgs)	18.3
Elevation - top of casing (m, asl)	9.0
Geologic Unit	Pleistocene Outwash
Aquifer Material	Overburden - gravel

Notes: bgs = below ground surface; asl = above sea level

Well location and construction information is provided in Table 3.3 and the well log is provided in Appendix A. A 26 hour pump test conducted at a nearby wellfield situated in a similar geological unit indicated a transmissivity of 621 m²/day and storativity of 1.9×10^{-3} (McIntosh, 1984).

The location of the Wilmot (005) observation well is shown in Figure 3.9. The well site, shown in

Figure 3.10, is located south-west of Wilmot. It is situated in an actively farmed field, 100m east of Baynard Road. South of the site, it is surrounded by a wooded area extending 75m to the Annapolis River, where Environment Canada has a hydrometric station. The nearest water well is a domestic well located approximately 150 m away.

Monitoring Results - Water Levels

The historical water level graph for Wilmot (005) is shown in Figure 3.11 and the 2007 water level graph is shown in Figure 3.12. This well has been monitored since 1966 and there is no visually obvious long-term water level trend. The trend analysis for this well (Appendix D) indicates that there is no statistically significant trend.

From 1966 to the fall of 1995, the average water level elevation was approximately 6.72 m above sea level and the annual water level fluctuation was about 1.9 m. The average water level elevation for the period when monitoring resumed in the spring 2006 to the end 2007 was only slightly lower, at 6.70 m, and the annual water level fluctuation for this period was approximately 1.7 m. The depth to water in this well is approximately 2.0 m below ground surface. The 2007 water levels fluctuated within the recorded historical high and low levels, however water levels remained close to and exceeded historical high levels throughout the month of January.

Monitoring Results - Water Chemistry and Temperature

The Wilmot (005) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs were not detected. This well has not been tested for pesticides, perchlorate or tritium.

The average groundwater temperature at this well is 8.31 °C and fluctuates annually between approximately 6.0 and 10.5 °C. A graph of daily average temperature data collected since May 2006 is presented in Appendix C.

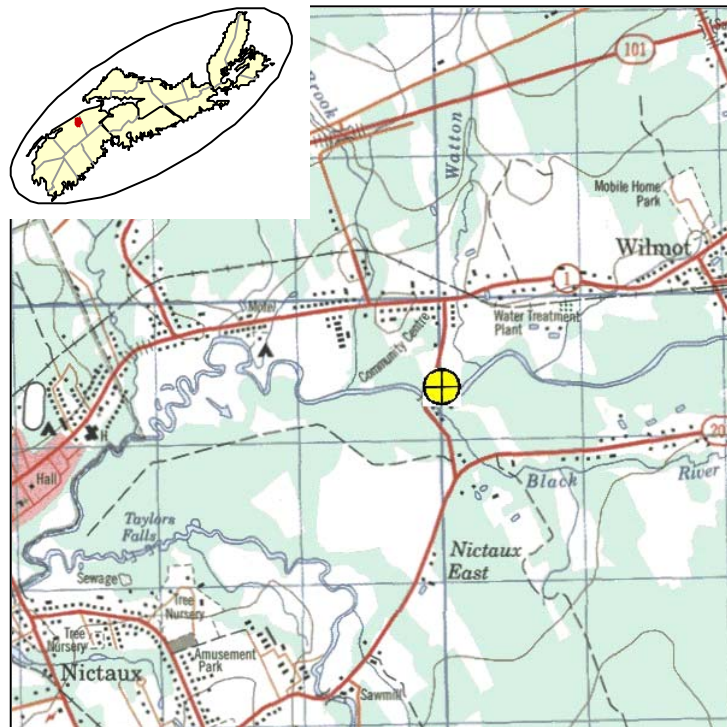


Figure 3.9: Wilmot (005) Well Location



Figure 3.10: Wilmot (005) Site Photograph

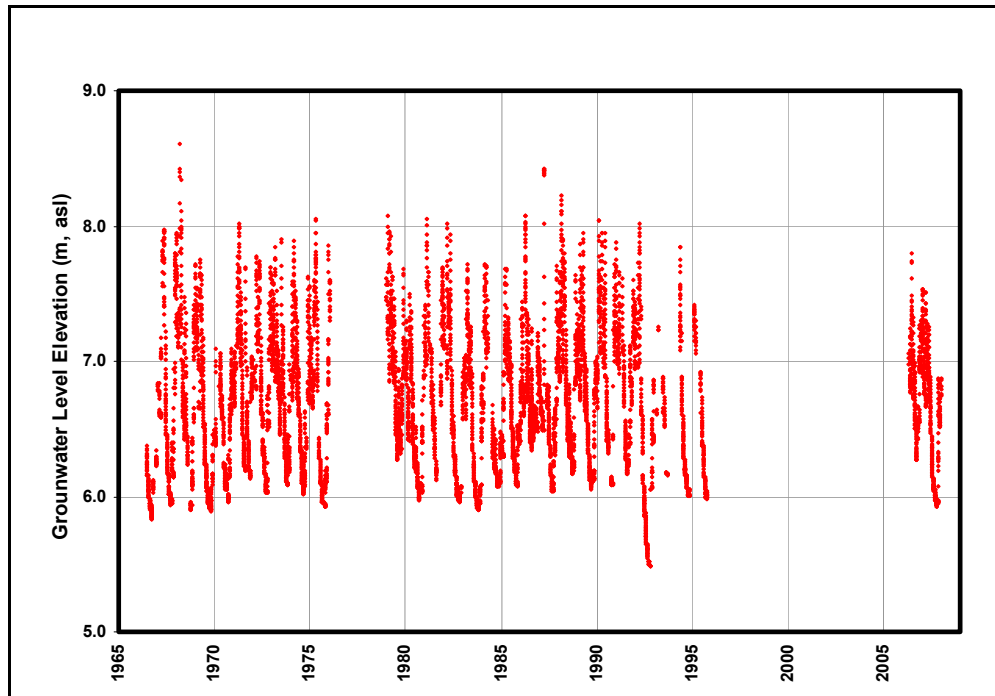


Figure 3.11: Wilmot (005) Historical Water Level Graph

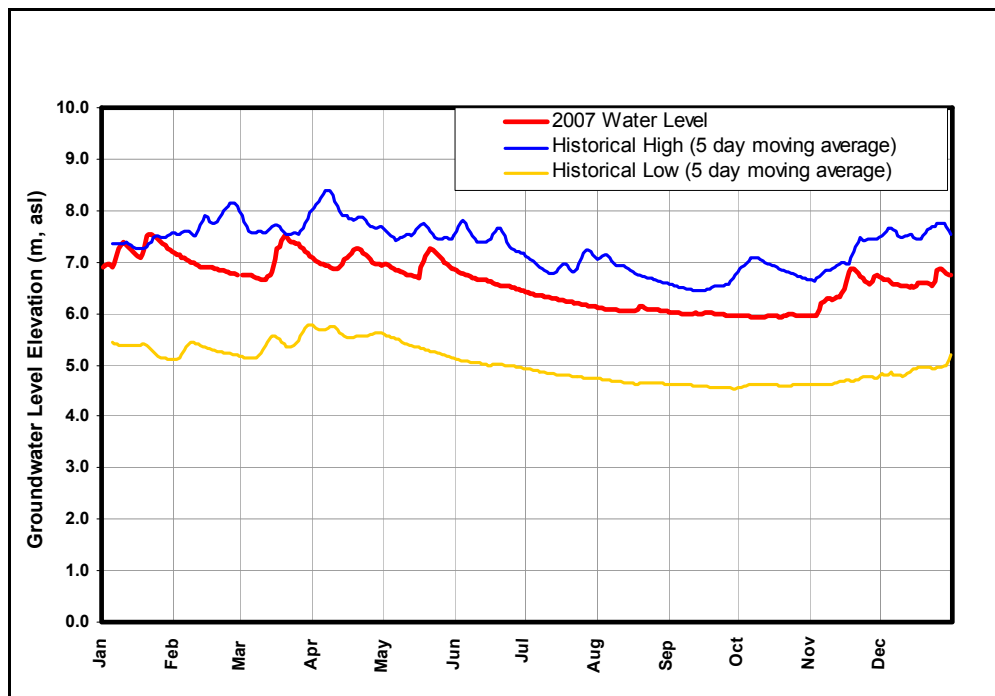


Figure 3.12: Wilmot (005) 2007 Water Level Graph

3.4 Wolfville (010)

Well Description

The Wolfville (010) observation well is located in Wolfville, Kings County. It was constructed in December 1968 as part of a regional groundwater resource evaluation project (Trescott, 1969) and was originally named "Nova Scotia Department of Mines Test Hole 398". This well has also been referred to as the "Wolfville 2" observation well. The well is completed in a sandstone aquifer. It is 17.7 m deep and penetrates 7.0 m into the bedrock. The casing depth extends to 22.7 m. Well location and construction information is provided in Table 3.4 and the well log is provided in Appendix A. A 29-day pump test was conducted at this well in 1969. The results indicated a transmissivity of 695 m²/day and storativity of 3x10⁻² (McIntosh, 1984).

Table 3.4: Wolfville (010) Well Construction Information

Well Name	Wolfville (010)
Observation Well ID Number	010
NSE Well Log Number	681252
County	Kings
Nearest Community	Wolfville
UTM - Easting	392093
UTM - Northing	4993838
Year Monitoring Started	1969
Casing Depth (m, bgs)	22.7
Well Depth (m, bgs)	24.1
Elevation - top of casing (m, asl)	5.20
Geologic Unit	Wolfville Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Wolfville (010) observation well is shown in Figure 3.13. The well is situated in a small park in the middle of a residential area (see Figure 3.14). Land use in the vicinity of the well is urban. The wellfield for the Town of Wolfville, comprised of two pumping wells, is located approximately 750 m away.

Monitoring Results - Water Levels

The historical water level graph for Wolfville (010) is shown in Figure 3.15 and the 2007 water level graph is shown in Figure 3.16. This well has been monitored since 1969 and water levels appear to have declined slightly over time. From 1970 to 1975, the average water level elevation was approximately 1.0 m above sea level and the annual water level fluctuation was about 2 m. The average water level in 2007 was 0.36 m above sea level, with an annual fluctuation of 1.3 m. The depth to water in this well is approximately 4.6 m below ground surface.

The statistical trend analysis for this well (Appendix D) indicates that there is small downward trend in water levels, equivalent to approximately 2.7 cm/year. The total water level drop since monitoring began at this well is approximately 0.7 m. The reason for this decline has not been confirmed, however, it may be related to pumping at the Town of Wolfville's production wells which are located within 750 m from this well.

The 2007 water levels were often lower than the typical range for this well. Between February and June water levels were close to or below the historical lows.

Monitoring Results - Water Chemistry and Temperature

The Wolfville (010) well was last sampled in December 2004. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs, pesticides and perchlorate were not detected. The tritium level in this well was 4.7 TU (+/- 0.4), indicating that the water in this well is either a mix of old and recent water (i.e., recharge occurred before and after 1952) or is recent (i.e., recharged occurred after 1952).

The chloride level in this well was 78 mg/L, which does not exceed the aesthetic objective of 250 mg/L, but is elevated above the typical background level for groundwater in coastal Nova Scotia (<50 mg/L). The bromide/chloride ratio for this well was <10 (i.e., $0.06 \text{ mg/L} / 78 \text{ mg/L} \times 10,000 = 7.7$). This indicates that the source of the chloride is road salt. Please see Section 2.2.4 for a

discussion of how this ratio is used to assess salt sources.

The average groundwater temperature at the Wolfville (010) well is 9.15 °C and fluctuates annually between 8.0 and 10.3 °C. A graph of daily average temperature data collected since April 2005 is presented in Appendix C.

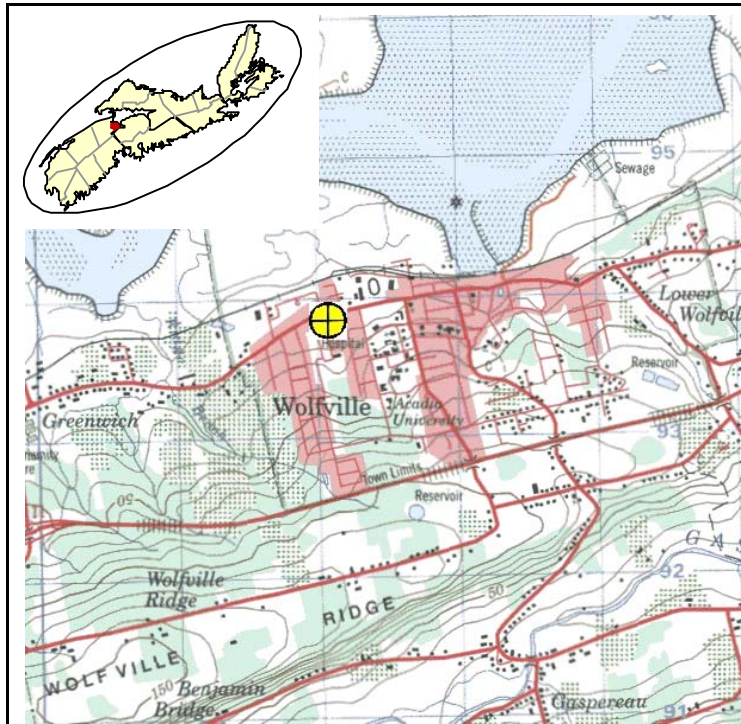


Figure 3.13: Wolfville (010) Well Location



Figure 3.14: Wolfville (010) Site Photograph

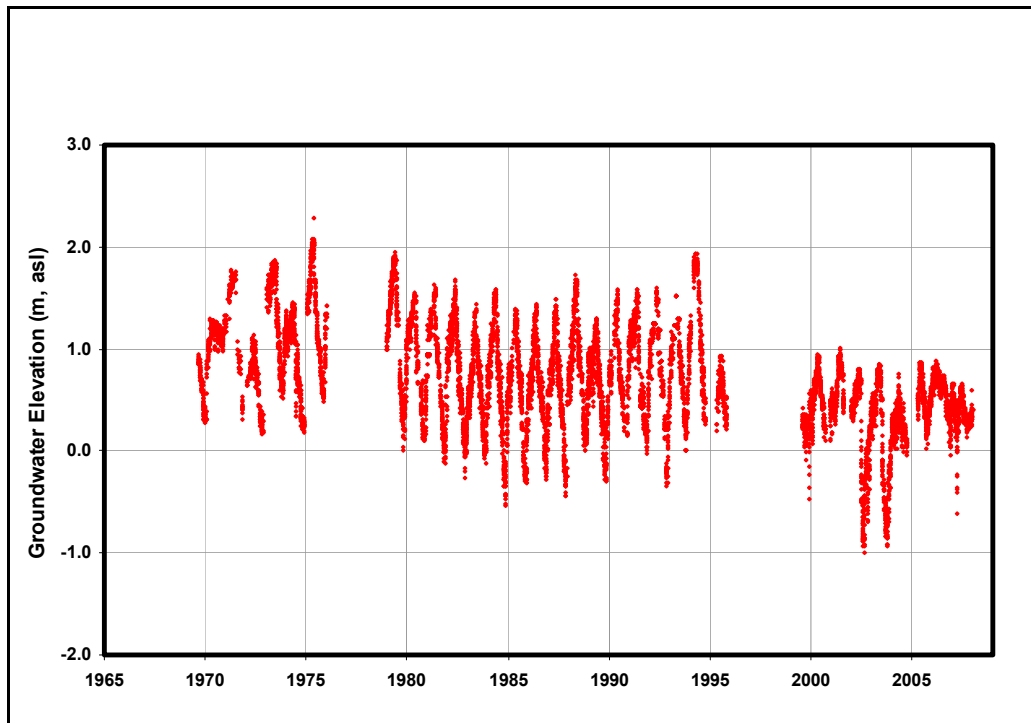


Figure 3.15: Wolfville (010) Historical Water Level Graph

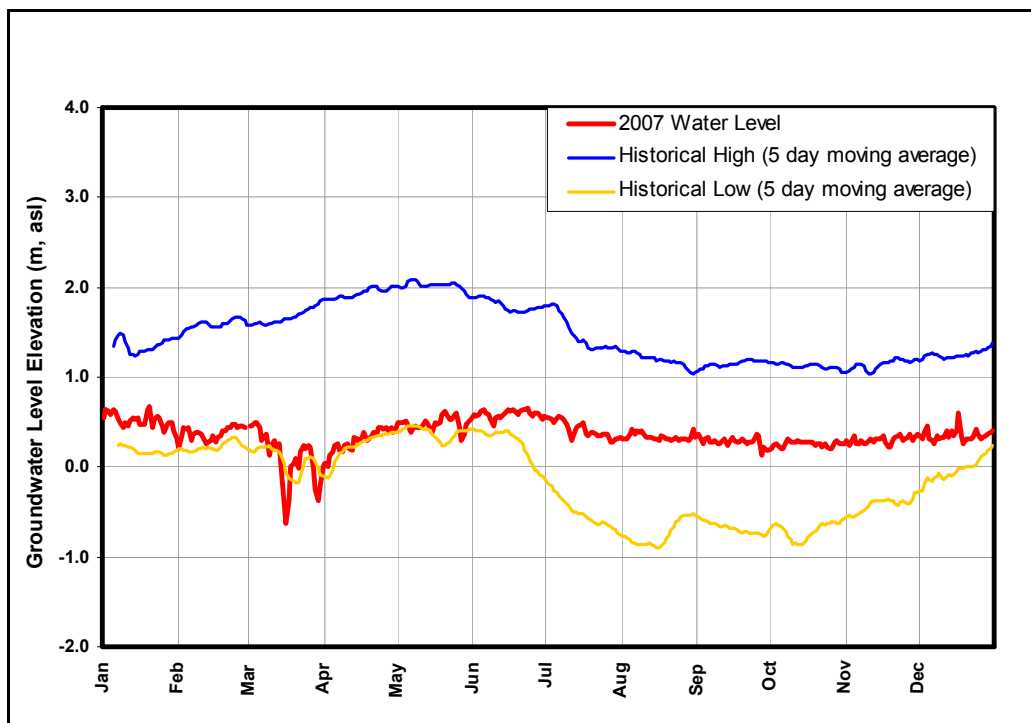


Figure 3.16: Wolfville (010) 2007 Water Level Graph

3.5 Truro (014)

Well Description

The Truro (014) observation well is located in Truro, Colchester County. It was constructed in November 1970 as part of a regional groundwater resource evaluation project (Hennigar, 1972) and was originally named "Nova Scotia Department of Mines Test Hole 421". It has also been referred to as the "Truro 421" observation well. The well is 91.4 m deep, penetrates 80.8 m into bedrock and the casing depth extends to 18.3 m. It is completed in a sandstone aquifer. Well location and construction information is provided in Table 3.5 and the well log is provided in Appendix A.

Table 3.5: Truro (014) Well Construction Information

Well Name	Truro (014)
Observation Well ID Number	014
NSE Well Log Number	701431
County	Colchester
Nearest Community	Truro
UTM - Easting	476052
UTM - Northing	5023778
Year Monitoring Started	1971
Casing Depth (m, bgs)	18.3
Well Depth (m, bgs)	91.4
Elevation - top of casing (m, asl)	9.83
Geologic Unit	Wolfville Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Truro (014) observation well is shown in Figure 3.17. It is situated in an urban area where the surrounding land is predominantly developed. The well is located within the Town of Truro Public Works yard and is adjacent to a golf course, several businesses and residences. The area is serviced by a municipal water supply and there are no other known water wells in the immediate vicinity.

Monitoring Results - Water Levels

The historical water level graph for Truro (014) is shown in Figure 3.18 and the 2007 water level graph is shown in Figure 3.19. This well has been monitored since 1971 and the groundwater levels appear to have decreased slightly between 1971 and 1993, and then increased slightly between 1993 and 2007. The average water level elevation between 1971 and 1993 ranged from about 6.5 to 7.5 m above sea level and the annual water level fluctuation was about 1.5 m. Since 1994, the average water level elevation has risen to approximately 7.8 m above sea level, with an annual water level fluctuation of about 1.0 m. The increased water level is believed to be a result of the decommissioning of a municipal water supply well in 1994, which was located within a kilometre of the observation well.

The depth to water in this well has varied from approximately 2.0 m to 3.5 m below ground surface. Water levels in recent years, including 2007, have been higher than historical highs. During 2007 water levels were close to the historical high level, and often exceeded it. The trend analysis for this well (Appendix D) indicates that there is no statistically significant trend present.

Monitoring Results - Water Chemistry and Temperature

The Truro (014) well has not been sampled due to a partial blockage of the casing, caused by the float device of an old Stevens chart recorder that is lodged in the well. Therefore, detailed chemistry data are not available. The average groundwater temperature at this well is 8.76 °C and fluctuates annually between approximately 4.0 and 13.2 °C. A graph of daily average temperature data collected since June 2004 is presented in Appendix C.

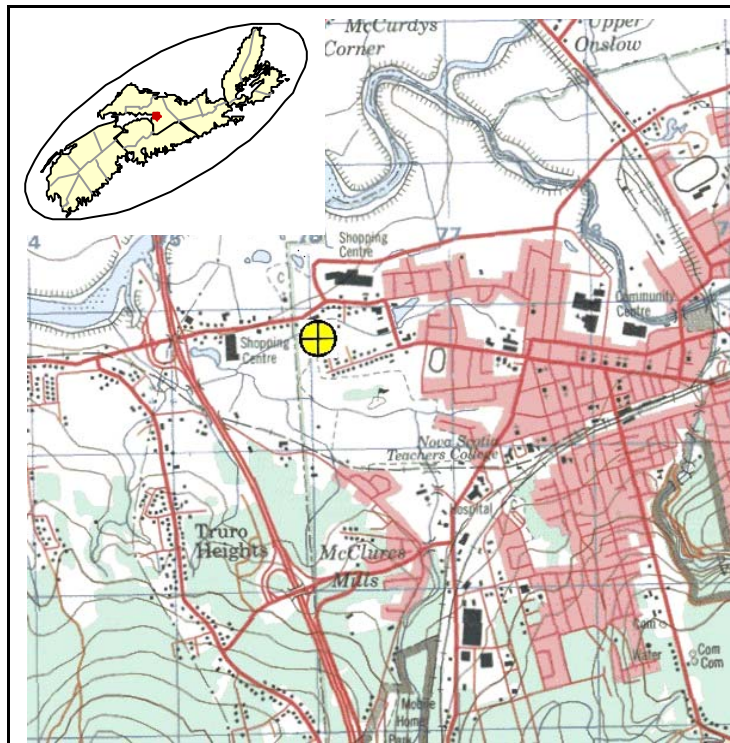


Figure 3.17: Truro (014) Well Location

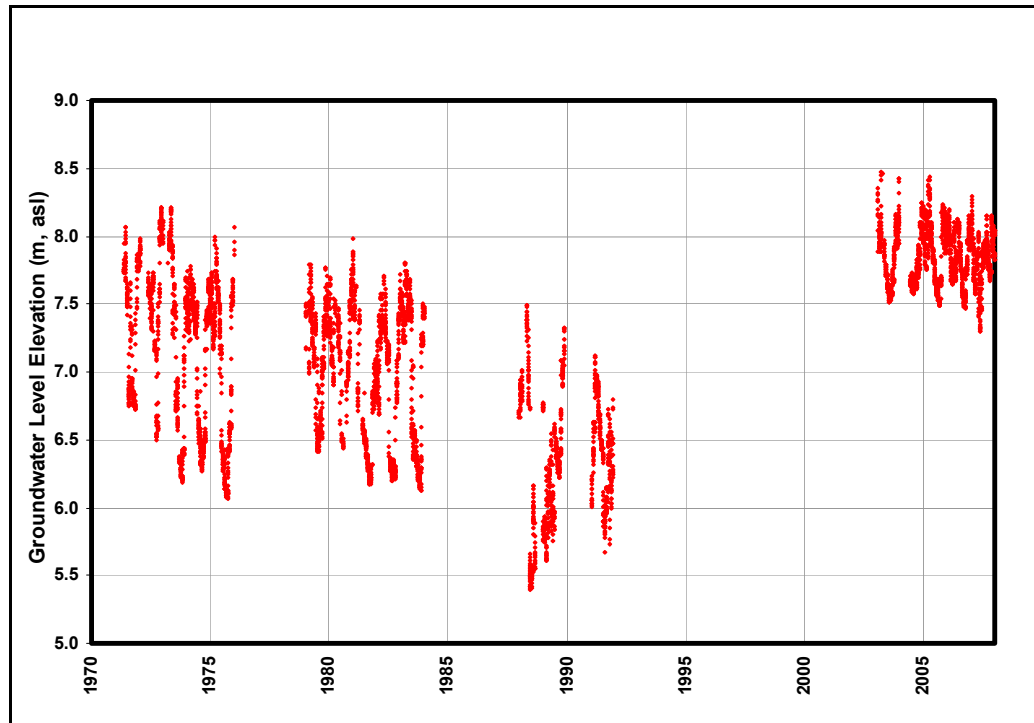


Figure 3.18: Truro (014) Historical Water Level Graph

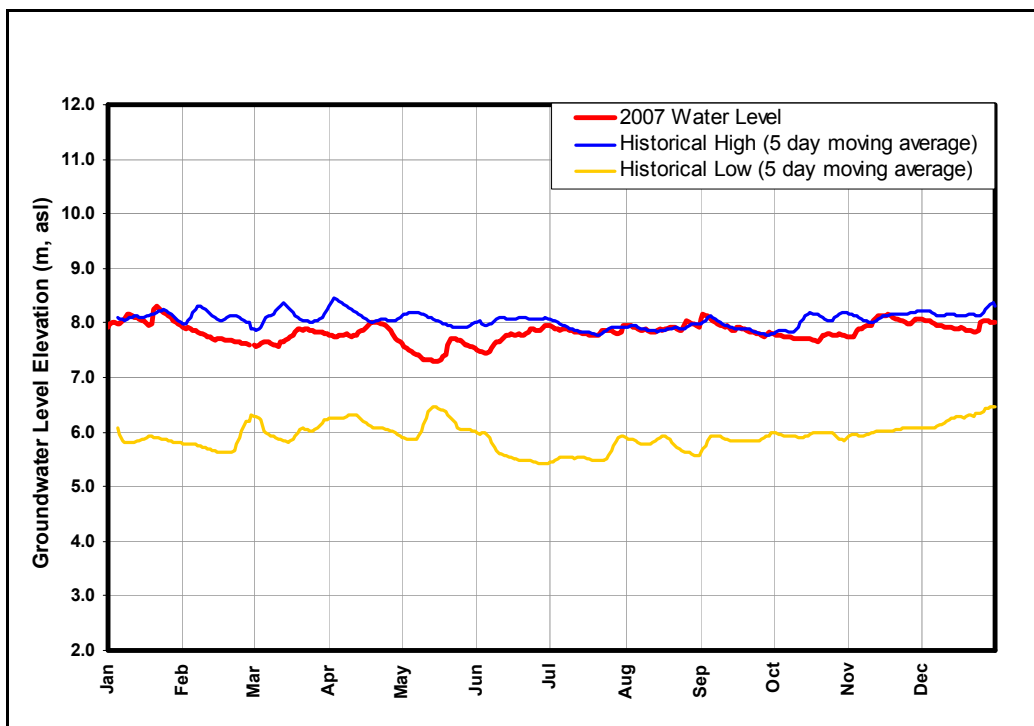


Figure 3.19: Truro (014) 2007 Water Level Graph

3.6 Monastery (028)

Well Description

The Monastery (028) observation well is located near Monastery, Antigonish County. The well was installed in January 1974 as part of a groundwater resource evaluation study (Strait of Canso Natural Environment Committee, 1975) and was originally named “Nova Scotia Department of Mines Test Hole 449”. The well is completed in a sandstone aquifer. It is 158 m deep and the casing depth is unknown. Well location and construction information is provided in Table 3.6 and the well log is provided in Appendix A. A 50-hour pump test was conducted at this well in 1974, indicating a transmissivity of 9.8 m²/day and a 20-year safe yield of 439 m³/day (67 igpm) (McIntosh, 1984).

Table 3.6: Monastery (028) Well Construction Information

Well Name	Monastery (028)
Observation Well ID Number	028
NSEL Well Log Number	742420
County	Antigonish
Nearest Community	Monastery
UTM - Easting	606083
UTM - Northing	5052489
Year Monitoring Started	1976
Casing Depth (m, bgs)	NA
Well Depth (m, bgs)	158
Elevation - top of casing (m, asl)	23.12
Geologic Unit	Canso Group
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Monastery (028) well is shown in Figure 3.20. It is situated in a rural area where land use is primarily agricultural. The well is located at the end of a hayfield (see Figure 3.21), approximately 1,000 m from the ocean. The nearest water well is a domestic well located approximately 230 m away.

Monitoring Results - Water Levels

The historical water level graph for Monastery (028) is shown in Figure 3.22 and the 2007 water level graph is shown in Figure 3.23. This well has been monitored since 1976 and the average water level elevation decreased from about 15.5 m (between 1979 and 1987) to approximately 13.5 m in 2006. The annual water level fluctuation also decreased over the same period from about 1.5 m to 1.0 m. However, the water level in this well rebounded to its 1980's elevation after the well was purged during a sampling event in December 2006. Therefore, it is suspected that the long-term decline in water levels at this well during the 1990's and early 2000's may have been due to a slow decline in well efficiency, caused by biofouling, iron/manganese encrustation or siltation.

During 2007, water levels rose above the average of recent years. The 2007 average water level was 14.5 m asl, and this level fluctuated 2.0 m over the year. The depth to water in this well has varied from approximately 7.8 m to 9.8 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Monastery (028) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs, pesticides and perchlorate were not detected. The tritium level in this well was 0.94 TU (+/- 0.17), indicating that the water is relatively old (i.e., recharge occurred before 1952). The average groundwater temperature at this well is 8.0 °C and fluctuates annually between 7.8 and 8.3 °C. A graph of daily average temperature data collected since October 2003 is presented in Appendix C.

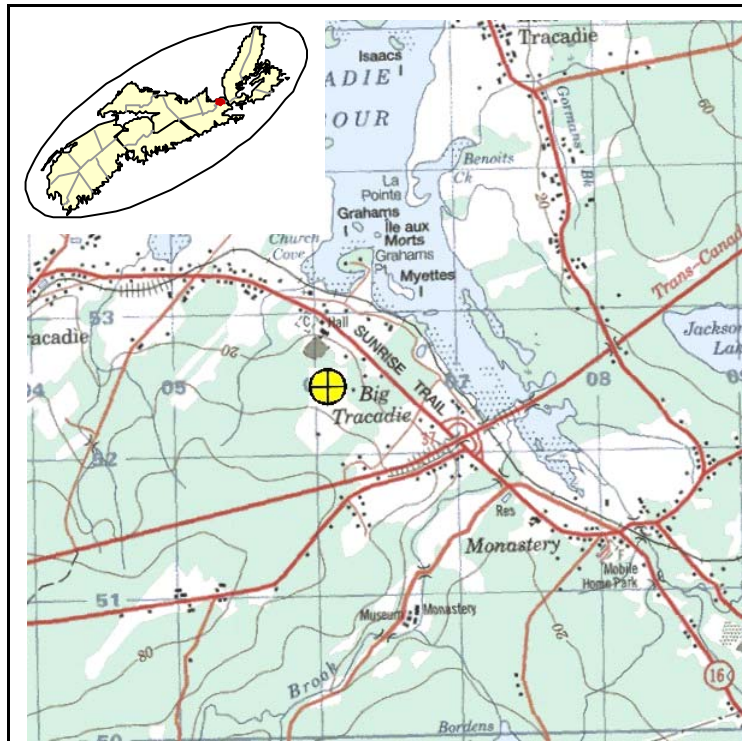


Figure 3.20: Monastery (028) Well Location



Figure 3.21: Monastery (028) Site Photograph

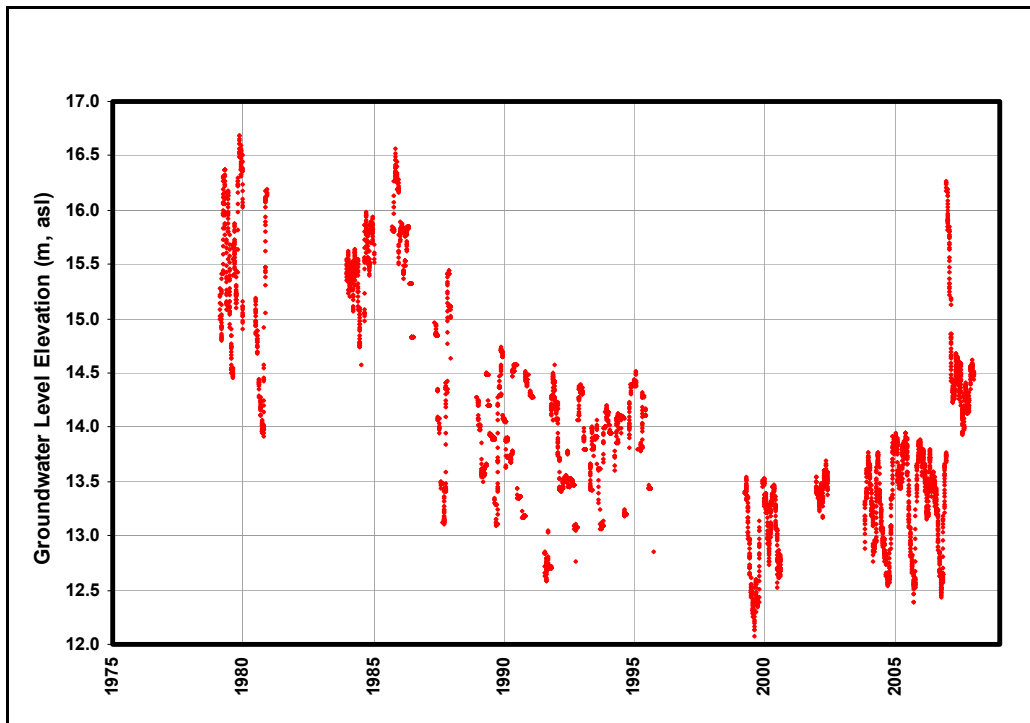


Figure 3.22: Monastery (028) Historical Water Level Graph

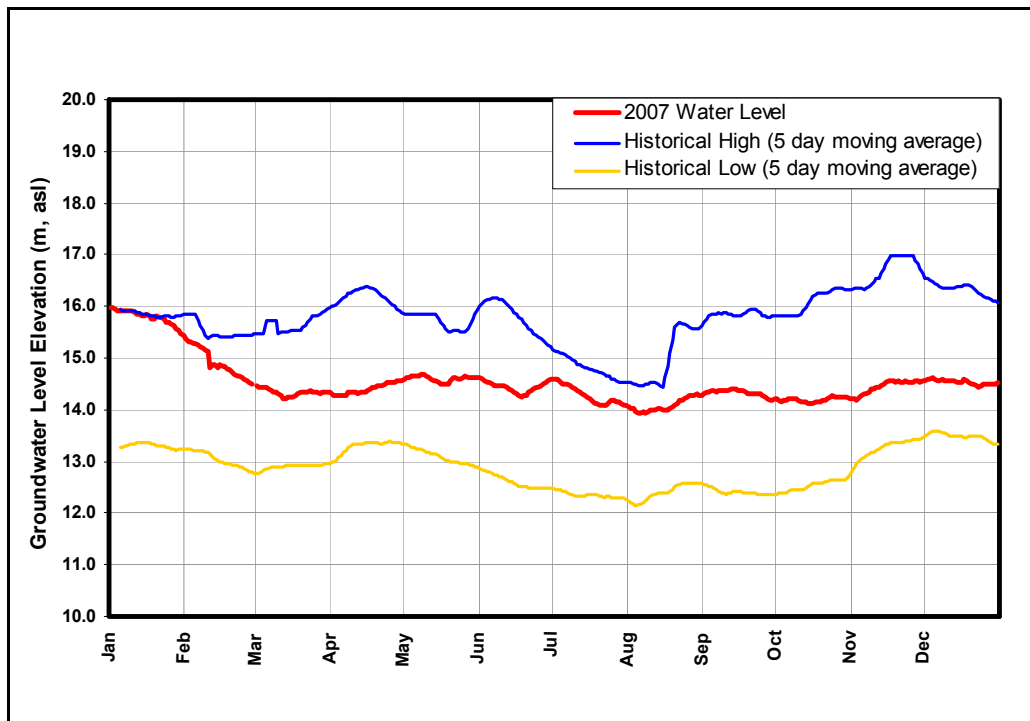


Figure 3.23: Monastery (028) 2007 Water Level Graph

3.7 Point Aconi (030)

Well Description

The Point Aconi (030) observation well is located near Point Aconi, Cape Breton County. It was constructed in August 1976 to monitor groundwater levels at the Prince Mine, located about 2 km away. The well is completed in a sandstone aquifer. It is 30.5 m deep, penetrates 26.2 m into the bedrock and the casing depth extends to 12.8 m. Well location and construction information is provided in Table 3.7 and the well log is provided in Appendix A.

The location of the Point Aconi (030) well is shown in Figure 3.24. It is situated in an urban area where the land use is primarily residential. There are several residences located within 300 m of the well, one of which is immediately adjacent to the well (see Figure 3.25). The nearest water well is a domestic well located approximately 18 m away.

Table 3.7: Point Aconi (030) Well Construction Information

Well Name	Point Aconi (030)
Observation Well ID Number	030
NSE Well Log Number	761408
County	Cape Breton
Nearest Community	Point Aconi
UTM - Easting	707986
UTM - Northing	5133152
Year Monitoring Started	1976
Casing Depth (m, bgs)	12.8
Well Depth (m, bgs)	30.5
Elevation - top of casing (m, asl)	29.97
Geologic Unit	Inverness Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Point Aconi (030) is shown in Figure 3.26 and the 2007 water level graph is shown in Figure 3.27. This well has been monitored since 1976. The average water level elevation at the Point Aconi (030) well is approximately 27.7 m above sea level and the annual water level fluctuation is about 3 m. The depth to water in this well is approximately 2.2 m below ground surface. The trend analyses for this well (Appendix D) indicates that there is a very small upward trend, equivalent to about 0.7 cm/year. This is equivalent to a total rise of about 0.2 m since monitoring began at this well.

There was a water level drop in the Point Aconi (030) well in December 2006 when two new monitoring wells were drilled approximately 100 m away. These two new monitoring wells are not associated with the NS Groundwater Observation Well Network. They were installed by a private company to monitor for potential effects of a nearby coal mine. The water level at the Point Aconi (030) observation well appears to have since stabilized at a new level which remains approximately 1.0 m below its former static level.

The 2007 water levels were near, or below, the historical lows for this well from January to July, and were within the normal range for this well between August and December.

Monitoring Results - Water Chemistry and Temperature

The Point Aconi (030) well was last sampled in September 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. Manganese (360 µg/L) was above the aesthetic objective of 50 µg/L. VOCs, pesticides and perchlorate were not detected. The tritium level in this well was 3.62 TU (+/- 0.34), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at the Point Aconi (030) well is 8.65 °C and fluctuates annually between 4.0 and 14.0 °C. A graph of daily average temperature data collected since November 2003 is presented in Appendix C.

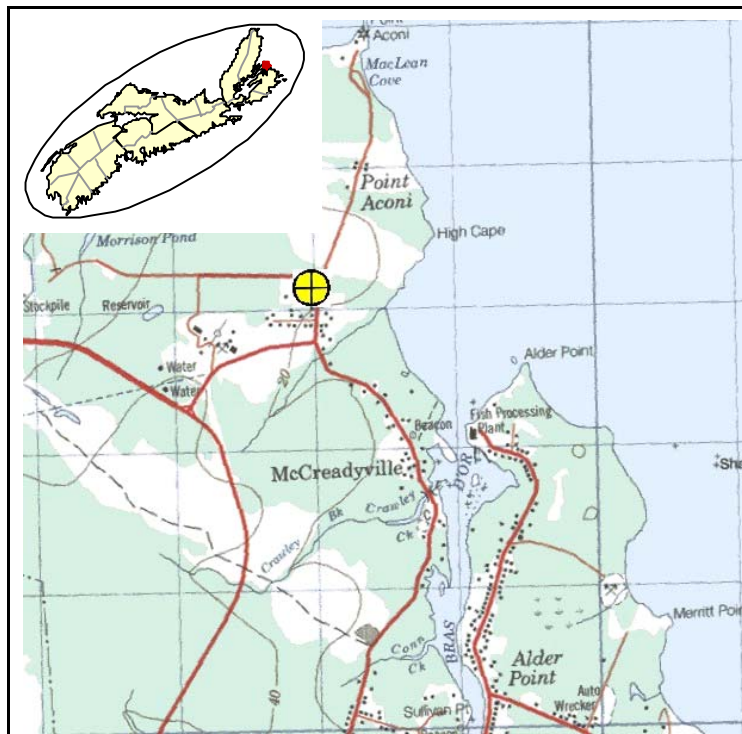


Figure 3.24: Point Aconi (030) Well Location



Figure 3.25: Point Aconi (030) Site Photograph

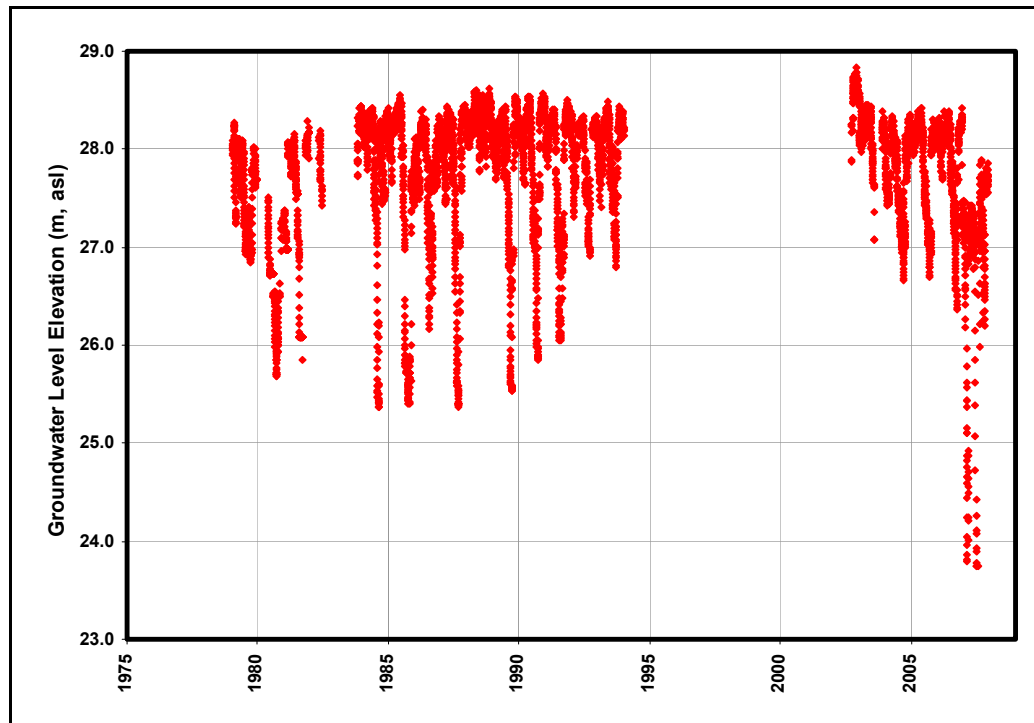


Figure 3.26: Point Aconi (030) Historical Water Level Graph

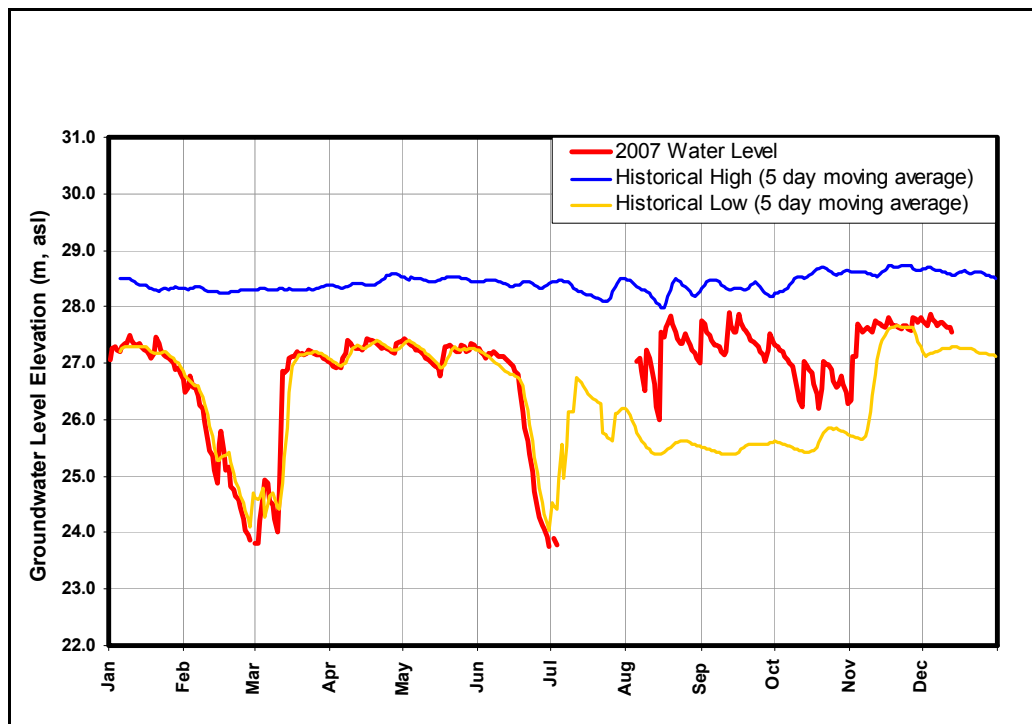


Figure 3.27: Point Aconi (030) 2007 Water Level Graph

3.8 Lawrencetown (043)

Well Description

The Lawrencetown (043) observation well is located near Upper Lawrencetown, Halifax County. It was constructed in March 1977 as part of a saltwater intrusion investigation in the Lawrencetown area (Cross, 1980) and was originally named "Nova Scotia Department of the Environment, Test Hole L3". It has also been referred to as the "Lawrencetown L3" observation well. Three other test wells that were drilled near this well (i.e., Lawrencetown L1, L2 and L4) were decommissioned in August 1994 by sealing the entire length of the wells with alternating layers of bentonite and sand.

Table 3.8: Lawrencetown (043) Well Construction Information

Well Name	Lawrencetown (043)
Observation Well ID Number	043
NSE Well Log Number	771538
County	Halifax
Nearest Community	Upper Lawrencetown
UTM - Easting	464172
UTM - Northing	4947712
Year Monitoring Started	1978
Casing Depth (m, bgs)	44.2
Well Depth (m, bgs)	53
Elevation - top of casing (m, asl)	4.73
Geologic Unit	Goldenville Formation
Aquifer Material	Bedrock - quartzite

Notes: bgs = below ground surface; asl = above sea level

The Lawrencetown (043) well is completed in a fractured bedrock aquifer comprised of quartzite. It is 53.0 m deep, penetrates 49.4 m into the bedrock and the casing depth extends to 44.2 m. Well location and construction information is provided in Table 3.8 and the well log is provided in Appendix A. A 1.5-hour pump test was conducted at this well in 1977 and the results indicated a transmissivity of 2.8 m²/day a safe yield rate of 95 m³/day (14.5 igpm) (McIntosh, 1984). The location of the Lawrencetown (043) observation well is shown in Figure 3.28. It is situated in

a rural area where land use is primarily residential. The well is located within 100 m of the ocean (see Figure 3.29) and there are two domestic wells nearby, both located approximately 50 m away.

Monitoring Results - Water Levels

The historical water level graph for Lawrencetown (043) is shown in Figure 3.30 and the 2007 water level graph is shown in Figure 3.31. This well has been monitored since 1978 and a visual inspection of Figure 3.30 indicates that water levels appear to have declined by approximately 1.0 m. The decline in water level at this well is most likely due to pumping at a nearby domestic well (located 50 m away). However, the trend analysis for this well (Appendix D) indicates that there is no statistically significant trend present.

The average water level elevation at the Lawrencetown (043) well for the monitoring period 1978-1992 was approximately 3.6 m above sea level and the annual water level fluctuation was about 0.6 m. Between 2002 and 2007, the average water level declined to approximately 2.8 m above sea level, with a 1.0 m annual fluctuation. The depth to water in this well has varied from 1.1 m to 1.6 m below ground surface and the hourly water level data shows tidal fluctuations of approximately 0.3 m. There is also a daily drawdown and subsequent recovery of approximately 0.8 m at this well, which likely reflects domestic water use patterns associated with a nearby domestic well. The 2007 water levels at this observation well were at or below historical lows throughout the year.

Monitoring Results - Water Chemistry and Temperature

The Lawrencetown (043) well was last sampled in November 2004. The water chemistry results are presented in Appendix B. The results indicate that arsenic concentrations (56 µg/L) exceeded the health-based drinking water guideline of 10 µg/L. The well has not been sampled for VOCs, pesticides or perchlorate. Tritium results reported from a previous study (Bottomley, 1983) were non-detect, indicating this water is relatively old (i.e., recharged prior to 1952).

It should also be noted that the chloride level in this well (150 mg/L) is elevated above the typical background level for groundwater in coastal Nova Scotia (<50 mg/L), although it is below the aesthetic objective of 250 mg/L. The ocean is less than about 100 m from this well and, therefore, the elevated chloride level is probably due to sea water influence. The bromide/chloride ratio at this well also indicates a sea water influence. The bromide/chloride ratio at the Lawrencetown (043)

observation well was 35 (i.e., $0.53 \text{ mg/L} / 150 \text{ mg/L} \times 10,000 = 35$). Please see Section 2.2.4 for a discussion of how this ratio is used to assess salt sources.

The average groundwater temperature at the Lawrencetown (043) well is 8.48°C and fluctuates between approximately 6.0 and 11.0°C . A graph of daily average temperature data collected from April 2004 is presented in Appendix C.

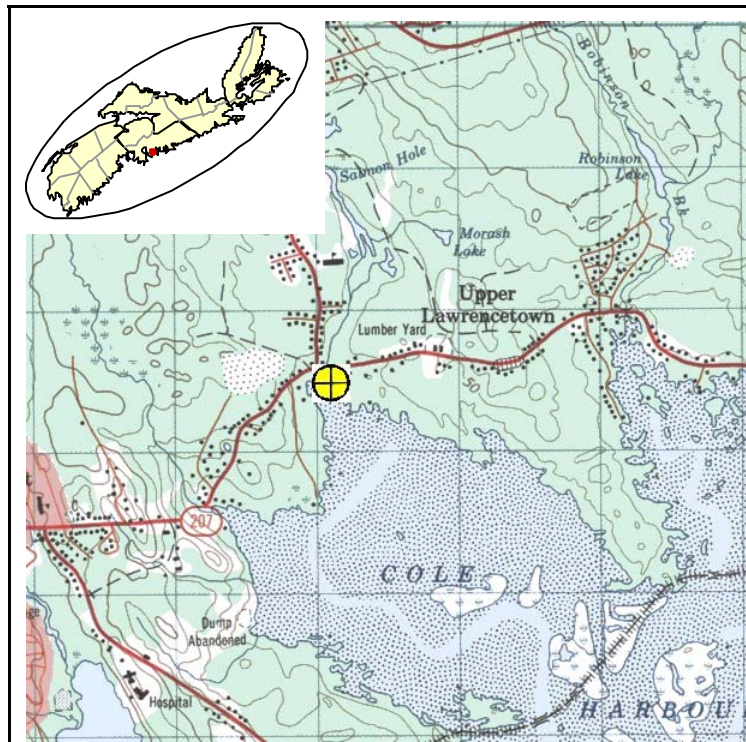


Figure 3.28: Lawrencetown (043) Well Location



Figure 3.29: Lawrencetown (043) Site Photograph

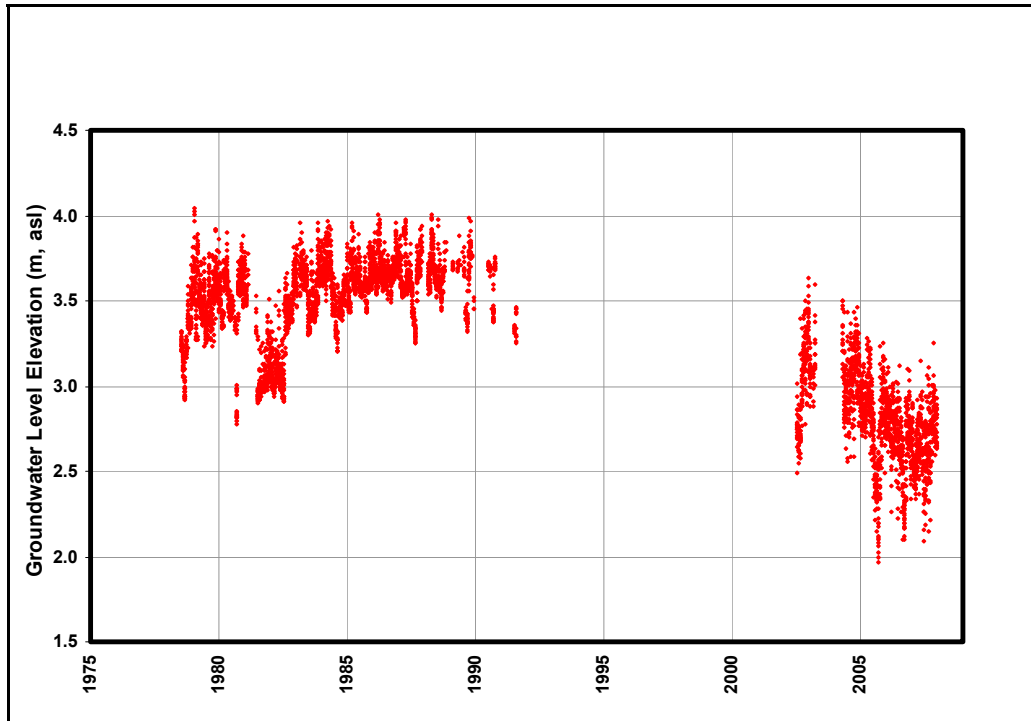


Figure 3.30: Lawrencetown (043) Historical Water Level Graph

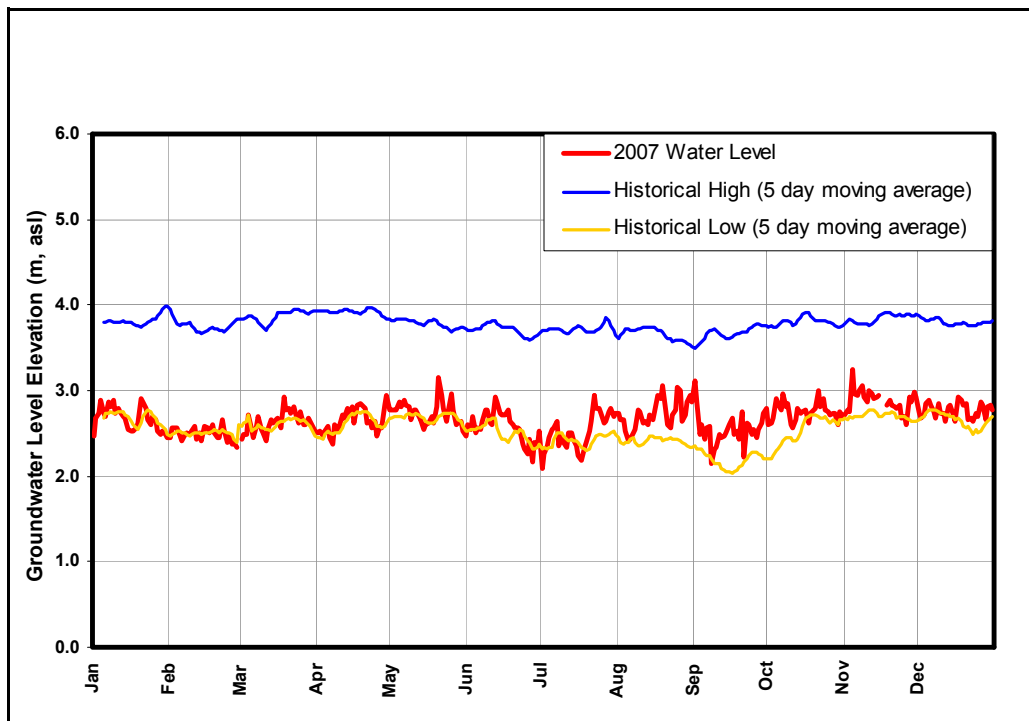


Figure 3.31: Lawrencetown (043) 2007 Water Level Graph

3.9 Durham (045)

Well Description

The Durham (045) observation well is located near Durham, Pictou County. It was constructed in July 1978 as part of a regional groundwater resource evaluation project (Gibb and McMullin, 1980) and was originally named "Nova Scotia Department of the Environment Test Hole Durham 3". The well is completed in a sandstone and shale aquifer. It is 75.3 m deep, penetrates 69.2 m into the bedrock and the casing depth is unknown. Well location and construction information is provided in Table 3.9 and the well log is provided in Appendix A. A 72-hour pump test was conducted at this well in 1978, indicating a transmissivity of 14 m²/day and storativity of 3.2×10^{-4} (McIntosh, 1984).

The location of the Durham (045) observation well is shown in Figure 3.32. It is situated in a rural area, where the land use is primarily agricultural. The well is located in a wooded area, about 3 m from the edge of a hayfield. The nearest water well is a domestic well located approximately 500 m away.

Table 3.9: Durham (045) Well Construction Information

Well Name	Durham (045)
Observation Well ID Number	045
NSE Well Log Number	782683
County	Pictou
Nearest Community	Durham
UTM - Easting	516224
UTM - Northing	5052105
Year Monitoring Started	1979
Casing Depth (m, bgs)	NA
Well Depth (m, bgs)	75.3
Elevation - top of casing (m, asl)	14.88
Geologic Unit	Boss Point Formation
Aquifer Material	Bedrock - sandstone/shale

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Durham (045) is shown in Figure 3.33 and the 2007 water level graph is shown in Figure 3.34. This well has been monitored since 1979 and water levels appear to have risen slightly and the amount of annual water level fluctuation has varied. The trend analysis for this well (Appendix D) indicates that there is a small upward trend, equivalent to about 2.2 cm/year. This is equivalent to a total rise of about 0.6 m since monitoring began at this well.

The average water level elevation at the Durham (045) well is approximately 11.3 m above sea level and the annual water level fluctuation is between 2.0 and 3.0 m. However, from 1979 to 1989 the average water level was approximately 11.0m, then from 1989 to 2004 average water levels rose slightly, to approximately 11.6 m. Since 2004 the average water levels decreased slightly. The 2007 water levels were within the historically observed range at this well, and had an average water level of 11.4 m. The depth to water in this well is approximately 3.5 to 4.0 m below ground surface.

Monitoring Results - Water Chemistry and Temperature

The Durham (045) well was last sampled in October 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs, pesticides and perchlorate were not detected. The tritium level in this well was 2.04 TU, indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average annual groundwater temperature at the Durham (045) well is 7.6 °C and fluctuates annually between 6.2 and 9.2 °C. A graph of hourly temperature data collected since January 2004 is presented in Appendix C.

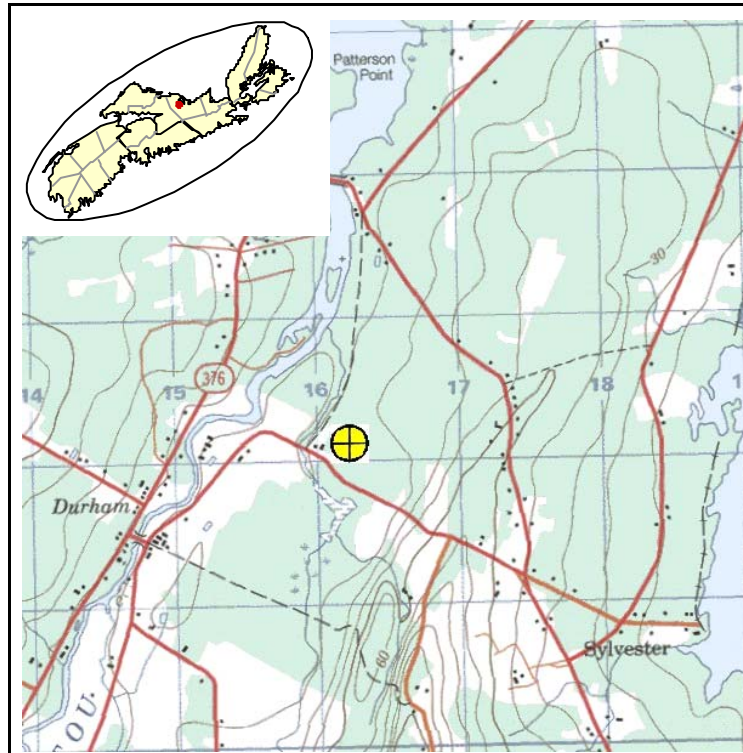


Figure 3.32: Durham (045) Well Location

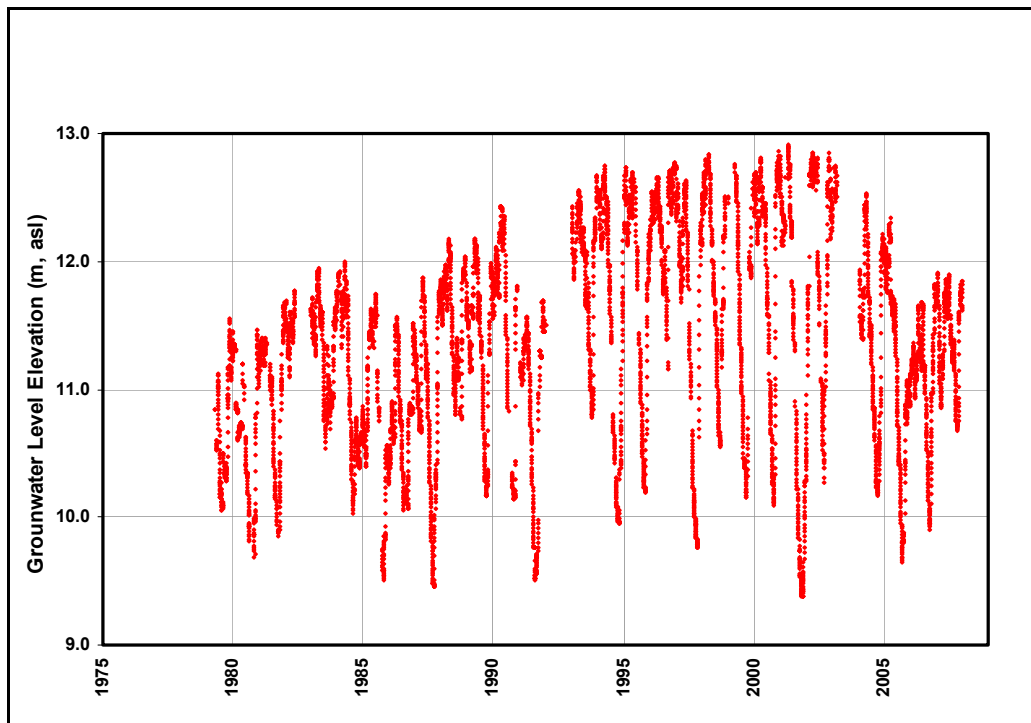


Figure 3.33: Durham (045) Historical Water Level Graph

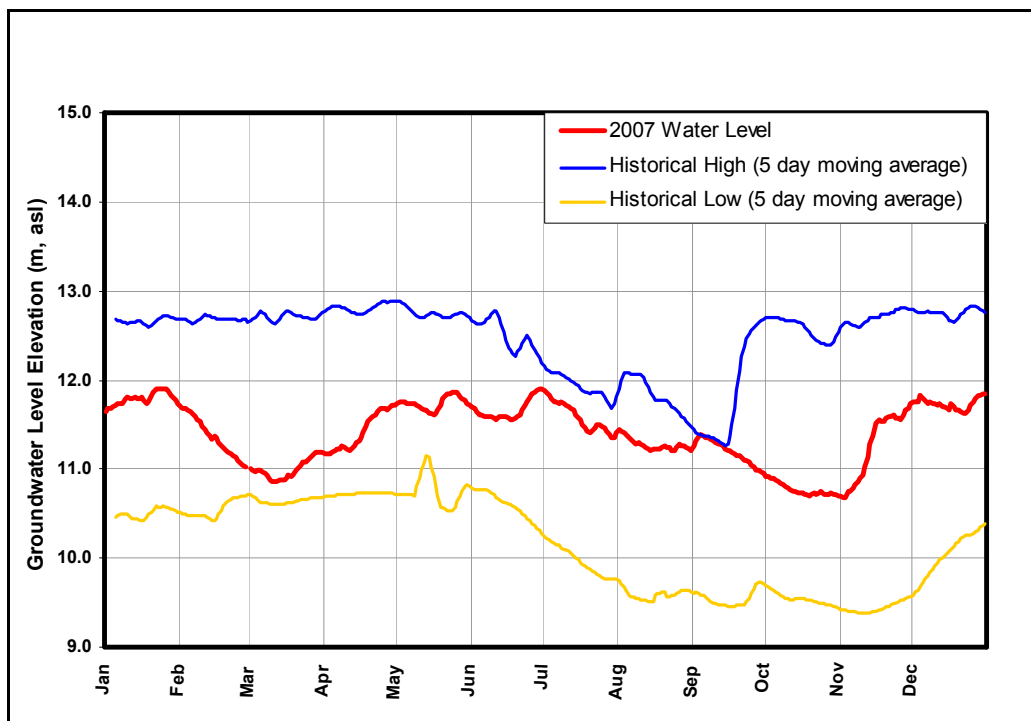


Figure 3.34: Durham (045) 2007 Water Level Graph

3.10 Kentville (048)

Well Description

The Kentville (048) observation well is located near Kentville, Kings County. The well was constructed in May 1977 as part of a water supply investigation for the Kentville Industrial Park (Callan, 1977) and was previously named the “Kentville Industrial Park” observation well. The well is completed in a sandstone aquifer. It is 106.7 m deep and the casing depth extends to 30.5 m. Well location and construction information is provided in Table 3.10 and the well log is in Appendix A. A 72-hour pump test was conducted at this well in June 1977 and the results indicated a transmissivity of 84 m²/day and a storativity of 3×10^{-4} (Callan, 1977).

Table 3.10: Kentville (048) Well Construction Information

Well Name	Kentville (048)
Observation Well ID Number	048
NSE Well Log Number	772021
County	Kings
Nearest Community	Kentville
UTM - Easting	377628
UTM - Northing	4992245
Year Monitoring Started	1980
Casing Depth (m, bgs)	30.5
Well Depth (m, bgs)	106.7
Elevation - top of casing (m, asl)	12.79
Geologic Unit	Wolfville Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Kentville (048) observation well is shown in Figure 3.35. It is situated in a wooded area (see Figure 3.36) and the surrounding land use includes an industrial park (Annapolis Valley Regional Industrial Park), residential properties and undeveloped land. This well lies within the wellhead protection area for the Town of Kentville wellfield, which includes seven production wells. This wellfield was initially developed in the late 1970's to supply the nearby industrial park

and was expanded to become the primary water supply for the Town of Kentville in 2002. The nearest production well is located approximately 150 m away from the Kentville (048) observation well.

Monitoring Results - Water Levels

The historical water level graph for Kentville (048) is shown in Figure 3.37 and the 2007 water level graph is shown in Figure 3.38. This well has been monitored since 1980 and the water level appears to have dropped slightly since monitoring began. The trend analysis for this well (Appendix D) indicates that there is a very small downward trend, equivalent to about 0.8 cm/year. The total drop in water level since monitoring began at this well is approximately 0.6 m.

The average water level elevation at the Kentville (048) well has ranged between 6.9 and 7.4 m above sea level and the annual water level fluctuation is approximately 0.7 m. The depth to water in this well is approximately 5.9 m below ground surface. The 2007 average water level was approximately 6.6 m above sea level, which is below the historically observed water level range for this well. The 2007 water levels are the lowest on record for this well, as they coincide with the historical lows throughout most of the year.

Monitoring Results - Water Chemistry and Temperature

The Kentville (048) well was last sampled in November 2007. Prior to this, it was last sampled in June 2005. Water chemistry results are presented in Appendix B. The results indicate that in 2005 no health-based drinking water guidelines. In 2007, lead (45 ug/L) exceeded drinking water guideline of 10 ug/L. The iron level (410 ug/L) exceeded the aesthetic objective of 300 ug/L. No pesticides or VOC's were detected.

The perchlorate level in this well was tested for in 2005 and the results show 0.05 ug/L, which is well below the recommended Health Canada guidance value of 6 ug/L. The tritium level in this well was 3.8 TU (+/- 0.3), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

In 2005 the chloride level in this well was at 230 mg/L, which is elevated above the typical background level for groundwater in coastal Nova Scotia (<50 mg/L). In 2007, the chloride level in this well increased to 270 mg/L, which exceeded the aesthetic objective of 250 mg/L. The well

is located approximately 15 km from the ocean and, therefore, the elevated chloride levels are not expected to be caused by sea water. The bromide/chloride ratio at this well indicated the salt source is either related to road salt or naturally occurring formation salt associated with the geologic formation. The bromide/chloride ratio at this well was <22 (i.e., $<0.5 \text{ mg/L} / 230 \text{ mg/L} \times 10,000 = <22$). Please see Section 2.2.4 for a discussion of how this ratio is used to assess salt sources. This well is located immediately adjacent to a road (within about 5 m) and, therefore, the source of the chloride may be road salt.

The average groundwater temperature at the Kentville (048) well is 6.94°C and fluctuates annually between 2.0 and 11.0°C . A graph of daily average temperature data collected since April 2004 is presented in Appendix C.

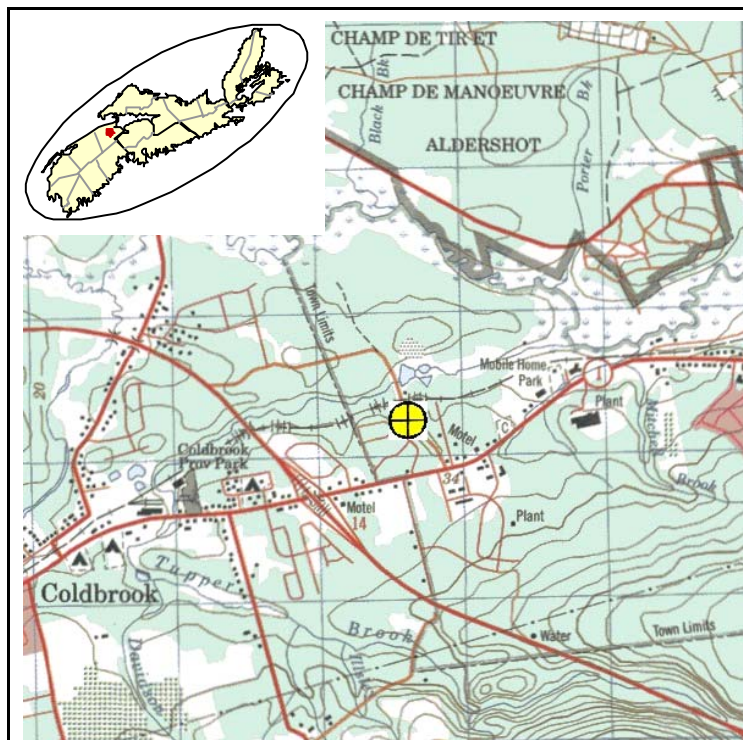


Figure 3.35: Kentville (048) Well Location



Figure 3.36: Kentville (048) Site Photograph

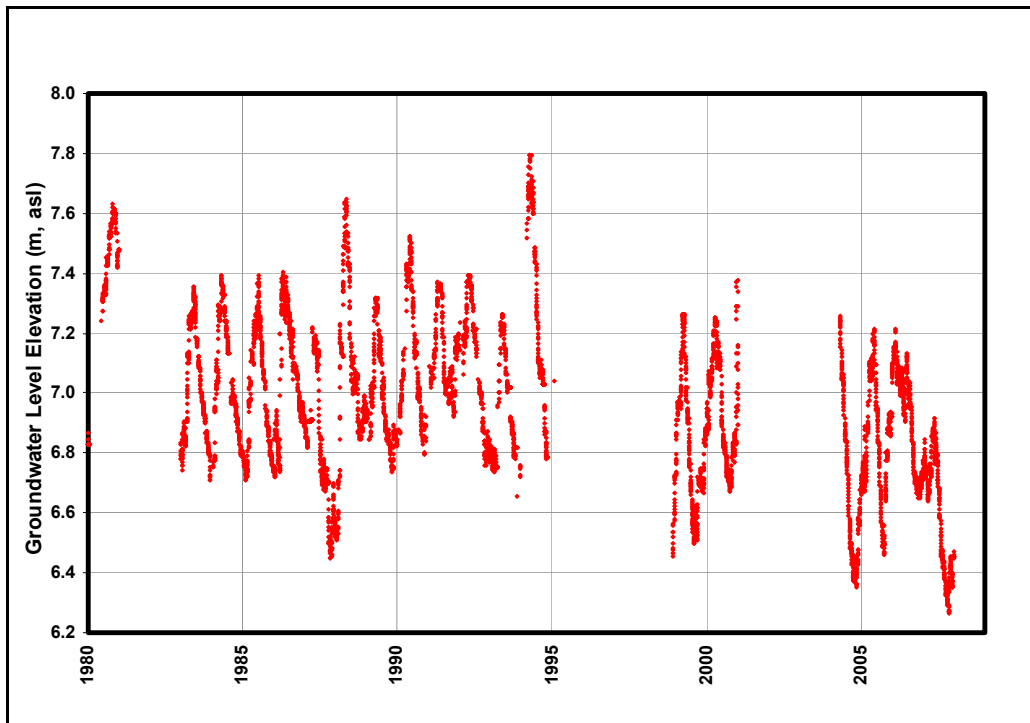


Figure 3.37: Kentville (048) Historical Water Level Graph

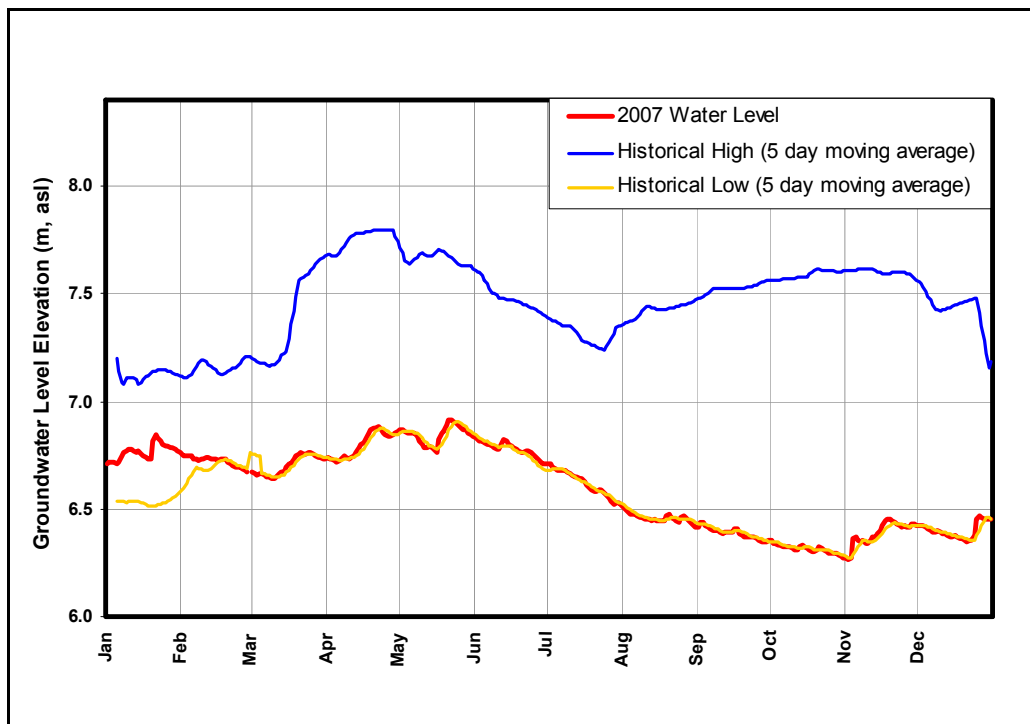


Figure 3.38: Kentville (048) 2007 Water Level Graph

3.11 Sydney (050)

Well Description

The Sydney (050) observation well is located near Sydney, Cape Breton County. It was constructed in 1977 as part of a regional water resource study in the Sydney Coalfield (Baechler, 1986) and has also been referred to as the “Sydney Watershed “ observation well. The well is completed in a sandstone aquifer and is 100.6 m deep with a casing depth extending to 6.1 m. Well location and construction information is provided in Table 3.11 and the well log is provided in Appendix A. A 72-hour pump test was conducted at this well in the 1980's and the results indicated a transmissivity of 71 m²/day (Baechler, 1986).

Table 3.11: Sydney (050) Well Construction Information

Well Name	Sydney (050)
Observation Well ID Number	050
NSE Well Log Number	771077
County	Cape Breton
Nearest Community	Sydney
UTM - Easting	720589
UTM - Northing	5106450
Year Monitoring Started	1984
Casing Depth (m, bgs)	6.7
Well Depth (m, bgs)	100.6
Elevation - top of casing (m, asl)	64.10
Geologic Unit	South Bar Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Sydney (050) observation well is shown in Figure 3.39. It is situated in a rural area where land use is primarily residential and undeveloped land. The well is located within the Sydney wellfield, which consists of 11 production wells. The wellfield, which began operating in 1996, pumps an average of approximately 16,000 m³/day and is the largest municipal wellfield in Nova Scotia. The nearest production well is located approximately 200 m from the Sydney (050)

observation well.

Monitoring Results - Water Levels

The historical water level graph for Sydney (050) is shown in Figure 3.40 and the 2007 water level graph is shown in Figure 3.41. This well has been monitored since 1984 and water levels appear to have decreased slightly over time. This is likely due to the Sydney wellfield that began pumping in 1996. The trend analysis for this well (Appendix D) indicates that there is a downward trend, equivalent to approximately 5.4 cm/year. The total drop in water level since monitoring began at this well is approximately 1.0 m.

The average water level elevation at this well from 1984 to 1994 was approximately 59.8 m above sea level and the annual water level fluctuation varied between 0.7 m and 1.0 m. Between 1999 and 2007 the average water level elevation was approximately 58.8 m above sea level, with the annual water level fluctuation at about 2 m. The depth to water in this well is between 4.5 and 5.0 m below ground surface. The 2007 water levels were within the historically observed water level range for this well.

Monitoring Results - Water Chemistry and Temperature

The Sydney (050) well was last sampled in September 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. Manganese (630 µg/L) was above the aesthetic drinking water guidelines of 50 µg/L. VOCs, pesticides and perchlorate were not detected. The tritium level in this well was 4.92 TU (+/- 0.43), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at the Sydney (050) well is 7.30°C and fluctuates annually between approximately 5.8 and 8.8°C. A graph of daily average temperature data collected since November 2003 is presented in Appendix C.

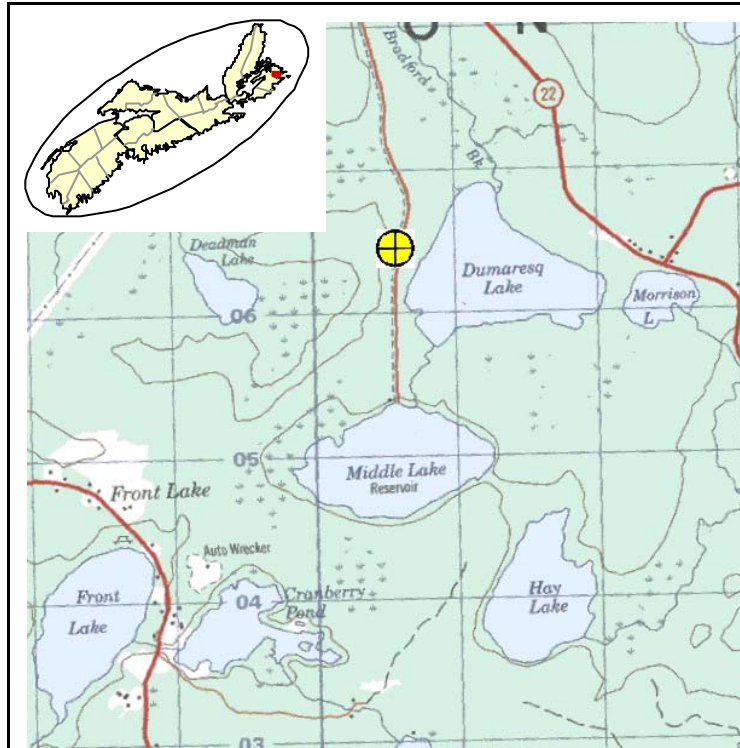


Figure 3.39: Sydney (050) Well Location

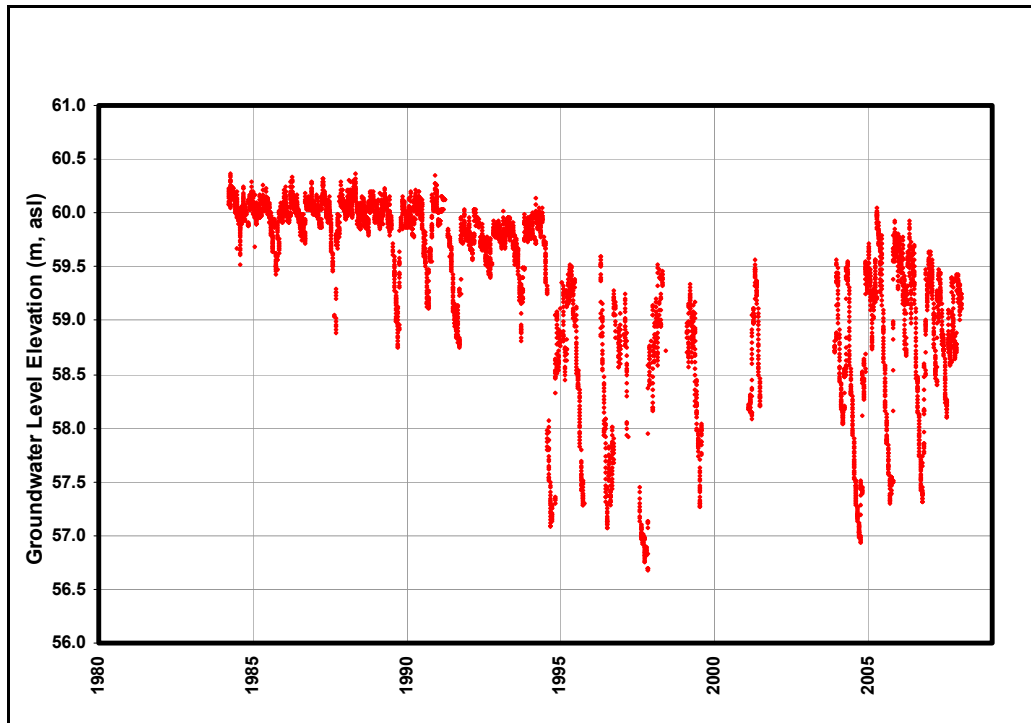


Figure 3.40: Sydney (050) Historical Water Level Graph

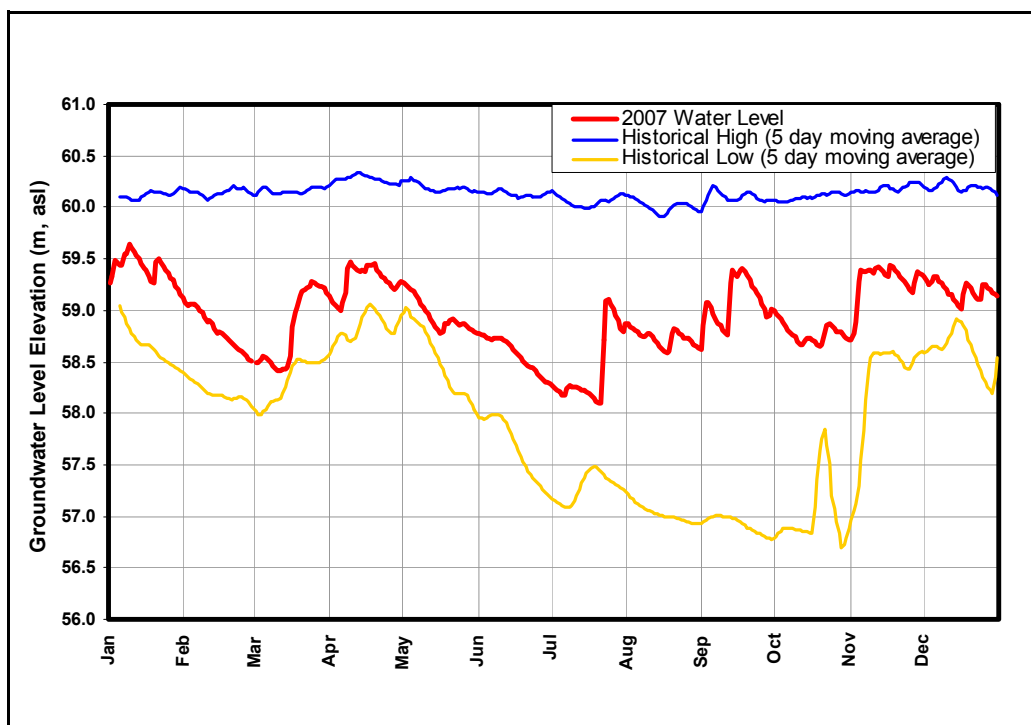


Figure 3.41: Sydney (050) 2007 Water Level Graph

3.12 North Grant (054)

Well Description

The North Grant (054) observation well is located in Lower North Grant, Antigonish County. This well was constructed in 1987 to expand the NS Groundwater Observation Well Network. The well is completed in slate and is 39.0 m deep and the casing extends to a depth of 13.1 m. Well location and construction information is provided in Table 3.12 and the well log is provided in Appendix A.

The location of the North Grant (054) observation well is shown in Figure 3.42. The well is situated approximately 15 km northwest of the town of Antigonish, and approximately 3.0 m from the side of North Grant Road (see Figure 3.43). It is located approximately 100 m from the Wrights River, and there is a domestic drilled well located within 150 m.

Table 3.12: North Grant (054) Well Construction Information

Well Name	North Grant (054)
Observation Well ID Number	054
NSEL Well Log Number	871262
County	Antigonish
Nearest Community	Lower North Grant
UTM - Easting	576403
UTM - Northing	5055139
Year Monitoring Started	1987
Casing Depth (m, bgs)	13.1
Well Depth (m, bgs)	39
Elevation - top of casing (m, asl)	21.7
Geologic Unit	Horton Group
Aquifer Material	Bedrock - shale/slate

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for North Grant (054) is shown in Figure 3.44 and the 2007 water level graph is shown in Figure 3.45. This well has been monitored since 1987, however, there is a gap in the monitoring data between 1997 and 2006. Water levels appear to have declined when comparing current water level to levels before 1997. From 1987 to 1997, the average water level elevation was approximately 19.8 m above sea level and the annual water level fluctuation was about 0.9 m. The average water level elevation for the period between April 2006 and 2007 was slightly lower, at 19.5 m above sea level, and the annual water level fluctuation for this period was approximately 0.8 m. The depth to water in this well is approximately 1.1 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

The 2007 water levels were below the typical historical range for this well. Figure 3.45 shows the 2007 water levels coinciding with the historical low for a majority of the year indicating that 2007 is one of the lowest years on record for this well.

Monitoring Results - Water Chemistry and Temperature

The North Grant (054) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs and pesticides were not detected. The tritium level in this well was 1.95 TU (+/- 0.22), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at this well is 8.23 °C and fluctuates annually between approximately 6.8 and 9.8 °C. A graph of daily average temperature data collected since April 2006 is presented in Appendix C.

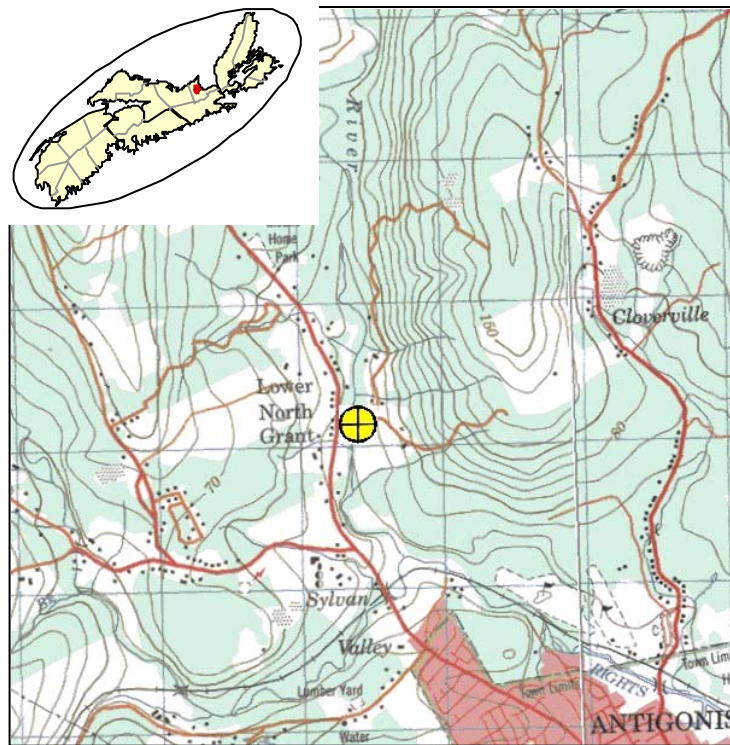


Figure 3.42: North Grant (054) Well Location



Figure 3.43: North Grant (054) Site Photograph

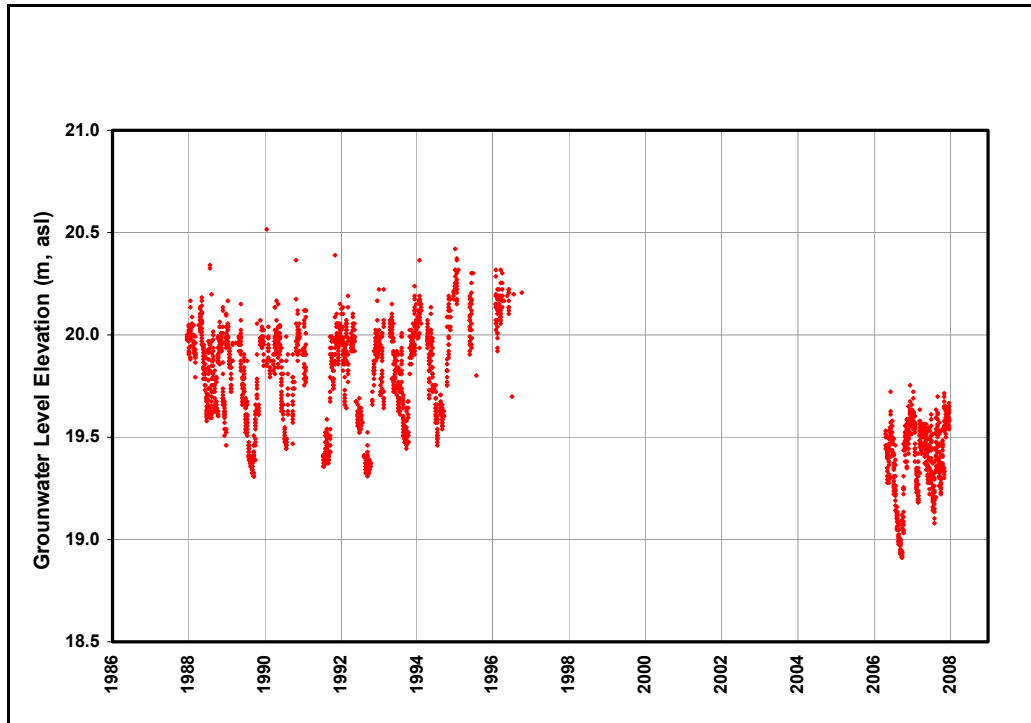


Figure 3.44: North Grant (054) Historical Water Level Graph

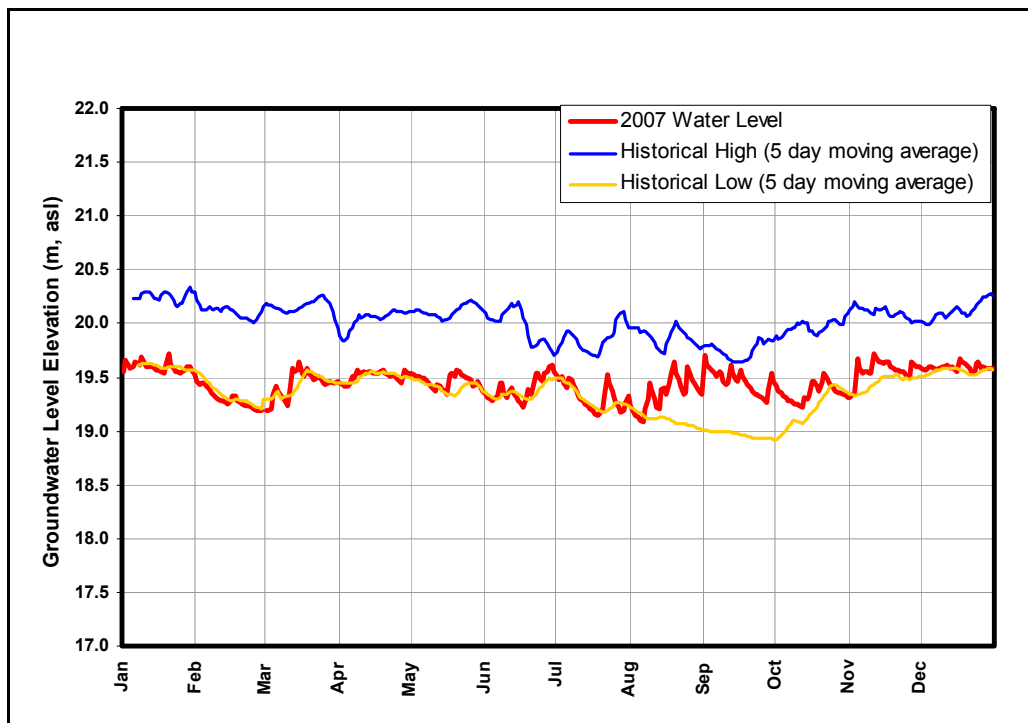


Figure 3.45: North Grant (054) 2007 Water Level Graph

3.13 Stillwater (055)

Well Description

The Stillwater (055) observation well is located in Stillwater, Guysborough County. This well was constructed in 1987 to expand the NS Groundwater Observation Well Network. It is completed in fractured bedrock comprised of greywacke. The well is 36.0 m deep and the casing extends to 13.4 m depth. Well location and construction information are provided in Table 3.13 and the well log is provided in Appendix A.

The location of the Stillwater (055) observation well is shown in Figure 3.46. The well is located in a wooded area off Route #7 on Department of Natural Resources' property adjacent to a gravel road leading to a rifle range. The nearest water well is a domestic drilled well located within 250 m. The St. Mary's River is approximately 750 m away, and the well is located 2 km from an Environment Canada Hydrometric Station on the river.

Table 3.13: Stillwater (055) Well Construction Information

Well Name	Stillwater (055)
Observation Well ID Number	055
NSE Well Log Number	871263
County	Guysborough
Nearest Community	Stillwater
UTM - Easting	579938
UTM - Northing	5004212
Year Monitoring Started	1987
Casing Depth (m, bgs)	13.4
Well Depth (m, bgs)	36
Elevation - top of casing (m, asl)	26.9
Geologic Unit	Goldenville Formation
Aquifer Material	Bedrock - greywacke

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Stillwater (055) is shown in Figure 3.47 and the 2007 water level graph is shown in Figure 3.48. This well has been monitored since 1987, however, monitoring stopped in the summer of 1995 and did not resume until May 2006. Water levels appear to have remained the same over time. From 1987 to 1995, the average water level elevation was approximately 25.0 m above sea level and the annual water level fluctuation was about 1.1 m. The average water level elevation for the period between May 2006 and 2007 was slightly higher, at 25.1 m above sea level, and the annual water level fluctuation for this period was approximately 1.0 m. The 2007 water levels were within the typical historical range for this well. The depth to water in this well is approximately 1.9 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Stillwater (055) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded, at this well. One VOC (Toluene) was measured at the detection limit of 1 ug/L. Pesticides were not detected. The tritium level in this well was 3.82 TU (+/- 0.34), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at this well is 7.53 °C and fluctuates annually between approximately 4.5 and 10.0 °C. A graph of daily average temperature data collected since May 2006 is presented in Appendix C.

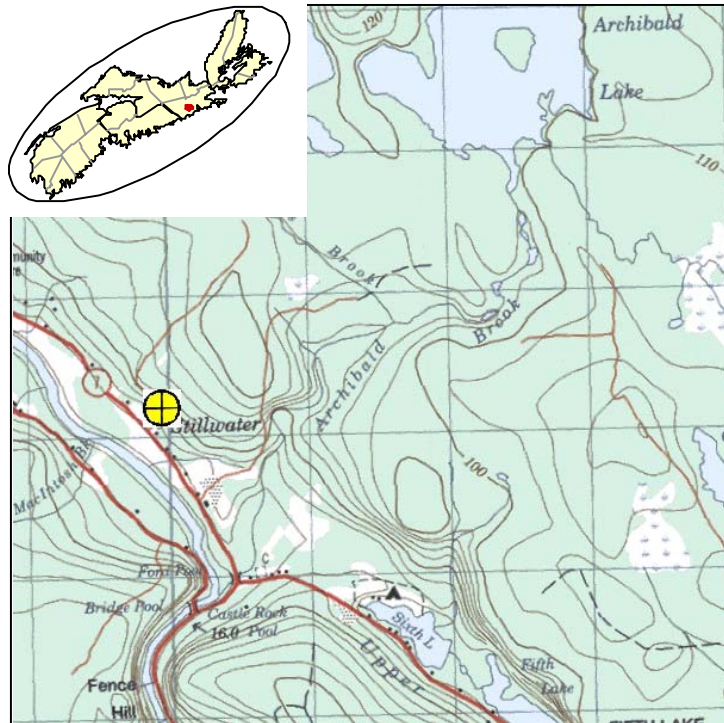


Figure 3.46: Stillwater (055) Well Location

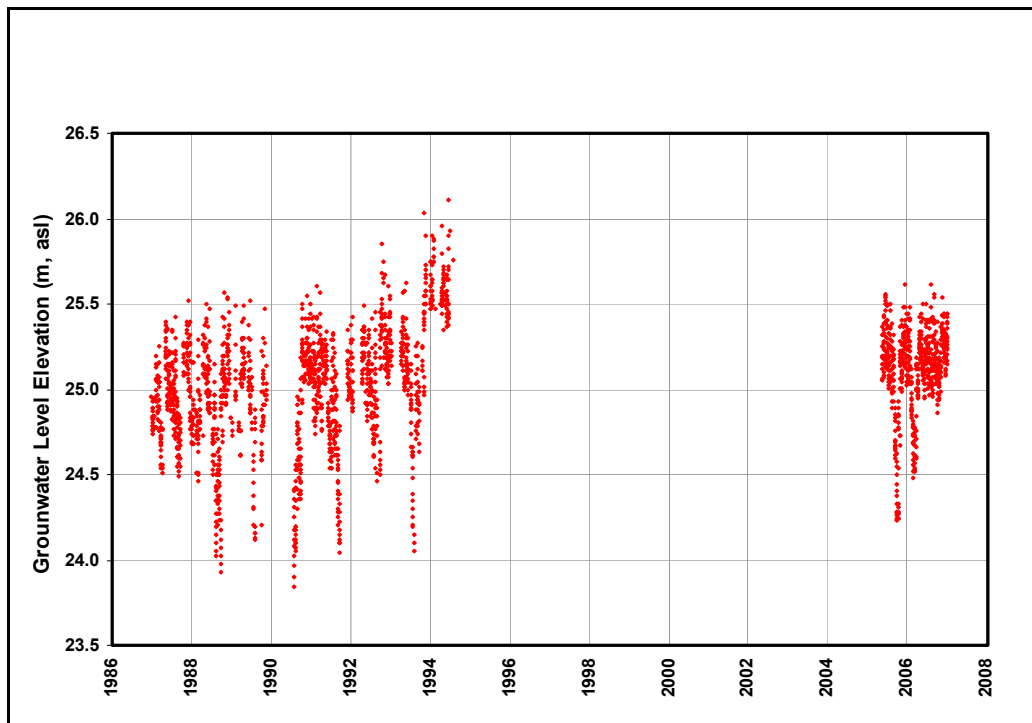


Figure 3.47: Stillwater (055) Historical Water Level Graph

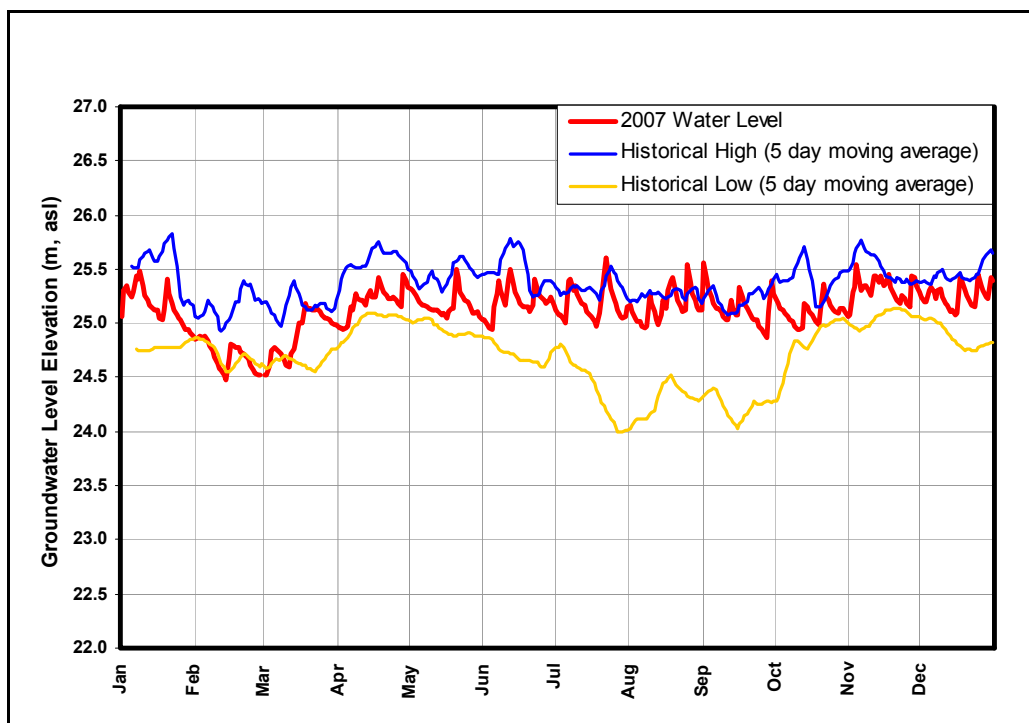


Figure 3.48: Stillwater (055) 2007 Water Level Graph

3.14 Sheet Harbour (056)

Well Description

The Sheet Harbour (056) observation well is located in Sheet Harbour, Halifax County. The well was constructed in 1987 to expand the NS Groundwater Observation Well Network. The well is completed in a bedrock aquifer. It is 46.4 m deep and the casing extends to 7.01 m depth. Well location and construction information is provided in Table 3.14 and the well log is provided in Appendix A.

The location of the Sheet Harbour (056) observation well is shown in Figure 3.49. It is situated in a rural area where the surrounding land is predominantly undeveloped. The well is located in a field, 50 m north of Route #7 (see Figure 3.50). It is located approximately 5.0 m from the East Halfway Brook, and there is a domestic drilled well within 35 m of the observation well.

Table 3.14: Sheet Harbour (056) Well Construction Information

Well Name	Sheet Harbour (056)
Observation Well ID Number	056
NSE Well Log Number	871264
County	Halifax
Nearest Community	Sheet Harbour
UTM - Easting	543176
UTM - Northing	4972468
Year Monitoring Started	1987
Casing Depth (m, bgs)	7.01
Well Depth (m, bgs)	46.4
Elevation - top of casing (m, asl)	38.06
Geologic Unit	Goldenville Formation
Aquifer Material	Bedrock - Quartzite

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Sheet Harbour (056) is shown in Figure 3.51 and the 2007 water level graph is shown in Figure 3.52. The average water level elevation for the recorded period was approximately 36.5 m above sea level. The depth to water in this well is approximately 1.0 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Sheet Harbour (056) well has not been sampled. The temperature at this well has been monitored since July 2007. A graph of daily average temperature data since July 2007 is presented in Appendix C.

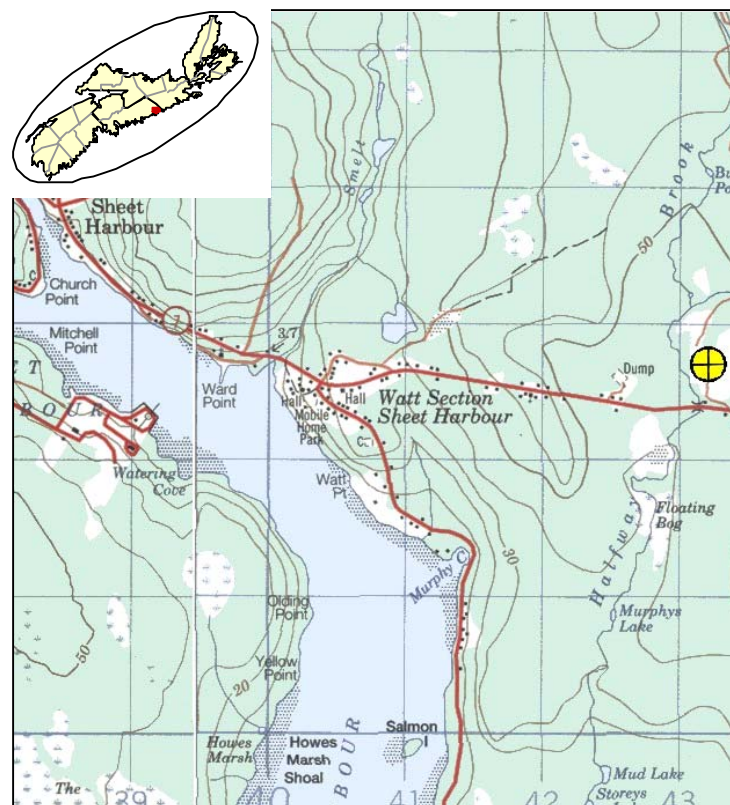


Figure 3.49: Sheet Harbour (056) Site Location



Figure 3.50: Sheet Harbour (056) Site Photograph

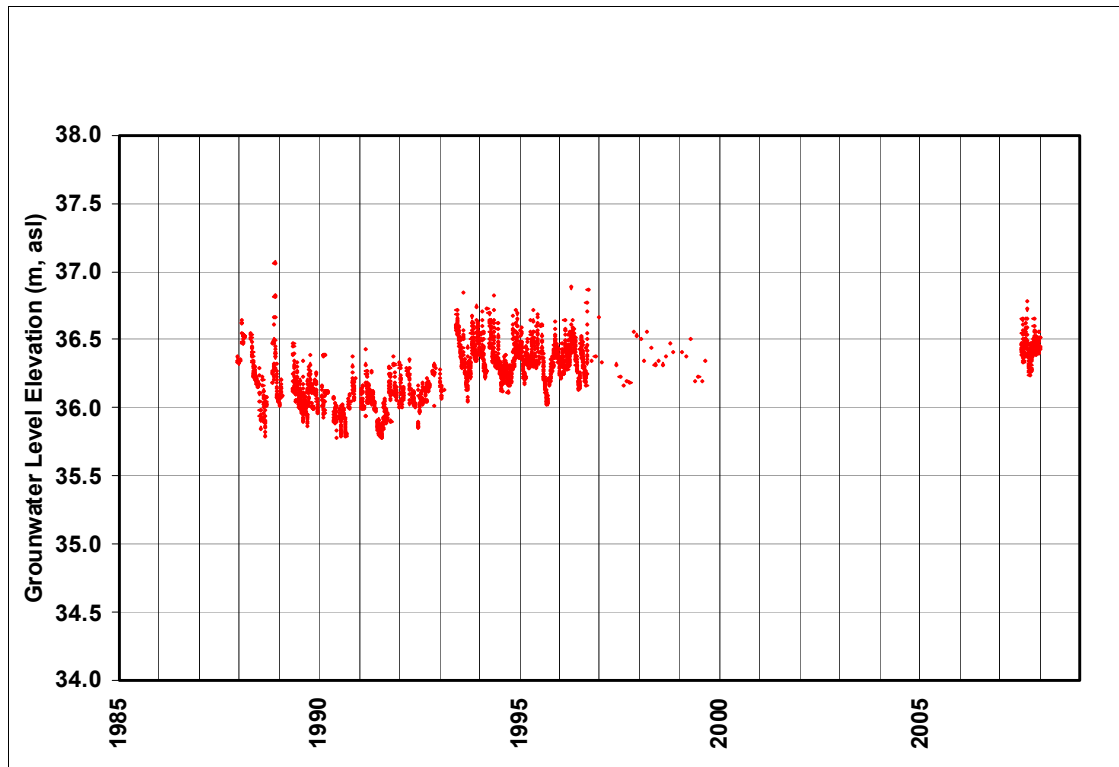


Figure 3.51: Sheet Harbour (056) Historical Water Level Graph

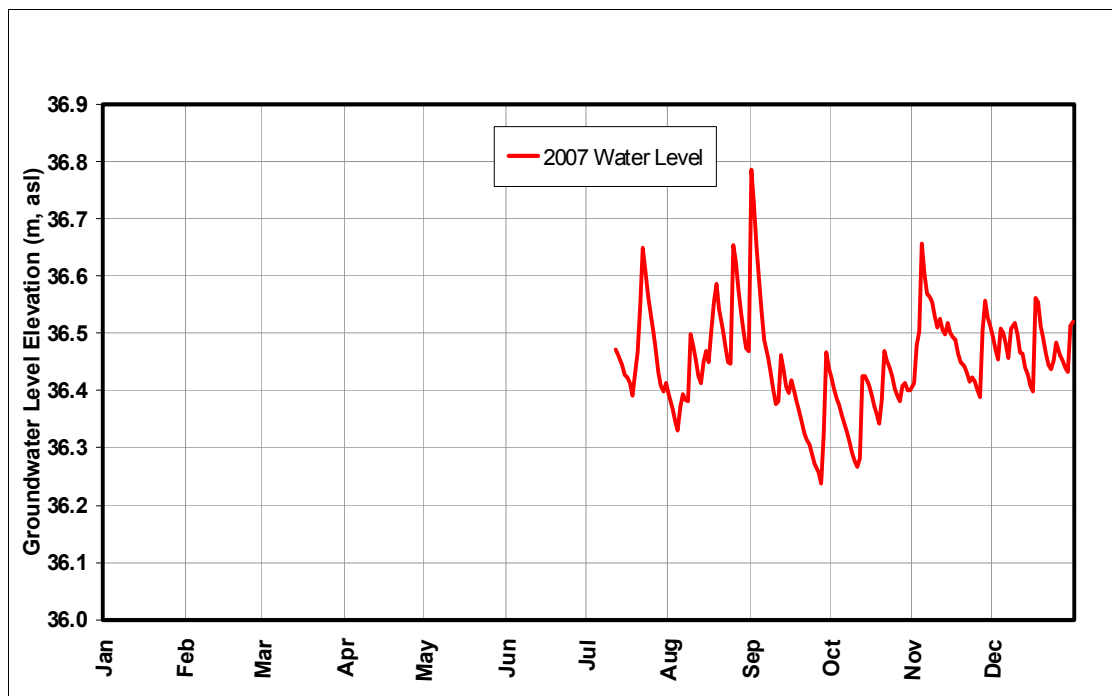


Figure 3.52: Sheet Harbour (056) 2007 Water Level Graph

3.15 Charleston (058)

Well Description

The Charleston (058) observation well is located near Riversdale, Queens County. This well was constructed in 1987 to expand the NS Groundwater Observation Well Network. The well is completed in slate and is 12.2 m deep, with an unknown casing depth. Well location and construction information is provided in Table 3.15 and the well log is provided in Appendix A.

The location of the Charleston (058) observation well is shown in Figure 3.53. It is situated in a rural area where the surrounding land is predominantly undeveloped. The well is located on a property that was used as a satellite tracking station until the mid-1990's. The nearest water well is a domestic well located approximately 150 m away.

Table 3.15: Charleston (058) Well Construction Information

Well Name	Charleston (058)
Observation Well ID Number	058
NSE Well Log Number	870190
County	Queens
Nearest Community	Riversdale
UTM - Easting	366778
UTM - Northing	4894476
Year Monitoring Started	1988
Casing Depth (m, bgs)	NA
Well Depth (m, bgs)	12.2
Elevation - top of casing (m, asl)	15.07
Geologic Unit	Halifax Formation
Aquifer Material	Bedrock - slate

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Charleston (058) is shown in Figure 3.54 and the 2007 water level graph is shown in Figure 3.55. This well has been monitored since 1988 and water levels appear to have remained relatively constant. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

The average water level elevation at the Charleston (058) well is approximately 12.7 m above sea level and the annual water level fluctuation is about 0.5 m. The depth to water in this well is approximately 2.3 m below ground surface. The 2007 water levels were within the historically observed water level range for this well, however, historical highs were exceeded several times throughout the year.

Monitoring Results - Water Chemistry and Temperature

The Charleston (058) well has not been sampled and, therefore, water chemistry results are not available. The temperature at this well has been monitored since August 2006, and typically ranges between approximately 6.5 and 11.5 °C. The average groundwater temperature is approximately 9.2 °C. A graph of hourly temperature data since August 2006 is presented in Appendix C.

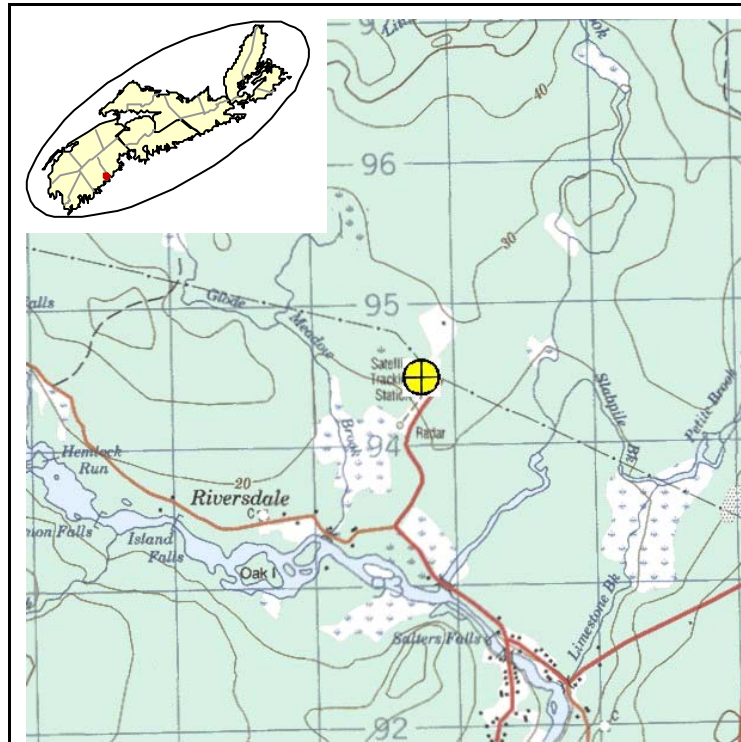


Figure 3.53: Charleston (058) Well Location

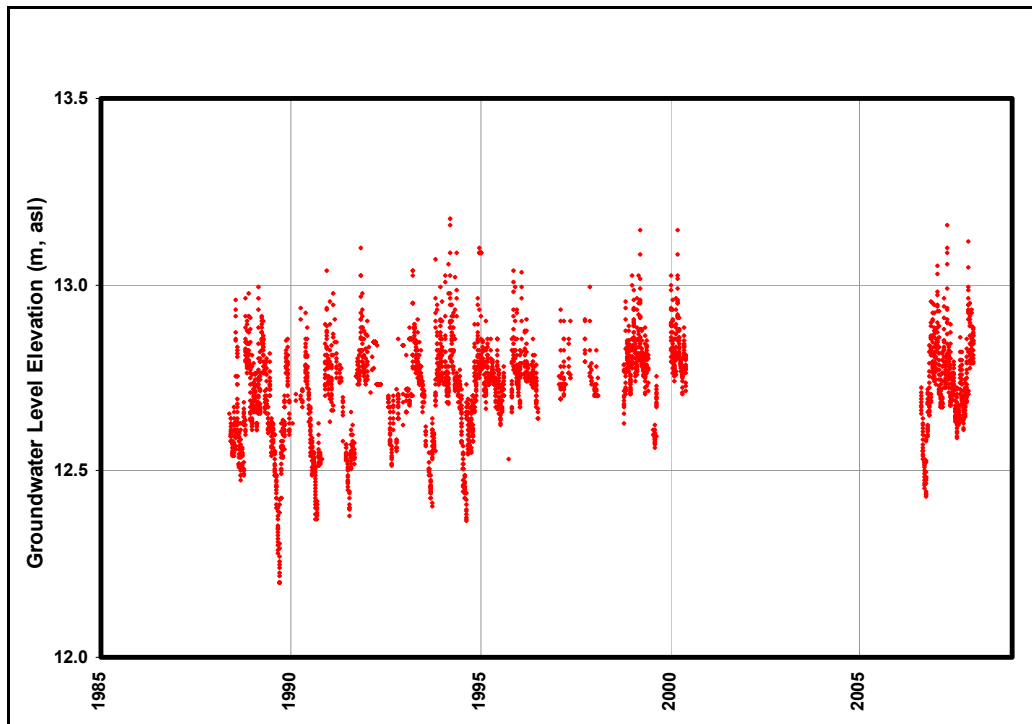


Figure 3.54: Charleston (058) Historical Water Level Graph

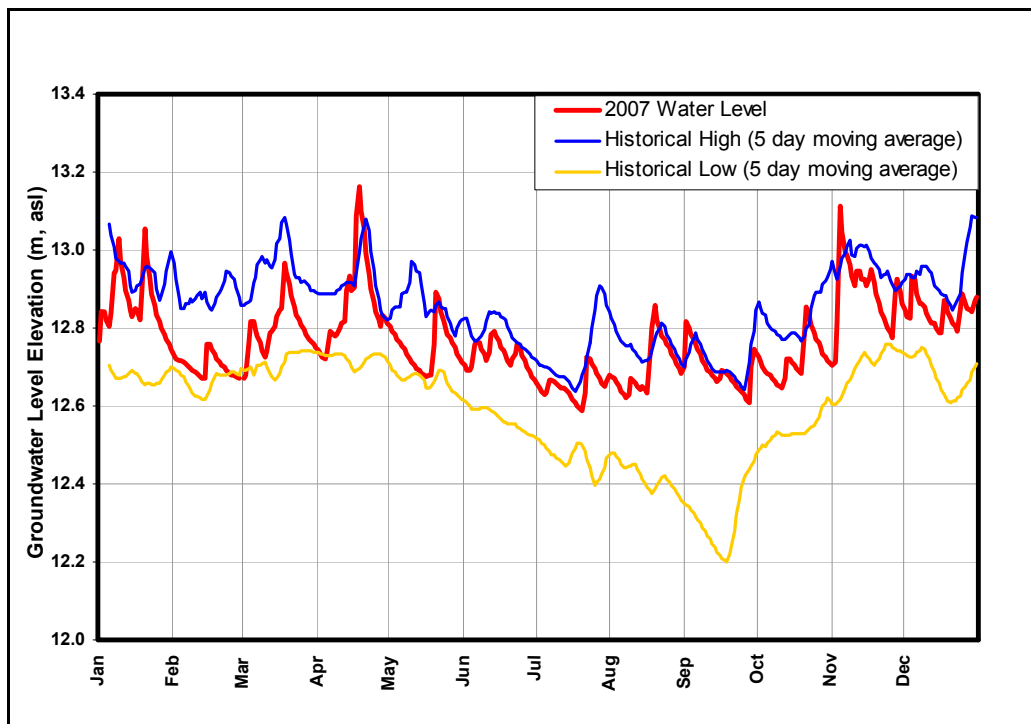


Figure 3.55: Charleston (058) 2007 Water Level Graph

3.16 Hayden Lake (059)

Well Description

The Hayden Lake (059) observation well is located near East Jordan, Shelburne County. The well was constructed in 1987 to expand the NS Groundwater Observation Well Network. It is completed in fractured bedrock comprised of greywacke. The well is 48.8 m deep and the casing extends to 6.1 m. Well location and construction information is provided in Table 3.16 and the well log is provided in Appendix A.

The location of the Hayden Lake (059) observation well is shown in Figure 3.56. It is situated in a rural area where the surrounding land is primarily undeveloped. The well is located adjacent to the Hayden Lake Water Treatment Plant, which supplies the Town of Lockeport. The nearest water well is a domestic well located approximately 300 m away.

Table 3.16: Hayden Lake (059) Well Construction Information

Well Name	Hayden Lake (059)
Observation Well ID Number	059
NSE Well Log Number	870189
County	Shelburne
Nearest Community	East Jordan
UTM - Easting	321365
UTM - Northing	4849195
Year Monitoring Started	1988
Casing Depth (m, bgs)	6.1
Well Depth (m, bgs)	48.8
Elevation - top of casing (m, asl)	2.94
Geologic Unit	Goldenville Formation
Aquifer Material	Bedrock - greywacke

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Hayden Lake (059) is shown in Figure 3.57 and the 2007 water level graph is shown in Figure 3.58. This well has been monitored since 1988 and water levels appear to have risen slightly over time and the amount of annual fluctuation appears to have decreased. The statistical trend analysis for this well (Appendix D) indicates that there is a very small upward trend, equivalent to approximately 1.6 cm/year. This corresponds to a total water level rise of approximately 0.3 m since monitoring began at this well.

The average water level elevation at the Hayden Lake (059) well is approximately 1.7 m above sea level and the annual water level fluctuation is between 1.0 and 1.5 m. The depth to water in this well is approximately 1.3 m below ground surface. The 2007 water levels were within the historically observed water level range for this well.

Monitoring Results - Water Chemistry and Temperature

The Hayden Lake (059) well was last sampled in June 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. One VOC, chloroform, was detected at 3.2 ug/L, but was below the drinking water guideline of 100 ug/L. Chloroform is produced when chlorine reacts with organic matter and may be present in this well as a result of chlorine use and storage at the nearby water treatment plant. Perchlorate was detected at very low levels (0.014 ug/L), but was far below the recommended Health Canada guidance value of 6 ug/L. No pesticides were detected. The tritium level in this well was 3.4 TU, indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at the Hayden Lake (059) well is 8.7 °C and fluctuates annually between 6.8 and 10.8 °C. A graph of daily average temperature data collected since December 2003 is presented in Appendix C.

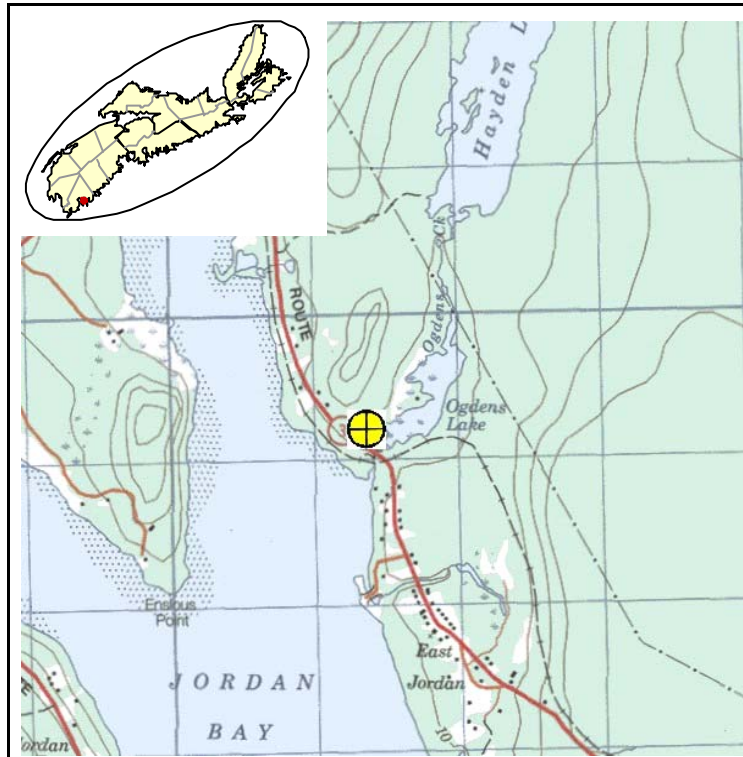


Figure 3.56: Hayden Lake (059) Well Location

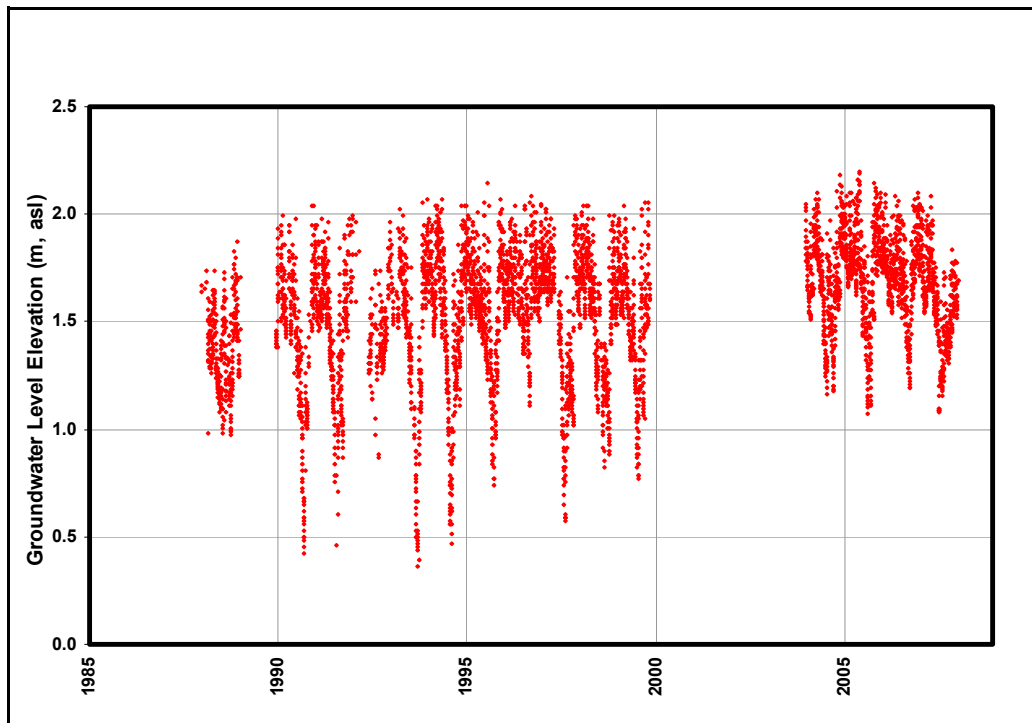


Figure 3.57: Hayden Lake (059) Historical Water Level Graph

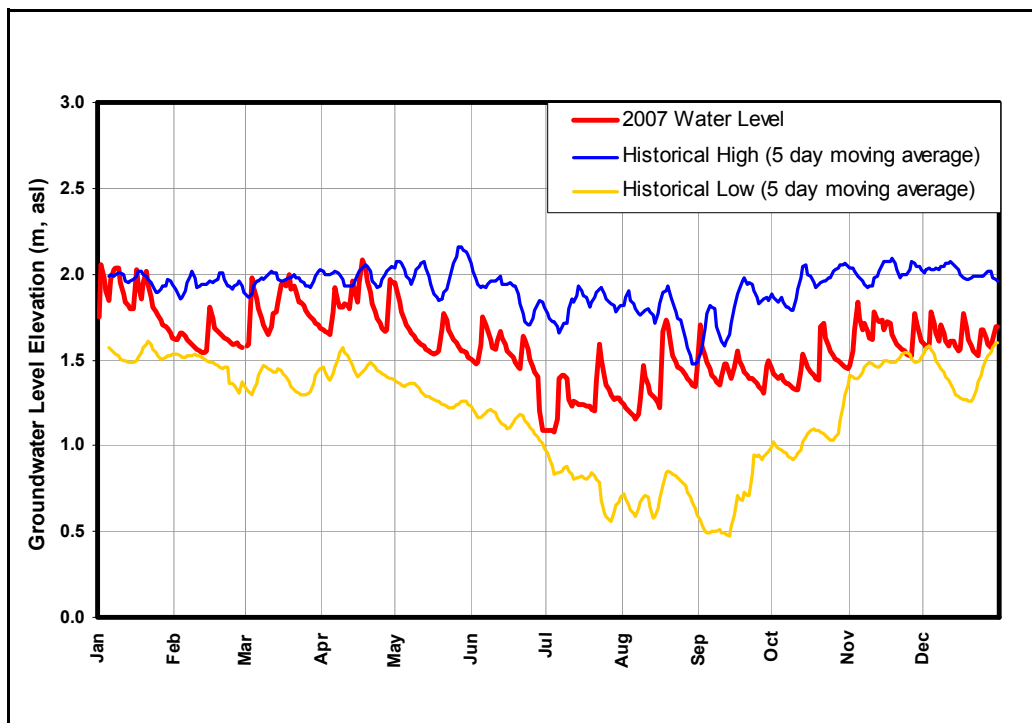


Figure 3.58: Hayden Lake (059) 2007 Water Level Graph

3.17 Meteghan (060)

Well Description

The Meteghan (060) observation well is located near the community of Meteghan River, Digby County. The well was constructed in March 1987 to expand the NS Groundwater Observation Well Network. The well is completed in slate aquifer. It is 61.0 m deep and the casing depth extends to 12.19 m. Well location and construction information is provided in Table 3.17 and the well log is provided in Appendix A.

The location of the Meteghan (060) observation well is shown in Figure 3.59. The well is situated on the lawn of a private property (see Figure 3.60), located 100 m south of the Meteghan River. The nearest water well is a domestic dug well approximately 30 m away.

Table 3.17: Meteghan (060) Well Construction Information

Well Name	Meteghan (060)
Observation Well ID Number	060
NSE Well Log Number	870188
County	Digby
Nearest Community	Meteghan River
UTM - Easting	250890
UTM - Northing	4900628
Year Monitoring Started	1987
Casing Depth (m, bgs)	12.19
Well Depth (m, bgs)	61
Elevation - top of casing (m, asl)	13.8
Geologic Unit	Halifax Formation
Aquifer Material	Bedrock-slate

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Meteghan (060) is shown in Figure 3.61 and the 2007 water level graph is shown in Figure 3.62. This well has been monitored since mid December 1987 and water levels appear to have decreased over time. From the end of 1987 until the end of 1992 the average water level elevation was approximately 9.42 m above sea level. From 1993 to the spring of 1999, the average water level elevation was approximately 9.15 m above sea level. The average water level elevation for the period when monitoring resumed in August 2006 to the end 2007 was again lower, at 9.05 m. The depth to water in this well is approximately 4.0 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

The 2007 water levels were lower than the historical average for most of the year at this well, and have established new historical lows for the months of January through to August.

Monitoring Results - Water Chemistry and Temperature

The Meteghan (060) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. The iron level at this well was 4,900 ug/L, which exceeds the aesthetic drinking water guideline of 300 ug/L. The manganese level at this well was 60 ug/L, which exceeds the aesthetic drinking water guideline of 50 ug/L. In addition, turbidity did not meet the aesthetic drinking water guidelines. The elevated turbidity is expected due to the high iron and manganese levels. VOCs and pesticides were not detected. The tritium level in this well was 0.46 TU (+/- 0.14), indicating that the water in this well is old water (i.e., recharge occurred before 1952).

The average groundwater temperature at this well is 8.96 °C and fluctuates annually between approximately 8.0 and 9.8 °C. A graph of daily average temperature data collected since August 2006 is presented in Appendix C.

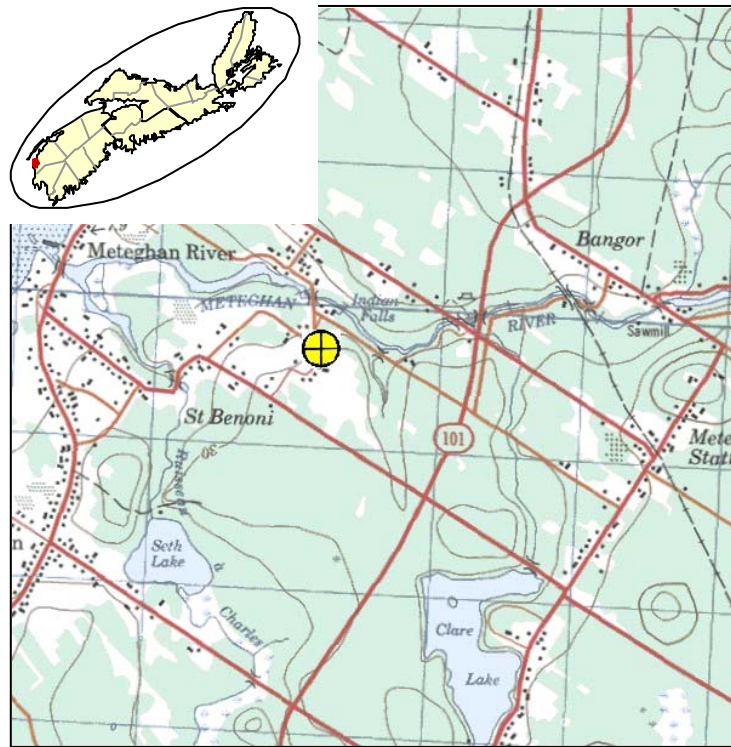


Figure 3.59: Meteghan (060) Site Location



Figure 3:60: Meteghan(060) Site Photograph

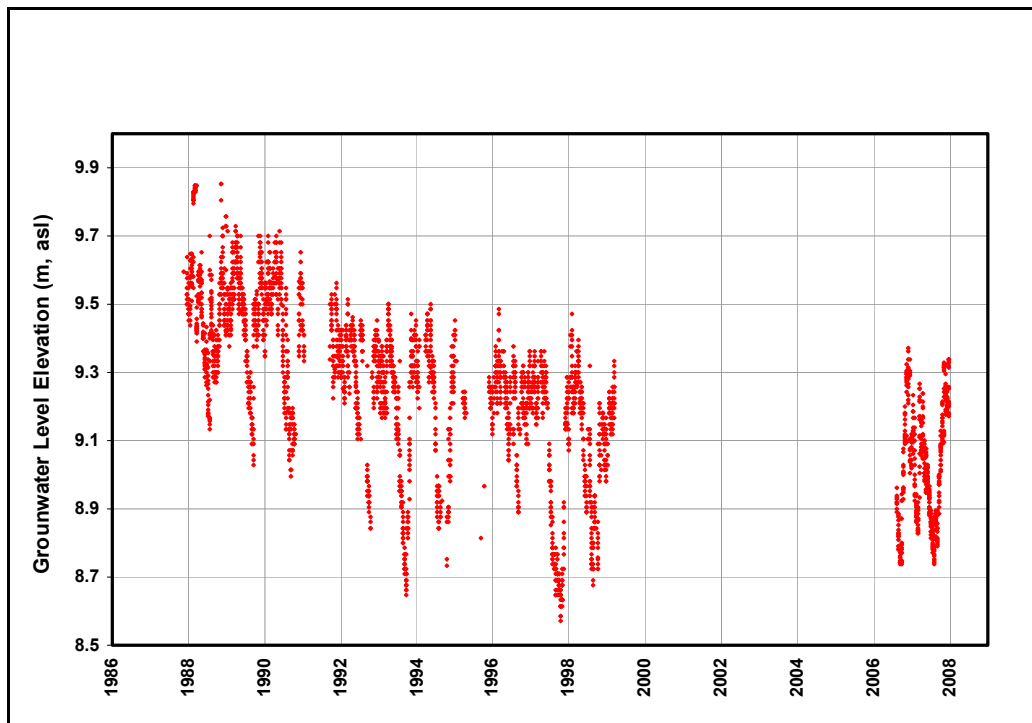


Figure 3.61: Meteghan (060) Historical Water Level Graph

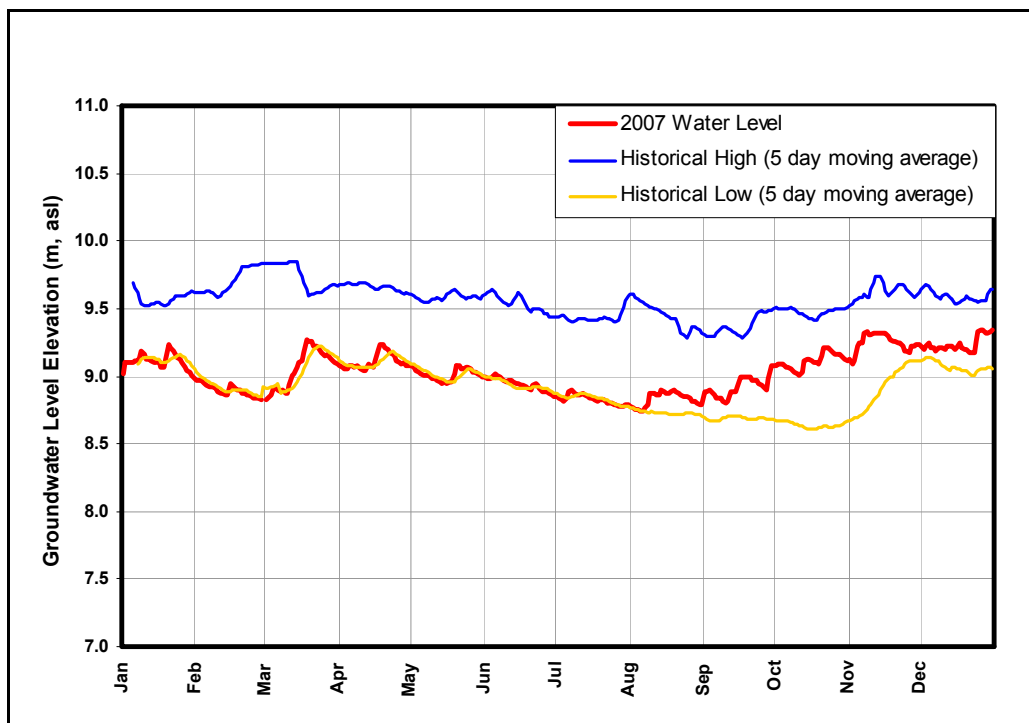


Figure 3.62: Meteghan (060) 2007 Water Level Graph

3.18 Annapolis Royal (062)

Well Description

The Annapolis Royal (062) observation well is located near Lake La Rose, Annapolis County. The well was constructed in December 1989 to expand the NS Groundwater Observation Well Network. The well is completed in granite. It is 62.8 m deep and the casing depth extends to 24.3 m. Well location and construction information is provided in Table 3.18 and the well log is provided in Appendix A.

The location of the Annapolis Royal (062) observation well is shown in Figure 3.63. It is situated in a rural area where the surrounding land is primarily undeveloped. The well is located 500 m from Lake La Rose, the former water supply for the Town of Annapolis Royal. The nearest water well is a domestic well located approximately 1,000 m away.

Table 3.18: Annapolis Royal (062) Well Construction Information

Well Name	Annapolis Royal (062)
Observation Well ID Number	062
NSE Well Log Number	891722
County	Annapolis
Nearest Community	Lake La Rose
UTM - Easting	303029
UTM - Northing	4952588
Year Monitoring Started	1990
Casing Depth (m, bgs)	24.3
Well Depth (m, bgs)	62.8
Elevation - top of casing (m, asl)	121.06
Geologic Unit	Liscomb Complex
Aquifer Material	Bedrock - granite

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Annapolis Royal (062) is shown in Figure 3.64 and the 2007 water level graph is shown in Figure 3.65. This well has been monitored since 1990 and water levels have remained relatively constant. The average water level elevation at the Annapolis Royal (062) well is approximately 109.5 m above sea level and the annual water level fluctuation is about 1.3 m. The depth to water in this well is about 11.5 m below ground surface.

There is no visually obvious long-term water level trend in Figure 3.64 and there was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis. The 2007 water levels, shown in Figure 3.65, were within the typical range for this well.

Monitoring Results - Water Chemistry and Temperature

The Annapolis Royal (062) well was last sampled in November 2007. It was also sampled in November 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. Manganese was detected at 110 µg/L in 2005 and was again detected at 93 µg/L in 2007. This is above the aesthetic drinking water guideline of 50 µg/L. Pesticides and perchlorate were not detected. One VOC, toluene, was detected at 2 ug/L in 2005 and at 1 ug/L in 2007. These toluene levels are below the aesthetic drinking water guideline of 24 ug/L. This well is located beside a road and, therefore, the toluene, which is a chemical found in gasoline, may be due to runoff from the road. The tritium level in this well was measured in 2005 and found to be 0.27 TU, (+/- 0.17), indicating the water in the well is relatively old (i.e., recharge occurred before 1952).

The average groundwater temperature at the Annapolis Royal (062) well is 7.92 °C and fluctuates annually between 7.8 and 8.1 °C. A graph of daily average temperature data collected since May 2004 is presented in Appendix C.

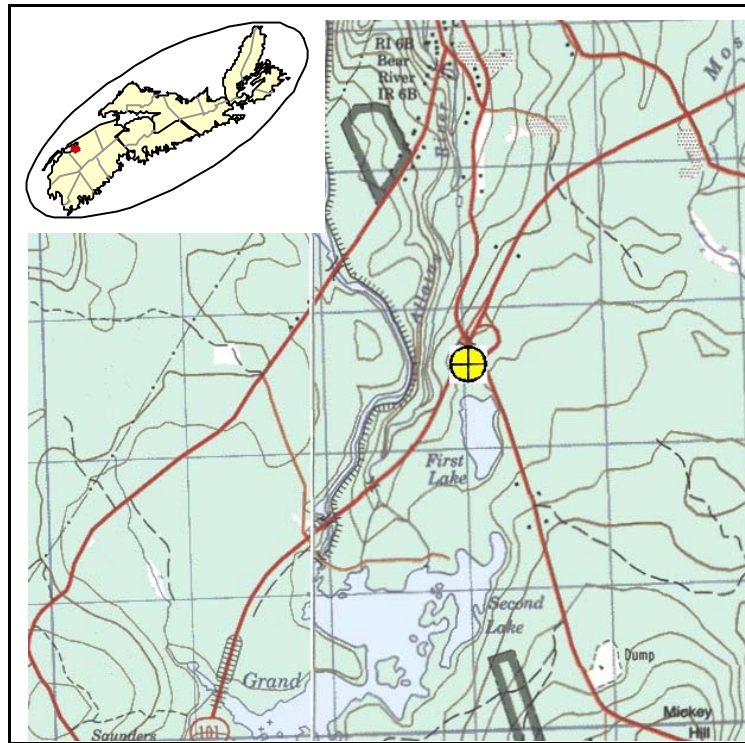


Figure 3.63: Annapolis Royal (062) Well Location

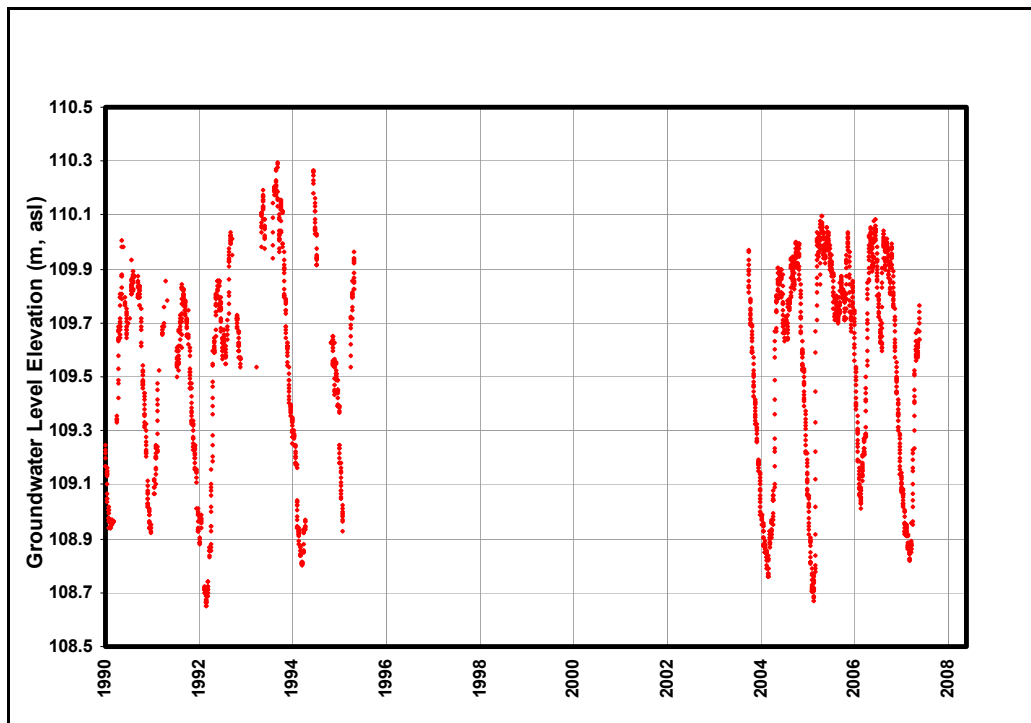


Figure 3.64: Annapolis Royal (062) Historical Water Level Graph

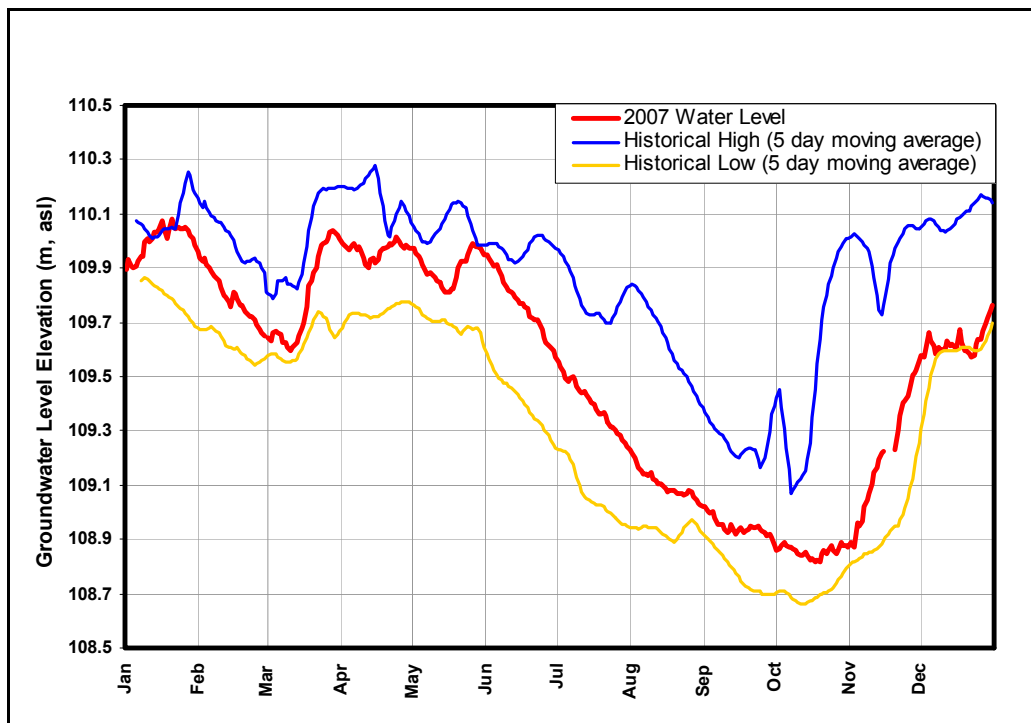


Figure 3.65: Annapolis Royal (062) 2007 Water Level Graph

3.19 Hebron (063)

Well Description

The Hebron (063) observation well is located near Dayton, Yarmouth County. The well was constructed in 1989 to expand the NS Groundwater Observation Well Network. The well is completed in slate and is 45.7 m deep with a casing extending to 12.2 m. Well location and construction information is provided in Table 3.19 and the well log is provided in Appendix A.

The location of the Hebron (063) observation well is shown in Figure 3.66. It is situated in a rural area and the surrounding land use is primarily residential. The well is located approximately 100 m from Lake Milo and 1,000 m from the ocean. The nearest water well is a domestic well located approximately 90 m away.

Table 3.19: Hebron (063) Well Construction Information

Well Name	Hebron (063)
Observation Well ID Number	063
NSE Well Log Number	891721
County	Yarmouth
Nearest Community	Dayton
UTM - Easting	250697
UTM - Northing	4862322
Year Monitoring Started	1990
Casing Depth (m, bgs)	12.2
Well Depth (m, bgs)	45.7
Elevation - top of casing (m, asl)	23.89
Geologic Unit	Whiterock Formation
Aquifer Material	Bedrock - slate

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Hebron (063) is shown in Figure 3.67 and the 2007 water level graph is shown in Figure 3.68. This well has been monitored since 1990 and water levels have been relatively constant, although there appears to be a slight increase in the average water level (up by about 0.3 m) since the 1990's. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

The average water level elevation at the Hebron (063) well has varied from approximately 3.0 m to 3.3 m above sea level and the annual water level fluctuation is about 1.5 m. The depth to water in this well is about 2.5 m below ground surface and the hourly water level data shows tidal fluctuations of approximately 0.05 m.

The 2007 water levels were within the historically observed water level range for this well, although they were near historical highs for the months of June, July and November.

Monitoring Results - Water Chemistry and Temperature

The Hebron (063) well was last sampled in June 2005. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. Iron (27,000 µg/L) and manganese (440 µg/L) were above the aesthetic drinking water guidelines of 300 µg/L and 50 µg/L, respectively. In addition, turbidity and pH did not meet the aesthetic drinking water guidelines. The elevated turbidity levels are expected due to the high iron and manganese levels. Note that the ion balance error reported in the general chemistry analysis is 23%, which exceeds the generally acceptable level of 5% and, therefore, these results should be viewed with caution.

VOCs, pesticides and perchlorate were not detected at the Hebron (063) well. The tritium level in this well was 4.6 TU, indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952). The average groundwater temperature at the Hebron (063) well is 8.8 °C and fluctuates annually between 6.0 and 11.5 °C. A graph of daily average temperature data collected since December 2003 is available in Appendix C.

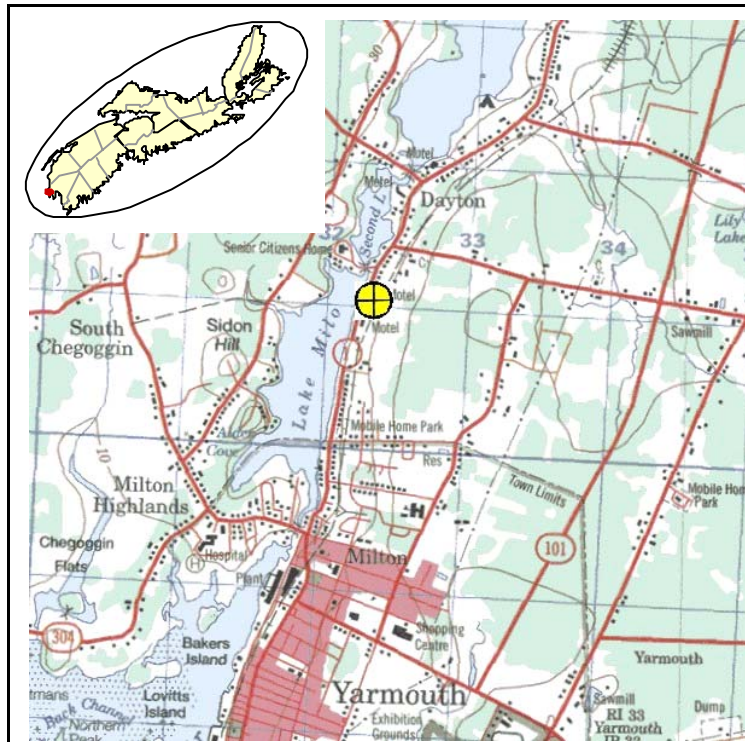


Figure 3.66: Hebron (063) Well Location

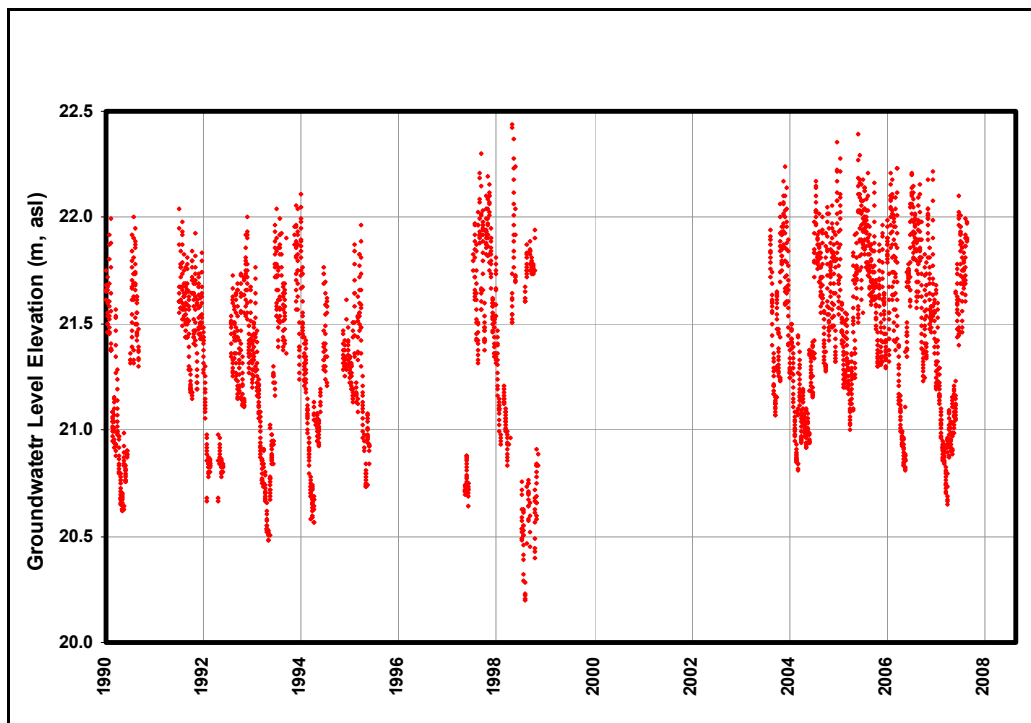


Figure 3.67: Hebron (063) Historical Water Level Graph

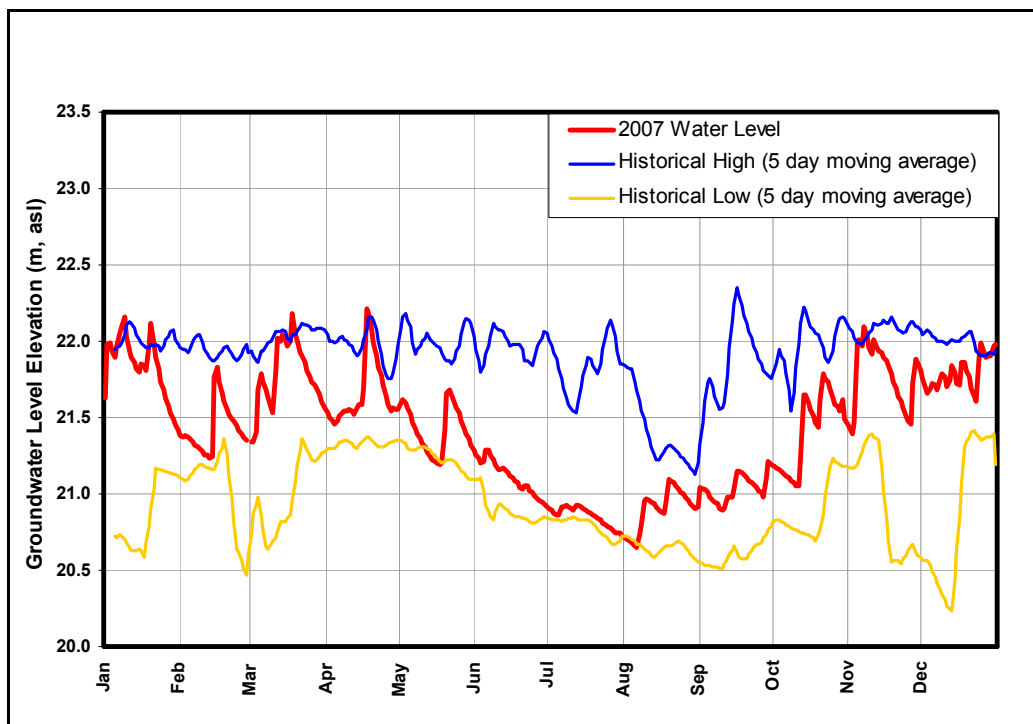


Figure 3.68: Hebron (063) 2007 Water Level Graph

3.20 Margaree (064)

Well Description

The Margaree (064) observation well is located near the community of Margaree Valley, Inverness County. The well was constructed in January 1990 to expand the NS Groundwater Observation Well Network. The well is completed in a bedrock aquifer. It is 45.7 m deep and the casing extends to 12.19 m. Well location and construction information is provided in Table 3.20 and the well log is provided in Appendix A.

The location of the Margaree (064) observation well is shown in Figure 3.69. The well is situated 1.5 km northwest of the town of Margaree Valley. It is located at the end of a field (see Figure 3.70), 25 m from the northeast branch of the Margaree River, where Nova Scotia Environment has a surface water quality station and Environment Canada has a hydrometric station to measure river water levels. The land surrounding the well is used for growing hay.

Table 3.20: Margaree (064) Well Construction Information

Well Name	Margaree (064)
Observation Well ID Number	064
NSE Well Log Number	902524
County	Inverness
Nearest Community	Margaree Valley
UTM - Easting	655717
UTM - Northing	5137031
Year Monitoring Started	1990
Casing Depth (m, bgs)	12.19
Well Depth (m, bgs)	45.7
Elevation - top of casing (m, asl)	46.5
Geologic Unit	Windsor Group
Aquifer Material	Bedrock-conglomerate

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Margaree (064) is shown in Figure 3.71 and the 2007 water level graph is shown in Figure 3.72. This well has been monitored since the end of May 1990 and water levels appear to have remained the same over time. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

From 1990 until 1998 the average water level elevation was approximately 42.87 m above sea level. The average water level elevation for the period when monitoring resumed in June 2006 to the end 2007 was 42.73 m above sea level. There appears to be an increase in water elevation during the early 90's which then levels off after 1995 and then begins to decline over 2006-2007. The depth to water in this well is about 3.5 m below ground surface. The 2007 water levels at this observation well recorded historical lows over most of the year.

Monitoring Results - Water Chemistry and Temperature

The Margaree (064) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs and pesticides were not detected. The tritium level in this well was 0.41 TU (+/- 0.14), indicating that the water in this well is old water (i.e., recharge occurred before 1952).

The average groundwater temperature at this well is 7.80 °C and fluctuates annually between approximately 6.8 and 9.1 °C. A graph of daily average temperature data collected since June 2006 is presented in Appendix C. Due to equipment failure, temperature data after November 7th, 2007 are not available.

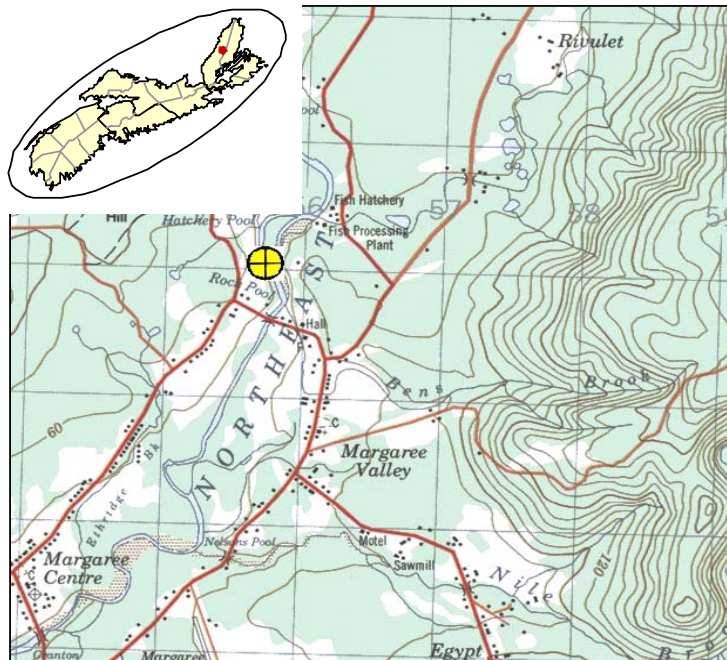


Figure 3.69: Margaree (064) Site Location



Figure 3.70: Margaree (064) Site Photograph

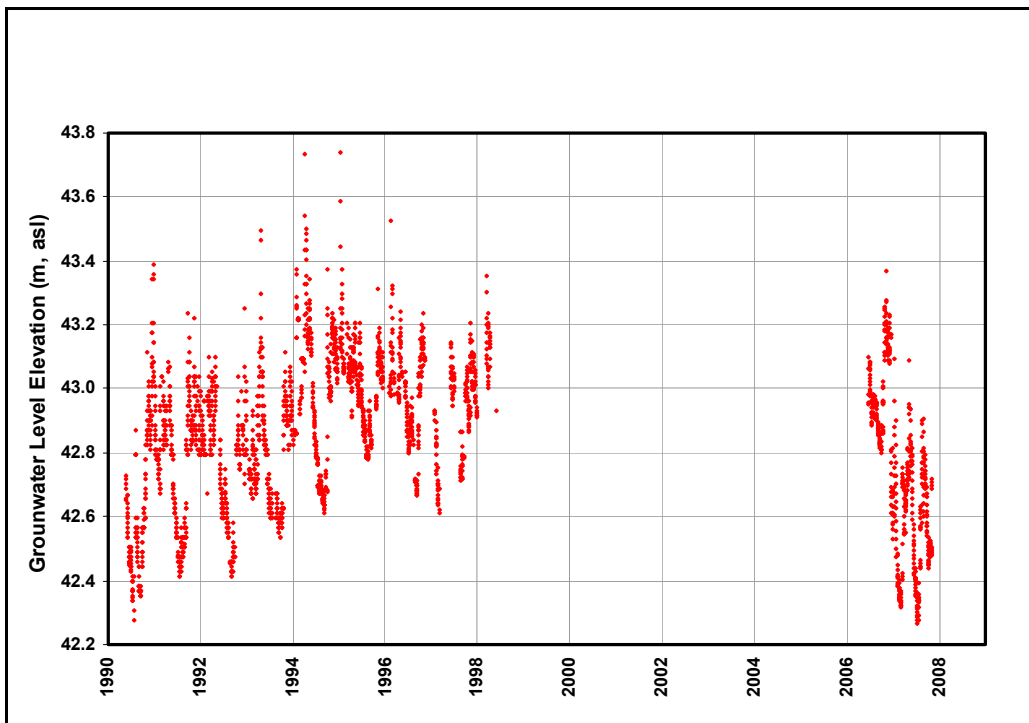


Figure 3.71: Margaree (064) Historical Water Level Graph

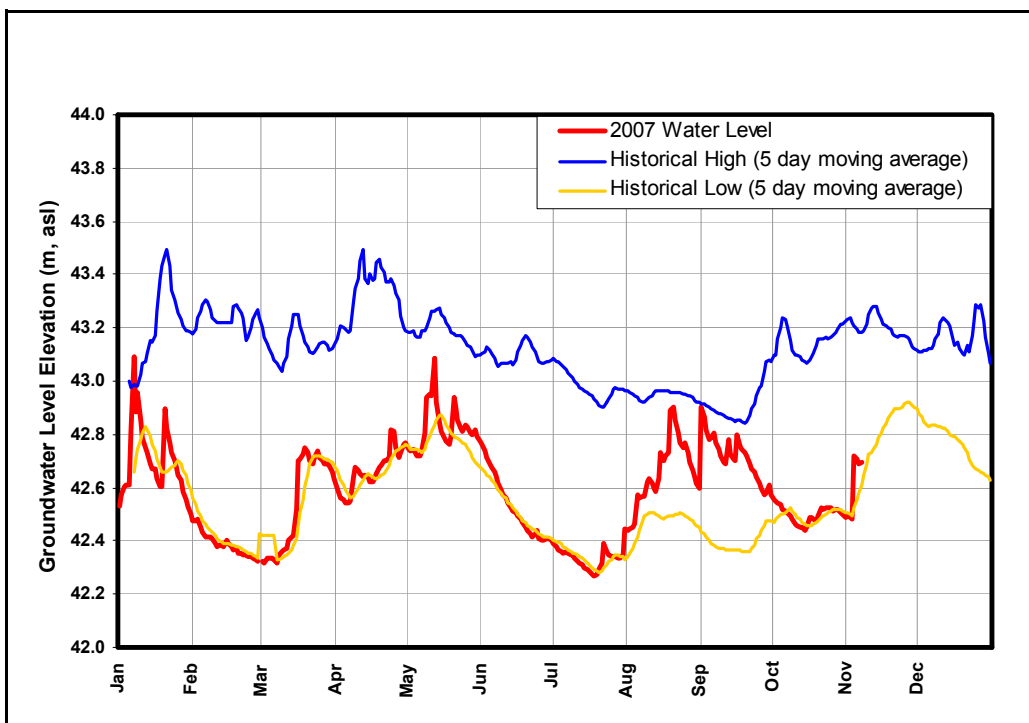


Figure 3.72: Margaree (064) 2007 Water Level Graph

3.21 Ingonish (065)

Well Description

The Ingonish (065) observation well is located near the community of Ingonish Beach, Victoria County. The well was constructed in December 1989 to expand the NS Groundwater Observation Well Network. The well is completed in a bedrock aquifer. It is 45.7 m deep and the casing depth extends to 12.2 m. Well location and construction information is provided in Table 3.21 and the well log is provided in Appendix A.

The location of the Ingonish (065) observation well is shown in Figure 3.73. The well is situated on the Highlands Links golf course, within the Cape Breton Highlands Park. It is located 1.5 km south of Ingonish Center, and is approximately 30 m north west of Clyde Burn Brook. The well is stationed in a forested area, adjacent to a small storage building (see site photo in Figure 3.74). There may be golf course irrigation wells nearby.

Table 3.21: Ingonish (065) Well Construction Information

Well Name	Ingonish (065)
Observation Well ID Number	065
NSE Well Log Number	892288
County	Victoria
Nearest Community	Ingonish Beach
UTM - Easting	698083
UTM - Northing	5170473
Year Monitoring Started	1990
Casing Depth (m, bgs)	12.2
Well Depth (m, bgs)	45.7
Elevation - top of casing (m, asl)	7.0
Geologic Unit	Early Devonian Granodiorite
Aquifer Material	Bedrock - granodiorite

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Ingonish (065) is shown in Figure 3.75 and the 2007 water level graph is shown in Figure 3.76. This well has been monitored since November 1990 and water levels appear to have remained the same over time. From 1990 until August of 1998 the average water level elevation was approximately 2.17 m above sea level with annual fluctuations between 1.5 and 4.25 m. The average water level elevation for the period when monitoring resumed in December 2006 to the end 2007 was 2.16 m above sea level. The 2007 water levels were within the historically observed water level range for this well. The depth to water in this well is about 4.4 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry

The Ingonish (065) well has not been sampled and, therefore, water chemistry results are not available. The temperature at this well has been monitored since December 2006, and typically ranges between approximately 5.9 and 6.7°C. The average groundwater temperature is approximately 6.30 °C. A graph of hourly temperature data since December 2006 is presented in Appendix C.

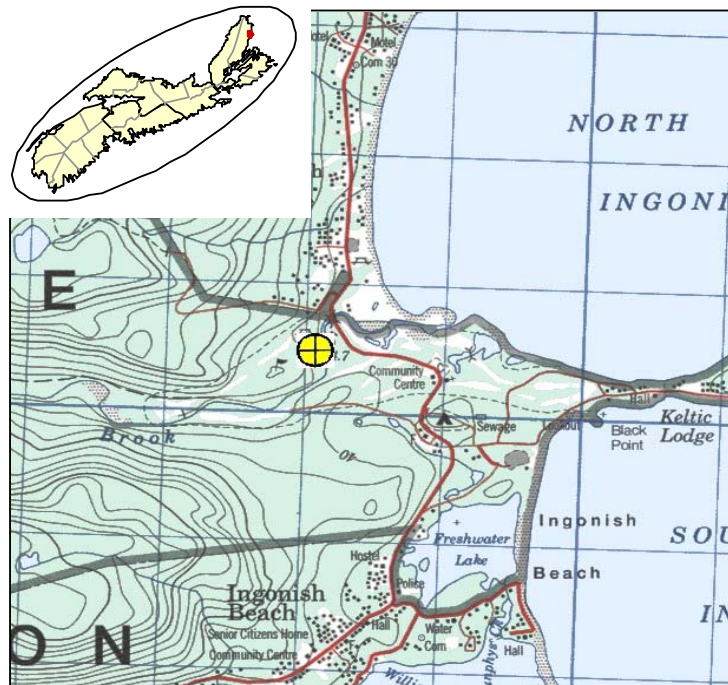


Figure 3.73: Ingonish (065) Site Location



Figure 3.74: Ingonish (065) Site Photograph

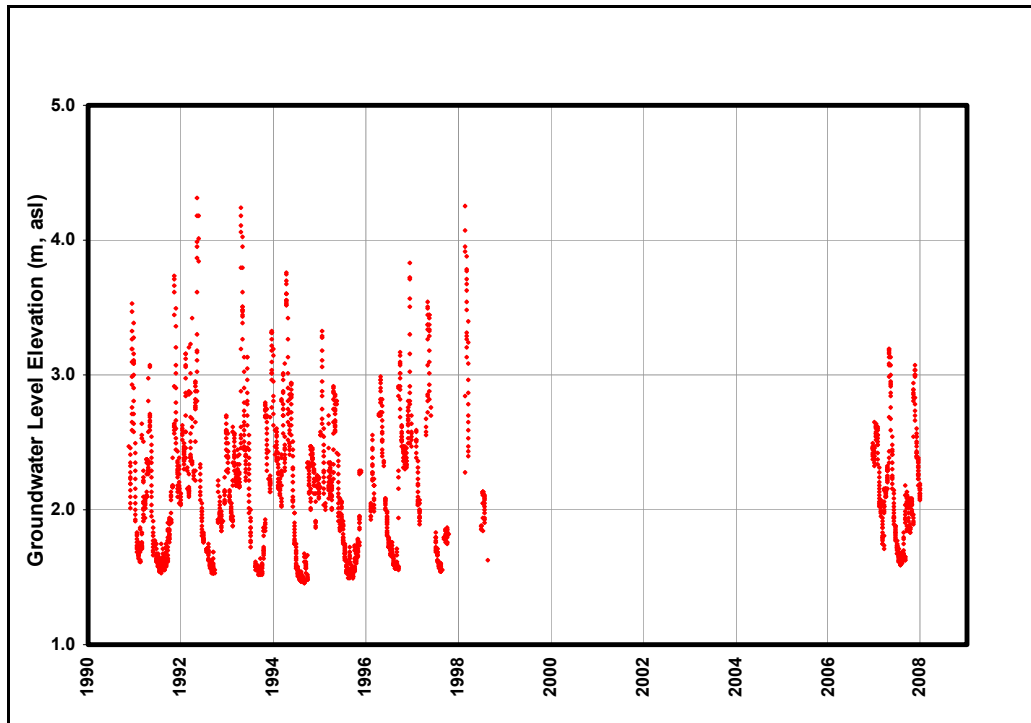


Figure 3.75: Ingonish (065) Historical Water Level Graph

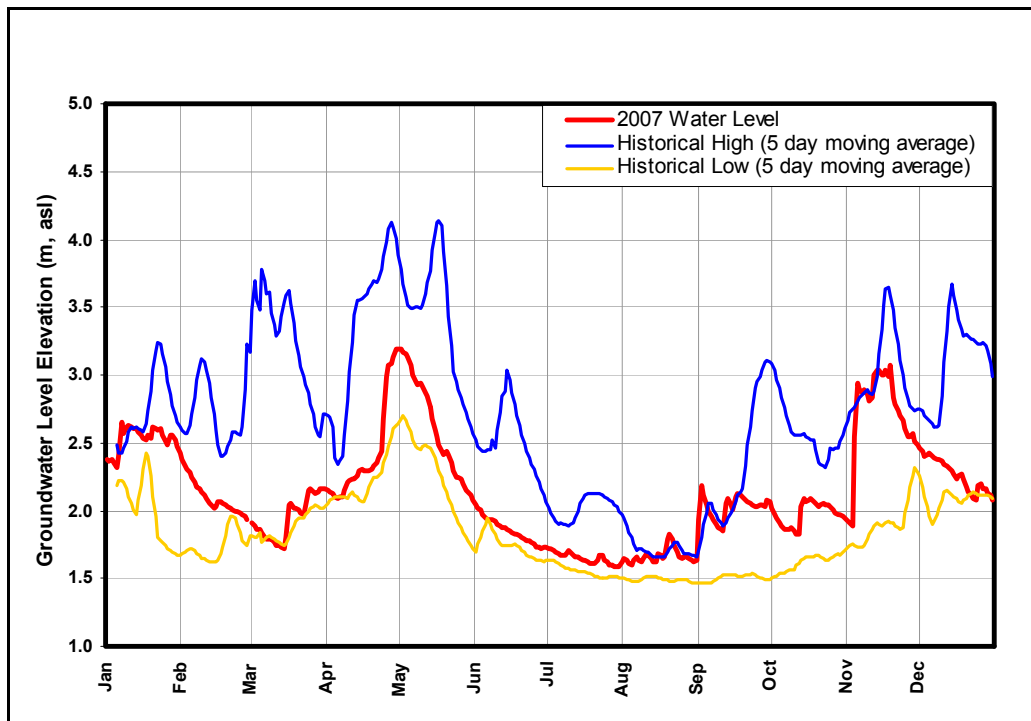


Figure 3.76: Ingonish (065) 2007 Water Level Graph

3.22 Debert (068)

Well Description

The Debert (068) observation well is located near the community of Debert, Colchester County. The well was constructed in August 1983 as a domestic water supply and was added to the NS Observation Well Network in 1993 to expand the network. The well is completed in a bedrock aquifer comprised of conglomerate. It is 46.6 m deep and the casing extends to a depth of 7.9 m. Well location and construction information is provided in Table 3.22 and the well log is provided in Appendix A.

The location of the Debert (068) observation well is shown in Figure 3.77. The well is situated within the Debert Industrial Park, north of Highway 104. It is located in a cleared area beside a parking lot.

Table 3.22: Debert (068) Well Construction Information

Well Name	Debert (068)
Observation Well ID Number	068
NSE Well Log Number	832002
County	Colchester
Nearest Community	Debert
UTM - Easting	466921
UTM - Northing	5028483
Year Monitoring Started	1993
Casing Depth (m, bgs)	7.9
Well Depth (m, bgs)	46.6
Elevation - top of casing (m, asl)	28.4
Geologic Unit	Wolfville Formation
Aquifer Material	Bedrock-conglomerate

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Debert (068) is shown in Figure 3.78 and the 2007 water level graph is shown in Figure 3.79. This well has been monitored since June 1993, and water levels appear to have remained the constant over time. From June 1993 until June 1995 the average water level elevation was approximately 24.0 m above sea level, with an annual variation of approximately 2.0 m. The average water level elevation for the period when monitoring resumed in May 2006 to the end 2007 was 24.25 m above sea level. Based on the previous years of data, the 2007 water levels, shown in Figure 3.79, exhibit levels of a typical year. The depth to water in this well is about 4.0 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Debert (068) well has not been sampled and, therefore, water chemistry results are not available. The temperature at this well has been monitored since May 2006, and typically ranges between approximately 6.5 and 10.0°C. The average groundwater temperature is approximately 8.54 °C. A graph of hourly temperature data since May 2006 is presented in Appendix C.

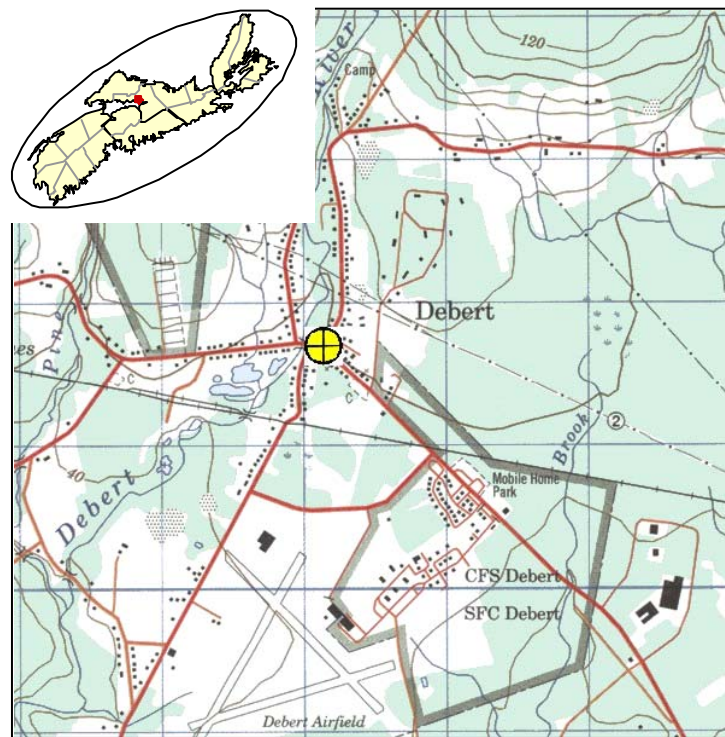


Figure 3.77: Debert (068) Site Location

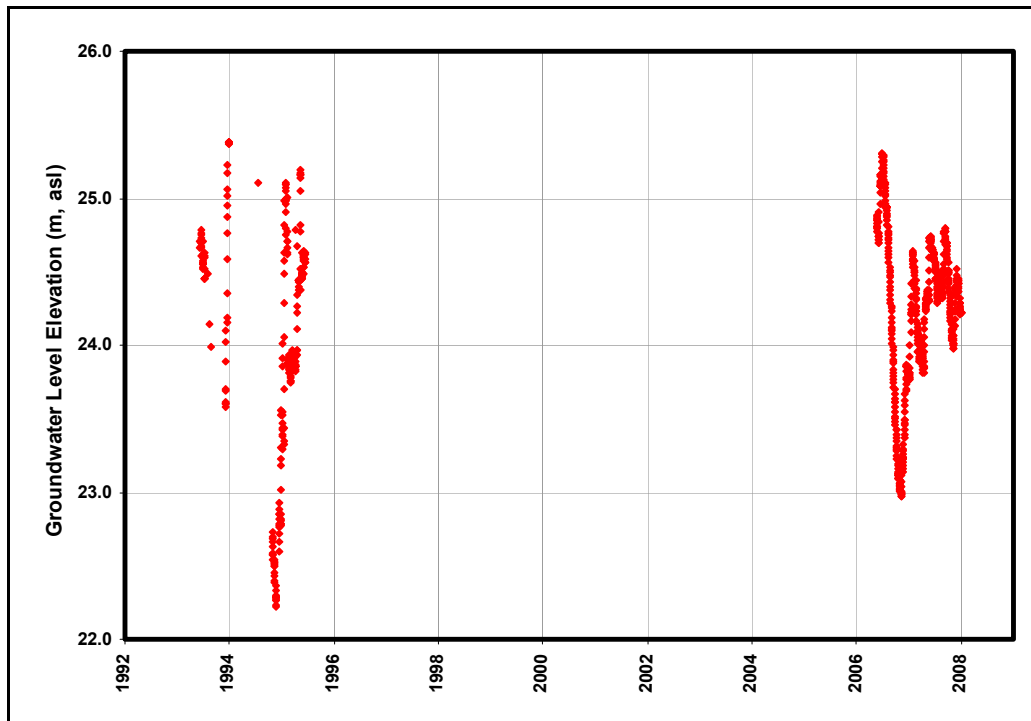


Figure 3.78: Debert (068) Historical Water Level Graph

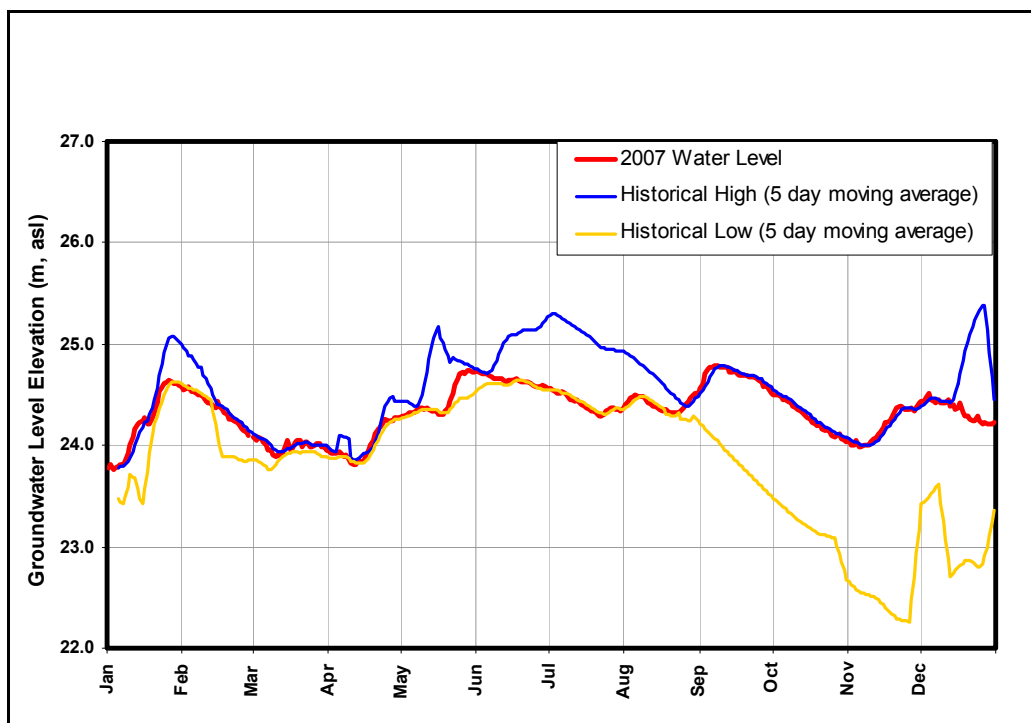


Figure 3.79: Debert (068) 2007 Water Level Graph

3.23 Dalem Lake (069)

Well Description

The Dalem Lake (069) observation well is located near the community of New Dominion, Victoria County. This well was drilled circa 1994 by Nova Scotia Environment to expand the NS Groundwater Observation Well Network. The well is completed in a bedrock aquifer, comprised of sandstone. It is 61.0 m deep and the casing depth extends to 12.4 m. Well location and construction information is provided in Table 3.23.

The location of the Dalem Lake (069) observation well is shown in Figure 3.80. The well is located approximately 75 m south of the 105 Trans Canada Highway. There are no other wells in the nearby area and the surrounding land has recently been logged.

Table 3.23: Dalem Lake (069) Well Construction Information

Well Name	Dalem Lake (069)
Observation Well ID Number	069
NSE Well Log Number	943326
County	Victoria
Nearest Community	New Dominion
UTM - Easting	698221
UTM - Northing	5124576
Year Monitoring Started	1992
Casing Depth (m, bgs)	12.4
Well Depth (m, bgs)	61
Elevation - top of casing (m, asl)	93.8
Geologic Unit	South Bar Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Dalem Lake (069) is shown in Figure 3.81 and the 2007 water level graph is shown in Figure 3.82. This well has been monitored since June 1992 and water levels appear to have remained the same. The average water level elevation between August 1992 and the end of 1996 was approximately 86.80 m above sea level. The average water level elevation for the period when monitoring resumed in June 2006 to the end 2007 was 86.75 m above sea level. The 2007 water levels were within the historically observed water level range for this well. The depth to water in this well is about 5.5 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Dalem Lake (069) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded, however, the manganese level of 330 µg/L was above the recommended aesthetic objective of 50 µg/L. VOCs and pesticides were not detected. The tritium level in this well was 3.61 TU (+/- 0.30), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at this well is 6.83 °C and fluctuates annually between approximately 6.4 and 7.3 °C. A graph of daily average temperature data collected since June 2006 is presented in Appendix C.

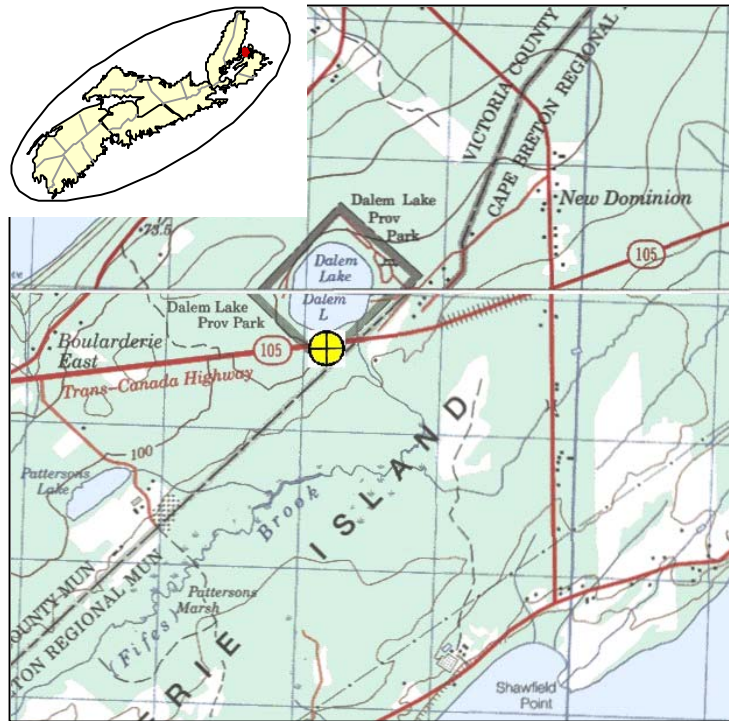


Figure 3.80: Dalem Lake (069) Site Location

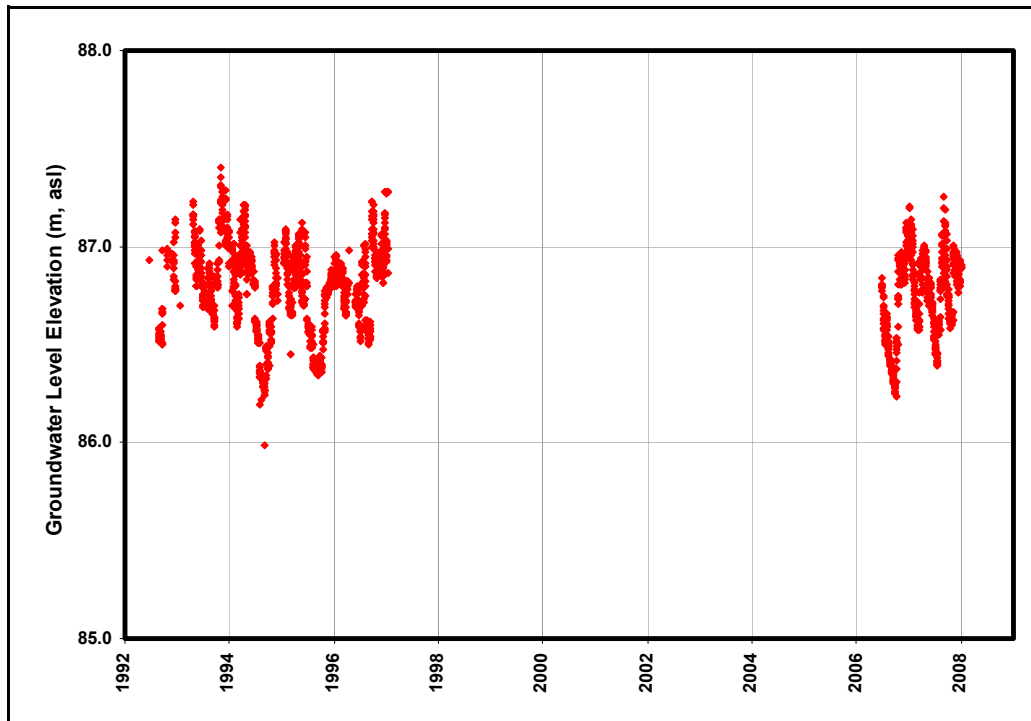


Figure 3.81: Dalem Lake (069) Historical Water Level Graph

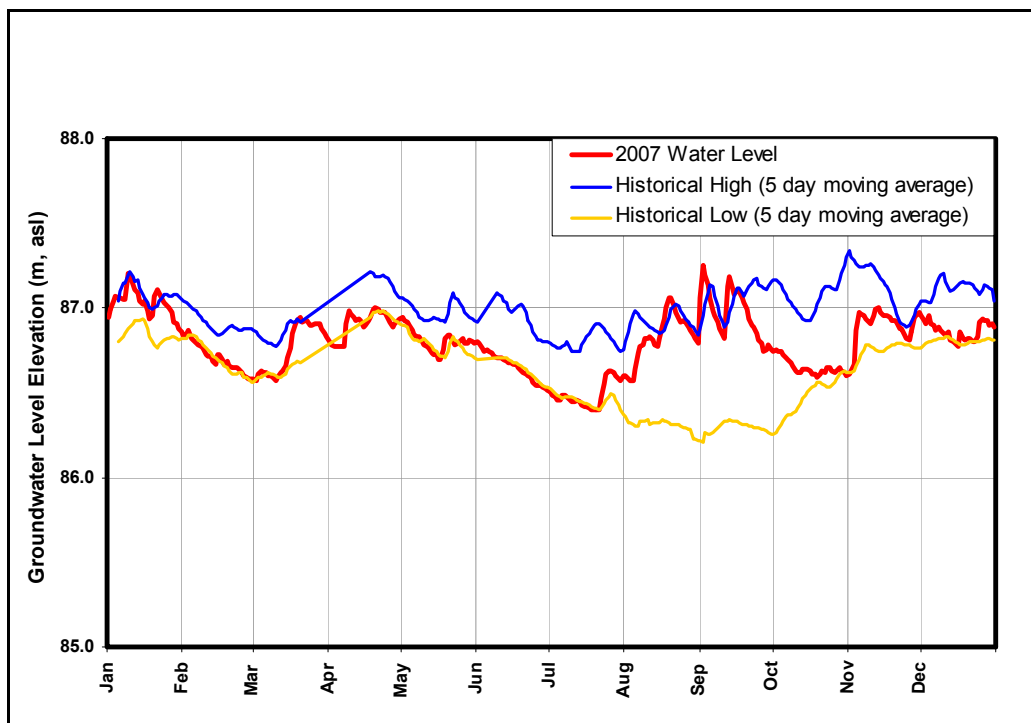


Figure 3.82: Dalem Lake (069) 2007 Water Level Graph

3.24 Amherst (071)

Well Description

The Amherst (071) observation well is located near the Town of Amherst, Cumberland County. It was drilled in July 1986 as a test well for the Town of Amherst's wellfield and was originally named "Test Hole No. 86-9". The well is completed in an aquifer comprised of sandstone. It is 91.4 m deep and the casing depth is 5.7 m. Well location and construction information is provided in Table 3.24 and the well log is provided in Appendix A.

The location of the Amherst (071) observation well is shown in Figure 3.83. The well is situated approximately 175 m northwest of Route 66 (Tyndal Road), within an inactive field. There are two domestic wells within 125 m of this observation well and the Town of Amherst's wellfield is located nearby.

Table 3.24: Amherst (071) Well Construction Information

Well Name	Amherst (071)
Observation Well ID Number	071
NSE Well Log Number	862667
County	Cumberland
Nearest Community	Amherst
UTM - Easting	411279
UTM - Northing	5079213
Year Monitoring Started	1993
Casing Depth (m, bgs)	6.1
Well Depth (m, bgs)	116.4
Elevation - top of casing (m, asl)	17.8
Geologic Unit	Balfron Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

Monitoring Results - Water Levels

The historical water level graph for Amherst (071) is shown in Figure 3.84 and the 2007 water level graph is shown in Figure 3.85. This well has been monitored since May 1993, and water levels appear to have remained the same over time. From May 1993 until August 1995, the monitoring data are intermittent and there are no data available from 1996 to 2006. The average water level elevation at this well is approximately 14.8 m above sea level and the depth to water in this well is about 2.5 m below ground surface. Based on the previous years of data, the 2007 water levels in Figure 3.85 exhibit levels of a typical year. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Amherst (071) well was last sampled in December 2006. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs and pesticides were not detected. The tritium level in this well was 4.0 TU (+/- 0.32), indicating that the water in this well is either a mix of old and recent water (i.e., recharge occurred before and after 1952) or is recent water (i.e., recharge occurred after 1952).

The average groundwater temperature at this well is 7.35 °C and fluctuates annually between approximately 6.0 and 8.5 °C. A graph of daily average temperature data collected since July 2006 is presented in Appendix C.

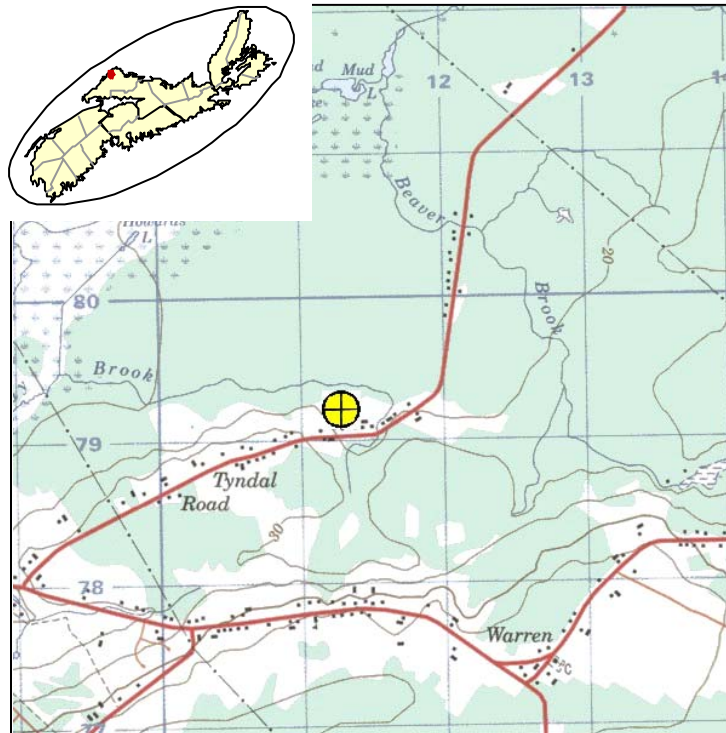


Figure 3.83: Amherst (071) Site Location

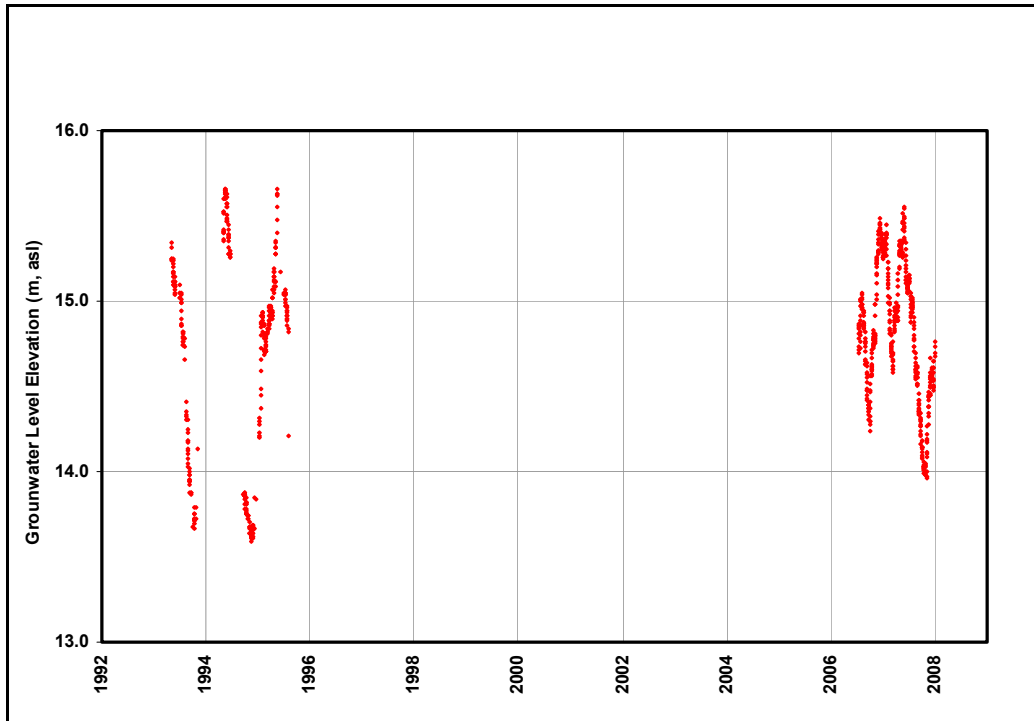


Figure 3.84: Amherst (071) Historical Water Level Graph

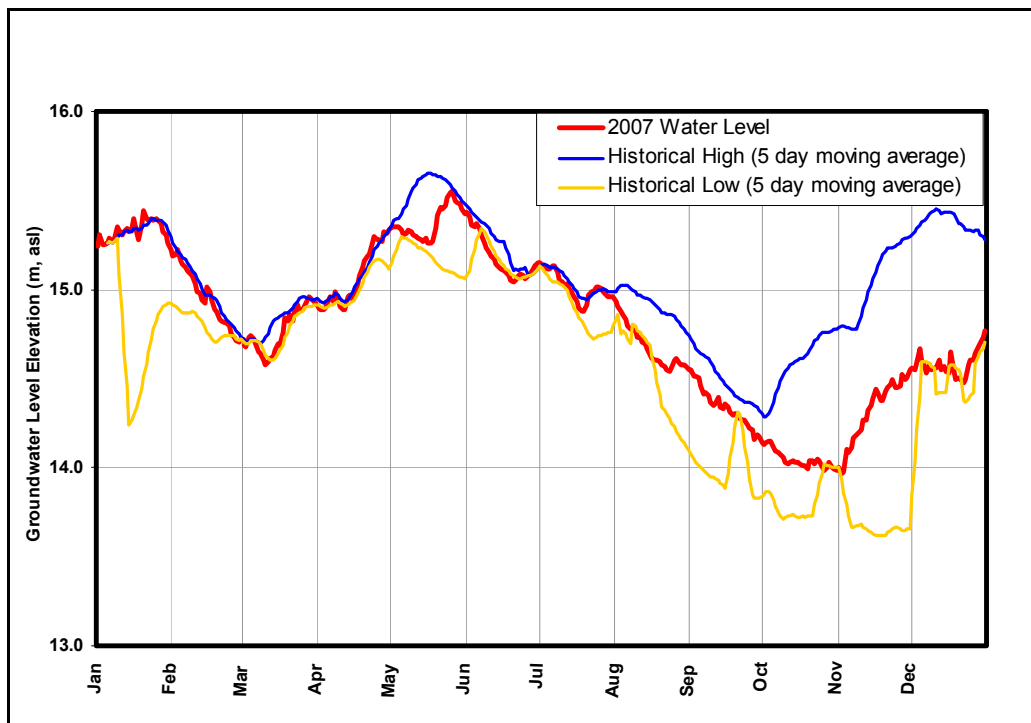


Figure 3.85: Amherst (071) 2007 Water Level Graph

3.25 Kelley River (073)

Well Description

The Kelley River (073) observation well is located near the community of River Herbert, Cumberland County. This well was drilled as part of a hydrogeological investigation of the Kelley River Basin in 1972 (Hennigar, 1974). In the report entitled "Hydrogeology of the Kelley River IHD Benchmark Basin Cumberland County, NS" (Hennigar, 1974), this well is named "Observation well No.2".

The well is completed in a bedrock aquifer comprised of sandstone. It is approximately 11.6 m deep and the casing depth is 4.2 m. Well location and construction information is provided in Table 3.25 and the well log is provided in Appendix A.

Table 3.25: Kelley River (073) Well Construction Information

Well Name	Kelley River (073)
Observation Well ID Number	073
NSE Well Log Number	721858
County	Cumberland
Nearest Community	River Herbert
UTM - Easting	386806
UTM - Northing	5049171
Year Monitoring Started	2006
Casing Depth (m, bgs)	4.2
Well Depth (m, bgs)	11.6
Elevation - top of casing (m, asl)	33.1
Geologic Unit	Malagash Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Kelley River (073) observation well is shown in Figure 3.86. The well is located within the Chignecto Game Sanctuary, 13 km from the Boars Back Ridge Road. Positioned within a wooded area, the well is 18 m from Nova Scotia Environment's water quality station and

Environment Canada's hydrometric station on the Kelley River.

Monitoring Results - Water Levels

The historical water level graph for Kelley River (073) is shown in Figure 3.87 and the 2007 water level graph is shown in Figure 3.88. This well has been monitored since July 2006. From July 2006 to December 2007, the average water level elevation was 31.5 m above sea level and the depth to water was approximately 1.5 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Kelley River (073) well was last sampled in January 2007. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs and pesticides were not detected. The tritium level in this well was 3.78 TU (+/- 0.32), indicating that the water in this well is a mix of old and recent water (i.e., recharge occurred before and after 1952).

The average groundwater temperature at this well is 6.63 °C and fluctuates annually between approximately 6.2 and 7.1 °C. A graph of daily average temperature data collected since July 2006 is presented in Appendix C. Due to equipment failure, temperature data after September 26, 2007 is not available.

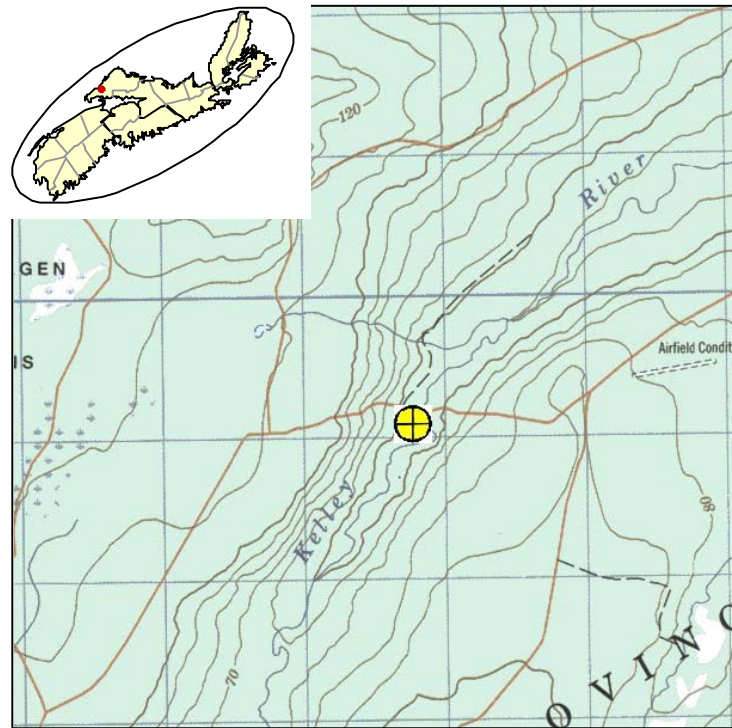


Figure 3.86: Kelley River (073) Site Location

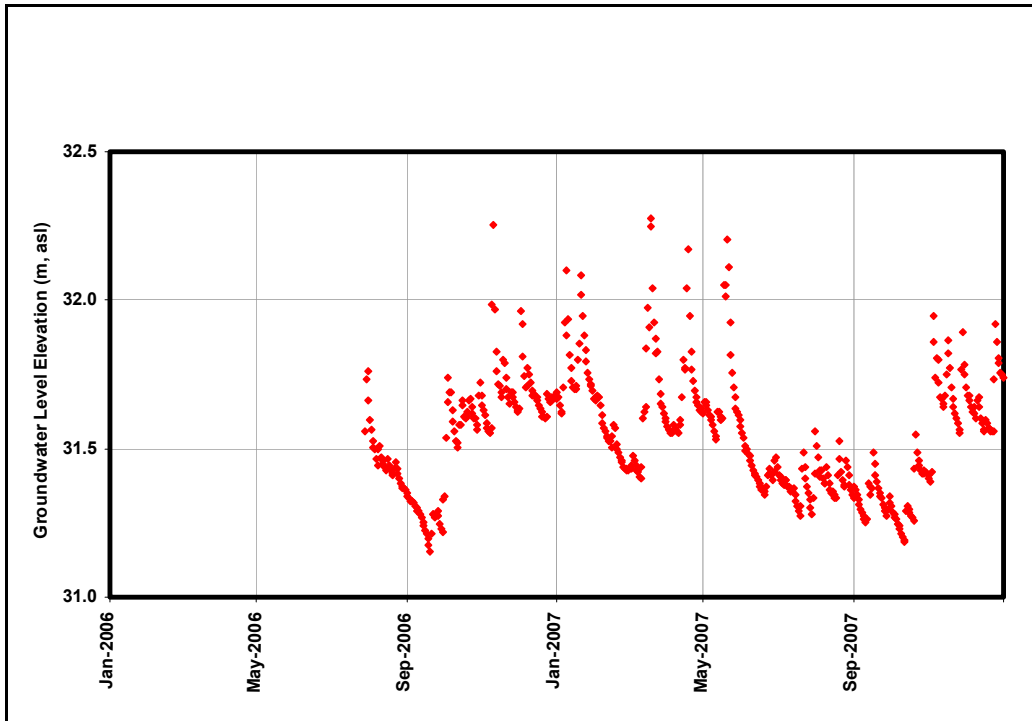


Figure 3.87: Kelley River (073) Historical Water Level Graph

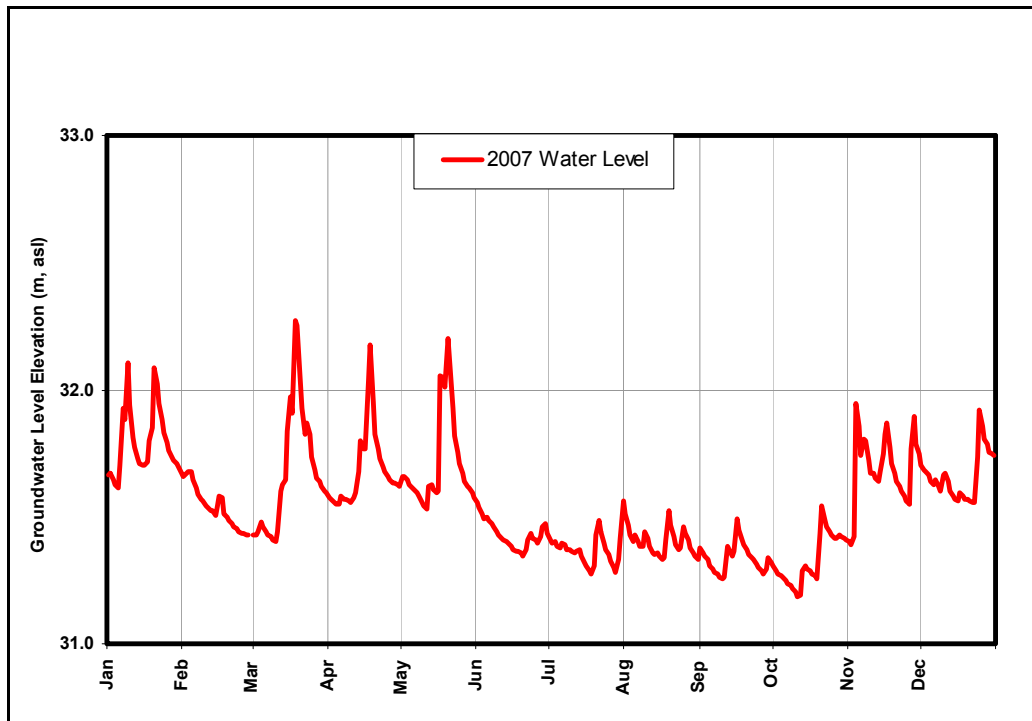


Figure 3.88: Kelley River (073) 2007 Water Level Graph

3.26 Atlanta (074)

Well Description

The Atlanta (074) observation well is located near the community of Atlanta, Kings County. The well was constructed in August 2007 as part of a aquifer evaluation project completed by Nova Scotia Department of Environment and Labour. The well is completed in a bedrock aquifer comprised of sandstone. It is 53.4 m deep and the casing extends to a depth of 36.0 m. Well location and construction information is provided in Table 3.26 and the well log is provided in Appendix A. A 72-hour pump test conducted at this well in 2007 indicated a transmissivity of 105 m²/day, hydraulic conductivity of 5.7 m/day and a safe yield of 1227 m³/day (188 igpm).

Table 3.26: Atlanta (074) Well Construction Information

Well Name	Atlanta (074)
Observation Well ID Number	074
NSE Well Log Number	070613
County	Kings
Nearest Community	Atlanta
UTM - Easting	381956
UTM - Northing	5000758
Year Monitoring Started	2007
Casing Depth (m, bgs)	36.0
Well Depth (m, bgs)	53.4
Elevation - top of casing (m, asl)	NA
Geologic Unit	Blomidon Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Atlanta (074) observation well is shown in Figure 3.89. The well is located on approximately 250 m south of Bains Road and is surrounded by undeveloped land in a wooded area. It is located 150 m from the nearest domestic well and 150 m from the Habitant River.

Monitoring Results - Water Levels

Water level monitoring was not in progress in 2007. The water level in this well is approximately 1.1 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Atlanta (074) well was last sampled in September 2007. Water chemistry results are presented in Appendix B. The results indicate that one health-based drinking water guideline was exceeded, for uranium. The uranium level in this well was 21 µg/L, which exceeds the drinking water guideline of 20 µg/L. VOCs and pesticides were not detected.

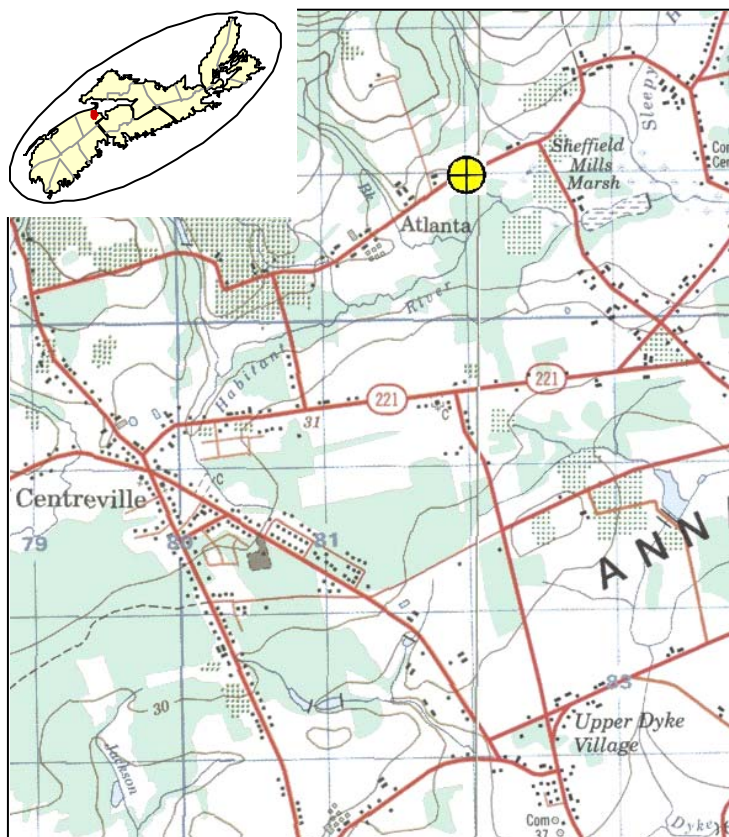


Figure 3.89: Atlanta (074) Site Location



Figure 3.90: Atlanta (074) Site Photograph

3.27 Sheffield Mills (075)

Well Description

The Sheffield Mills (075) observation well is located near the community of Sheffield Mills, Kings County. The well was constructed in August 2007 as part of a aquifer evaluation project completed by Nova Scotia Department of Environment and Labour. The well is completed in a bedrock aquifer, comprised of sandstone. It is 53.4 m deep and the casing depth is 19.2 m. Well location and construction information is provided in Table 3.27 and the well log is provided in Appendix A. A 72-hour pump test conducted at this well in 2007 indicated a transmissivity of 72.4 m²/day, hydraulic conductivity of 5.7 m/day and a safe yield of 371 m³/day (57 igpm).

Table 3.27: Sheffield Mills (075) Well Construction Information

Well Name	Sheffield Mills (075)
Observation Well ID Number	075
NSE Well Log Number	070618
County	Kings
Nearest Community	Sheffield Mills
UTM - Easting	384693
UTM - Northing	5000590
Year Monitoring Started	2007
Casing Depth (m, bgs)	19.2
Well Depth (m, bgs)	53.4
Elevation - top of casing (m, asl)	NA
Geologic Unit	Wolfville Formation
Aquifer Material	Bedrock - sandstone

Notes: bgs = below ground surface; asl = above sea level

The location of the Sheffield Mills (075) observation well is shown in Figure 3.91. The well is located south of Highway 221 in an active agricultural field which is used for growing vegetables (see Figure 3.92). It is located 165 m from the Habitant River and there are several houses with domestic wells located within 300 m.

Monitoring Results - Water Levels

Water level monitoring was not in progress in 2007. The water level in this well is approximately 4.4 m below ground surface. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

Monitoring Results - Water Chemistry and Temperature

The Sheffield Mills (075) well was last sampled in September 2007. Water chemistry results are presented in Appendix B. The results indicate that no health-based drinking water guidelines were exceeded. VOCs and pesticides were not detected.

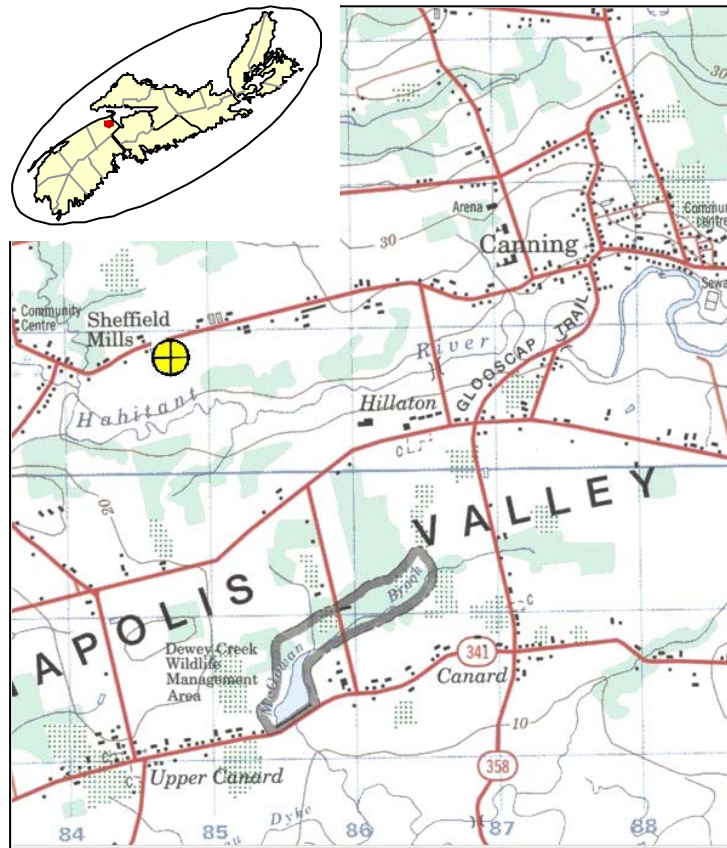


Figure 3.91: Sheffield Mills (075) Site Location



Figure 3.92: Sheffield Mills (075) Site Photograph

4.0 SUMMARY & CONCLUSIONS

4.1 Groundwater Levels

Table 4.1 presents a summary of groundwater level trends for each observation well. The trend analyses were only carried out on wells with at least ten years of “useable” water level data. A year was considered useable if data were available for at least 75% of the year. Eleven of the observation wells had enough water level data available to complete trend analyses. The remaining 16 wells had either been monitored for less than ten years, or had data gaps that caused some years of monitoring data to be “unuseable”. Trends were considered statistically significant if the confidence level was greater than 80%.

The results indicate that seven of the wells exhibit statistically significant groundwater level trends, with four having small upward trends and three having small downward trends. The downward trends tend to be larger than the upward trends, however, the size of the trends in all cases is relatively small.

Upward trends were observed at the following wells: Fraser Brook (004), Point Aconi (030), Durham (045) and Hayden Lake (059). The largest upward trend was 2.2 cm/year at the Durham(045) observation well, which resulted in a total rise of approximately 0.6 m over the entire monitoring period at this well. The reason for the upward trends at these wells has not been determined, however, possible reasons include: increased precipitation; greater infiltration rates due to changes in land use; and, reduction in evapotranspiration rates.

Downward trends were observed at the following wells: Wolfville (010), Kentville (048) and Sydney (050). The largest downward trend was 5.4 cm/year at the Sydney (050) observation well, which resulted in a total decline of approximately 1.0 m since monitoring began. The reason for the downtrends trends at these wells has not been confirmed, however, all of these observation wells are located in municipal wellfields and, therefore, groundwater levels in these areas have probably been lowered due to pumping.

Table 4.1: Summary of Groundwater Level Trends

Well Name	Year Monitoring Started	No. of Usable Years¹	Average Yearly Water Level Change (cm/year)²	Total Water Level Change Since Monitoring Began (m)	Water Level Trend³
Greenwood (003)	1968	19	NA	NA	No Trend
Fraser Brook (004)	1968	18	0.3	0.1	Up
Wilmot (005)	1969	17	NA	NA	No Trend
Wolfville (010)	1970	19	-2.7	-0.7	Down
Truro (014)	1974	15	NA	NA	No Trend
Monastery (028)	1979	9	NA	NA	Insufficient Data
Point Aconi (030)	1979	15	0.7	0.2	Up
Lawrencetown (043)	1979	11	NA	NA	No Trend
Durham (045)	1980	22	2.2	0.6	Up
Kentville (048)	1983	14	-0.8	-0.6	Down
Sydney (050)	1985	13	-5.4	-1	Down
North Grant (054)	1988	6	NA	NA	Insufficient Data
Stillwater (055)	1988	5	NA	NA	Insufficient Data
Sheet Harbour (056)	1987	<4	NA	NA	Insufficient Data
Charleston (058)	1989	5	NA	NA	Insufficient Data
Hayden Lake (059)	1988	13	1.6	0.3	Up
Meteghan (060)	1988	7	NA	NA	Insufficient Data
Annapolis Royal (062)	1992	6	NA	NA	Insufficient Data
Hebron (063)	1993	6	NA	NA	Insufficient Data
Margaree (064)	1991	6	NA	NA	Insufficient Data
Ingonish (065)	1991	5	NA	NA	Insufficient Data
Debert (068)	1993	<4	NA	NA	Insufficient Data
Dalem Lake (069)	1994	4	NA	NA	Insufficient Data
Amherst (071)	2006	<4	NA	NA	Insufficient Data

Well Name	Year Monitoring Started	No. of Usable Years ¹	Average Yearly Water Level Change (cm/year) ²	Total Water Level Change Since Monitoring Began (m)	Water Level Trend ³
Kelley River (073)	2007	<4	NA	NA	Insufficient Data
Atlanta (074)	2007	<4	NA	NA	Insufficient Data
Sheffield Mills (075)	2007	<4	NA	NA	Insufficient Data

Notes:

1. For a year to be considered a “useable” year, data must be available for at least 75% of the year.
2. Positive (+) values indicate upward trend and negative (-) values indicate downward trend.
3. The trend is considered to be statistically significant if the confidence level is 80% or more.
5. Insufficient data means there are less than 10 useable years of data available.

4.2 Groundwater Quality

Table 4.2 presents a summary of the groundwater quality results for each of the network’s observation wells. Detailed chemistry results are available in Appendix B. The results indicate that five of the 27 wells exceeded health-based drinking water guidelines. The parameters that exceeded health-based guidelines include; arsenic (at two wells), lead, nitrate and uranium.

Arsenic is known to occur in groundwater in certain areas of the province due to the presence of naturally-occurring arsenic in soil and bedrock. The most common source of arsenic in groundwater is through erosion and weathering of soils, minerals and ores. Industrial effluents and pesticide runoff may also contribute arsenic to water in some areas.

Lead occurs naturally in soil and rock, but is not commonly found dissolved in groundwater at high levels. The main source of lead in drinking water is through corrosion of plumbing materials with lead components, such as pipes, solder, faucets, fittings and older galvanized well liners.

Nitrate is a naturally occurring chemical made of nitrogen and oxygen. In groundwater, nitrate primarily comes from decomposing plant and animal material, agricultural fertilizers, manure, and domestic sewage.

Uranium is a naturally occurring radioactive element that exists in soil and rock throughout some parts of Nova Scotia. Elevated levels of uranium are more likely to occur in drilled wells than in dug wells or surface water supplies. Furthermore, elevated uranium levels are most commonly observed in the following bedrock types in Nova Scotia: granite, sandstone and shale.

Several water quality parameters exceeded aesthetic drinking water guidelines in the observation well, as follows: manganese (at seven wells), iron (at four wells), chloride (at one well), pH (at two wells) and turbidity (at four wells). All of these parameters are naturally-occurring water quality problems that are commonly encountered in water wells in Nova Scotia.

The water quality results show that none of the observation wells exceeded drinking water guidelines for VOCs, pesticides or perchlorate. However, two VOCs were detected in three observation wells at very low levels (i.e., chloroform at 3.2 ug/L in one well, and toluene at 1 ug/L in two other wells). The source of the VOCs at these wells has not been determined. Perchlorate was also detected at two observation wells at very low levels (i.e., 100 times less than the recommended Health Canada guidance value for perchlorate). The source of the perchlorate at these observation wells has not been determined. No pesticides were detected in any of the observation wells.

The hourly groundwater temperature data collected at each observation well (see Appendix C) shows that all of the observation wells experience seasonal temperature fluctuations. The peak groundwater temperatures lag behind the seasonal changes, with peak highs usually occurring between September and January and peak lows usually occurring between March and June. The temperature range at each observation well is variable, however, the typical range is between 6°C and 10°C, with a typical average temperature of approximately 8°C.

Table 4.2: Summary of Groundwater Quality Results At All Observation Wells

Well Name	Parameters Exceeding Health- Based Drinking Water Guidelines	Parameters Exceeding Aesthetic Drinking Water Guidelines	Comments
Greenwood (003)	None	Iron, Manganese, pH, Turbidity	None
Fraser Brook (004)	Arsenic	None	None
Wilmot (005)	Nitrate	Turbidity	None
Wolfville (010)	None	None	Chloride exceeds background levels
Truro (014)	Not sampled	Not sampled	Not sampled
Monastery (028)	None	None	None
Point Aconi (030)	None	Manganese	None
Lawrencetown (043)	Arsenic	None	Chloride exceeds background levels
Durham (045)	None	None	None
Kentville (048)	Lead	Chloride, Iron	Perchlorate detected below guideline
Sydney (050)	None	Manganese	None
North Grant (054)	None	None	None
Stillwater (055)	None	None	Toluene detected below guideline
Sheet Harbour (056)	Not sampled	Not sampled	Not sampled
Charleston (058)	Not sampled	Not sampled	Not sampled
Hayden Lake (059)	None	None	Chloroform detected below guideline; perchlorate detected below guideline
Meteghan (060)	None	Iron, Manganese, Turbidity	None
Annapolis Royal (062)	None	Manganese	Toluene detected below guideline on both sampling occasions

Well Name	Parameters Exceeding Health- Based Drinking Water Guidelines	Parameters Exceeding Aesthetic Drinking Water Guidelines	Comments
Hebron (063)	None	Iron, Manganese, pH, Turbidity	None
Margaree (064)	None	None	None
Ingonish (065)	Not sampled	Not sampled	Not sampled
Debert (068)	Not sampled	Not sampled	Not sampled
Dalem Lake (069)	None	Manganese	None
Amherst (071)	None	None	None
Kelley River (073)	None	None	None
Atlanta (074)	Uranium	None	None
Sheffield Mills (074)	None	None	None

The tritium results indicate that most of the wells tested (i.e., 13 of 17 wells) contained either recent water (recharged after 1952), or a mix of recent and old water (recharged before and after 1952). Only four of the seventeen wells tested for tritium contained purely old water (recharged before 1952). The results suggest that groundwater in these aquifers is recharged relatively quickly. This is encouraging from a water quantity point of view because the aquifers are being regularly replenished with new water, however, it also indicates that the aquifers are vulnerable to contamination (i.e., contaminants released at the surface will be carried into the aquifer relatively quickly). This emphasizes the importance of source water protection plans in the province to ensure that groundwater is kept clean.

5.0 REFERENCES

Baechler, F.E. 1986. Regional Water Resources Sydney Coalfield, Nova Scotia. Department of the Environment, Halifax.

Bottomley, D.J. 1983. Origins of Some Arseniferous Groundwaters in Nova Scotia and New Brunswick, Canada. *Canada Journal of Hydrology*, 69: 223-257.

Callan, D.M. 1977. Groundwater Exploration and Testing Programme - Annapolis Valley Industrial Park, Kentville, N.S.

Clark I.D. and P. Fritz. 1997. *Environmental Isotopes in Hydrogeology*. Lewis Publishers, Boca Raton.

Cross, H.J. 1980. Report on Test Drilling, Upper Lawrencetown, Halifax County, Nova Scotia. Department of the Environment, Water Planning and Management Division, Halifax.

Environment Canada. 2007. Canadian Climate Normals Online. <http://climate.weatheroffice.ec.gc.ca>

Gibb, J.E., and K.A. McMullin. 1980. Regional Water Resources, Pictou County, Nova Scotia. Nova Scotia Department of the Environment.

Gilbert, R.O. 1987. *Statistical Methods for Environmental Pollution Monitoring*. John Wiley & Sons.

Health Canada. 2007. Perchlorate and Human Health.
(Website: http://www.hc-sc.gc.ca/ewh-semt/water-eau/drink-potab/perchlorate_e.html)

Hennigar, T.W. 1966. Report on the geology and hydrology of the Fraser Brook Watershed, IHD-IWB-RB-23.

Hennigar, T.W. 1972. Hydrogeology of the Truro Area, Nova Scotia. Province of Nova Scotia Department of Mines, Groundwater Section report 72-1.

Hennigar, T.W. 1974. Hydrogeology of the Kelley River IHD Benchmark Basin, Cumberland County, Nova Scotia. Province of Nova Scotia Department of Environment.

McIntosh, J.R. 1984. Groundwater Hydrographs in Nova Scotia 1965-1981. Nova Scotia Department of the Environment.

NS Environment and Labour. 2007. Nova Scotia Groundwater Observation Well Network - 2007 Report. Nova Scotia Department of Environment and Labour.

Rivard, C., D. Paradis, S.J. Paradis, A. Bolduc, R.H. Morin, S. Liao, S. Pullan, Gauthier, M.-J., S. Trepanier, A. Blackmore, I. Spooner, C. Deblonde, R. Fernandes, S. Castonguay, Y. Michaud, J. Drage, and C. Paniconi. In progress. Canadian Groundwater Inventory: Regional Hydrogeological Characterization of the Annapolis-Cornwallis Valley Aquifers. Geological Survey of Canada.

Strait of Canso Natural Environment Committee. 1975. Strait of Canso Natural Environment Inventory Water Resources

Trescott, P.C. 1968. Groundwater Resources and Hydrogeology of the Annapolis-Cornwallis Valley, Nova Scotia. Nova Scotia Department of Mines, Memoir 6.

Trescott, P.C. 1969. Wolfville aquifer evaluation, Kings County, Nova Scotia. Province of Nova Scotia Department of Mines, Groundwater Section Report 69-1.

APPENDIX A

WELL LOGS

Table A-1: Summary of Observation Well Construction Information

NSE Well Log No.	Address	Community	County	Date	Well Depth	Casing Depth	Depth to Bedrock	Depth to Static Level	Water Yield	Driller	Type of Well
					(ft)	(ft)	(ft)	(ft)	(gpm)		
661225	NS OBS WELL - GREENWOOD (003)	GREENWOOD	KINGS	20-Jun-66	25	21.5				1	DRILLED
661226	NS OBS WELL - FRASER BROOK (004)	LOWER HARMONY	COLCHESTER	11-Jul-66	60		2		5	1	DRILLED
661267	NS OBS WELL - WILMOT (005)	WILMOT	ANNAPOLIS	18-May-66	60	21				1	DRILLED
681252	NS OBS WELL - WOLFVILLE (010)	WOLFVILLE	KINGS	17-Dec-68	79	74.5	35			1	DRILLED
701431	NS OBS WELL - TRURO (014)	TRURO	COLCHESTER	16-Nov-70	300	60	35			1	DRILLED
742420	NS OBS WELL - MONASTERY (028)	MONASTERY	ANTIGONISH	01-Jan-74	520				40	1	DRILLED
761408	NS OBS WELL - POINT ACONI (030)	POINT ACONI	CAPE BRETON	11-Aug-76	100	42	14		10	45	DRILLED
771538	NS OBS WELL - LAWRENCETOWN (043)	UPPER LAWRENCETOWN	HALIFAX	16-Mar-77	175	145	10	4	8	83	DRILLED
782683	NS OBS WELL - DURHAM (045)	DURHAM	PICTOU	01-Jul-78	247		20		100	4	DRILLED
772021	NS OBS WELL - KENTVILLE (048)	KENTVILLE	KINGS	20-May-77	400	100	95		150	20	DRILLED
771077	NS OBS WELL - SYDNEY (050)	SYDNEY	CAPE BRETON	09-Mar-77	330	22	13		250	45	DRILLED
871262	NS OBS WELL - NORTH GRANT (054)	LOWER NORTH GRANT	ANTIGONISH	30-Mar-87	150	43		14	20	2	DRILLED
871263	NS OBS WELL - STILLWATER (055)	STILLWATER	GUYSBOROUGH	01-Apr-87	118	44		30	4.5	2	DRILLED
871264	NS OBS WELL - SHEET HARBOUR (056)	BEAVER HARBOUR	HALIFAX	06-Apr-87	150	23		10	0.7	2	DRILLED
870190	NS OBS WELL - CHARLESTON (058)	RIVERSDALE	QUEENS	01-Apr-87	40		20	6		210	DRILLED
870189	NS OBS WELL - HAYDEN LAKE (059)	EAST JORDAN	SHELBURNE	31-Mar-87	160	20	10		3.7	210	DRILLED
870188	NS OBS WELL - METEGHAN (060)	METEGHAN RIVER	DIGBY	31-Mar-87	200	40			0.7	210	DRILLED
891722	NS OBS WELL - ANNAPOLIS ROYAL (062)	LAKE LA ROSE	ANNAPOLIS	20-Dec-89	205	80	71		0.5	210	DRILLED
891721	NS OBS WELL - HEBRON (063)	DAYTON	YARMOUTH	19-Dec-89	150	40	3		45	210	DRILLED
902524	NS OBS WELL - MARGAREE (064)	MARGAREE VALLEY	INVERNESS	16-Jan-90	150	40			10	45	DRILLED
892288	NS OBS WELL - INGONISH (065)	INGONISH	VICTORIA	12-Dec-89	150	40			100	45	DRILLED
832002	NS OBS WELL - DEBERT (068)	DEBERT	COLCHESTER	13-Aug-83	153	26		112	10	6	DRILLED
943326	NS OBS WELL - DALEM LAKE (069)	NEW DOMINION	VICTORIA	01-Jan-94	200	40.5					DRILLED
862667	NS OBS WELL - AMHERST (071)	AMHERST	CUMBERLAND	29-Jul-86	382	19	15			32	DRILLED
721858	NS OBS WELL - KELLEY RIVER (073)	RIVER HEBERT	CUMBERLAND	01-Jul-72	38	13.6					DRILLED
070613	NS OBS WELL - ATLANTA (074)	ATLANTA	KINGS	20-Aug-07	175	118		7.71	188	307	DRILLED
070618	NS OBS WELL - SHEFFIELD MILLS (075)	SHEFFIELD MILLS	KINGS	20-Aug-07	175	63		18.75	57	307	DRILLED

Well Report

(Summary Log)

NSEL Well No. 661225

Well Type **DRILLED**

Certified Well Contractor				Well Owner/Contractor Information				
Name <input style="width: 90%;" type="text" value="MINES"/>				Well Drilled For: Owner <input style="width: 20%;" type="text"/> <input style="width: 80%;" type="text" value="NS DEPT. OF MINES"/>				
Certificate No. <input style="width: 10%;" type="text" value="1"/>				or Contractor/Builder/Consultant, etc. <input style="width: 90%;" type="text"/>				
Company <input style="width: 90%;" type="text" value="N. S. DEPARTMENT OF MINES"/>				Civic Address of Well <input style="width: 90%;" type="text" value="NS OBS WELL - GREENWOOD (003)"/>				
				Lot Number <input style="width: 15%;" type="text"/> Subdivision <input style="width: 75%;" type="text"/>				
				County <input style="width: 40%;" type="text" value="KINGS"/> Postal Code <input style="width: 20%;" type="text"/>				
				Nearest Community in Atlas/Map Book <input style="width: 15%;" type="text" value="ATLAS"/> <input style="width: 65%;" type="text" value="GREENWOOD"/>				
Well Location								
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :				
Atlas or Map Book	<input style="width: 100%;" type="text"/>	Map Sheet	<input style="width: 100%;" type="text" value="21H2"/>	Northing (m)	<input style="width: 100%;" type="text" value="4985498"/>			
Map Page No.	<input style="width: 100%;" type="text"/>	Reference Map	<input style="width: 100%;" type="text" value="B"/>	Easting (m)	<input style="width: 100%;" type="text" value="350680"/>			
Reference Letter	<input style="width: 100%;" type="text"/>	Tract No.	<input style="width: 100%;" type="text" value="7"/>	Property (PID)	<input style="width: 100%;" type="text"/>			
Reference Number	<input style="width: 100%;" type="text"/>	Claim	<input style="width: 100%;" type="text" value="M"/>	Well Location Sketch Available <input type="checkbox"/>				
Roamer Letter	<input style="width: 100%;" type="text"/>							
Roamer Number	<input style="width: 100%;" type="text"/>							
<div style="display: flex; justify-content: space-between; align-items: center;"> <div style="width: 30%;">Depth in feet <input style="width: 100%;" type="text"/></div> <div style="width: 35%;">Primary Lithology <input style="width: 100%;" type="text"/></div> <div style="width: 35%;">Secondary Lithology <input style="width: 100%;" type="text"/></div> </div>								
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	25		FINE GRAINED	SAND		COARSE GRAIN	SAND	<input type="checkbox"/>
Well Construction Information			Dug Well Information			Water Yield		
Total depth below surface (ft) <input style="width: 100%;" type="text" value="25"/>			Depth of liner (crock) (ft) <input style="width: 100%;" type="text"/>			Estimated Yield (igpm) <input style="width: 100%;" type="text"/>		
Depth to bedrock (ft) <input style="width: 100%;" type="text"/>			Reservoir material <input style="width: 100%;" type="text"/>			Method <input style="width: 100%;" type="text"/>		
Water bearing fractures encountered at (ft): <div style="display: flex; justify-content: space-between;"><div><input style="width: 20%;" type="text"/></div><div><input style="width: 20%;" type="text"/></div><div><input style="width: 20%;" type="text"/></div><div><input style="width: 20%;" type="text"/></div><div><input style="width: 20%;" type="text"/></div><div><input style="width: 20%;" type="text"/></div></div>			Reservoir vol. (cu.yd) <input style="width: 100%;" type="text"/>			Rate (igpm) <input style="width: 100%;" type="text"/>		
Outer Well Casing:			Reservoir material size <input style="width: 100%;" type="text"/>			Duration (hrs) <input style="width: 100%;" type="text"/>		
From (ft) <input style="width: 100%;" type="text" value="0"/> To (ft) <input style="width: 100%;" type="text" value="22"/>			Apron Material <input style="width: 100%;" type="text"/>			Depth to water at end of test (ft) <input style="width: 100%;" type="text"/>		
Diameter (in) <input style="width: 100%;" type="text" value="4.5"/>			Apron depth (ft) <input style="width: 100%;" type="text"/>			Total drawdown (ft) <input style="width: 100%;" type="text"/>		
Length of casing above ground :			Apron thickness (ft) <input style="width: 100%;" type="text"/>			Water level recovered to (ft) <input style="width: 100%;" type="text"/>		
(ft) <input style="width: 100%;" type="text"/> (in) <input style="width: 100%;" type="text"/>			Apron width (ft) <input style="width: 100%;" type="text"/>			Recovery time (hrs) <input style="width: 100%;" type="text"/>		
Driveshoe make <input style="width: 100%;" type="text"/>			Apron volume (cu.yd) <input style="width: 100%;" type="text"/>			Depth to static level (ft) <input style="width: 100%;" type="text"/>		
			Bottom material <input style="width: 100%;" type="text"/>			Overflow <input type="checkbox"/>		
Comments <input style="width: 95%;" type="text" value="NS OBSERVATION WELL - GREENWOOD (003)"/>						Well Status/Water Use/Date Completed		
						Final status of well <input style="width: 100%;" type="text" value="OBSERVATION WELL"/>		
						Water use <input style="width: 100%;" type="text" value="MONITORING"/>		
						Method of drilling <input style="width: 100%;" type="text"/>		
						Date well completed <input style="width: 100%;" type="text" value="20-Jun-66"/>		

Well Report

(Summary Log)

NSEL Well No. 661226

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name MINES	Well Drilled For: Owner NS DEPT. OF MINES
Certificate No. 1	or Contractor/Builder/Consultant, etc.
Company N. S. DEPARTMENT OF MINES	Civic Address of Well NS OBS WELL - FRASER BROOK (004)
	Lot Number Subdivision
	County COLCHESTER Postal Code
	Nearest Community in Atlas/Map Book ATLAS LOWER HARMONY

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book	Map Sheet 11E6	Northing (m) 5021100
Map Page No.	Reference Map A	Easting (m) 486889
Reference Letter	Tract No. 81	Property (PID)
Reference Number	Claim J	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter		
Roamer Number		

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 2 REDDISH SANDY TILL		
6 60 REDDISH LAMINATED SILTSTONE GRAY LAYERS SILTSTONE		

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) 60	Depth of liner (crock) (ft)	Estimated Yield (igpm) 6.5
Depth to bedrock (ft) 2	Reservoir material	Method PUMP TEST
Water bearing fractures encountered at (ft):	Reservoir vol. (cu.yd)	Rate (igpm) 5
Outer Well Casing:	Reservoir material size	Duration (hrs) 24
From (ft) To (ft)	Apron Material	Depth to water at end of test (ft)
Diameter (in) 6	Apron depth (ft)	Total drawdown (ft) 29.5
Length of casing above ground :	Apron thickness (ft)	Water level recovered to (ft)
(ft) (in)	Apron width (ft)	Recovery time (hrs)
Driveshoe make	Apron volume (cu.yd)	Depth to static level (ft)
	Bottom material	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL - FRASER BROOK (004)	Final status of well OBSERVATION WELL
	Water use MONITORING
	Method of drilling
	Date well completed 11-Jul-66

Certified Well Contractor		Well Owner/Contractor Information	
Name	MINES	Well Drilled For: Owner	NS DEPT. OF MINES
Certificate No.	1	or Contractor/Builder/Consultant, etc.	
Company	N. S. DEPARTMENT OF MINES	Civic Address of Well	NS OBS WELL - WILMOT (005)
		Lot Number	Subdivision
		County	ANNAPO LIS Postal Code
		Nearest Community in Atlas/Map Book	ATLAS WILMOT

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book	Map Sheet	Northing (m)
Map Page No.	Reference Map	Easting (m)
Reference Letter	Tract No.	Property (PID)
Reference Number	Claim	Well Location Sketch Available
Roamer Letter		
Roamer Number		

Depth in feet	Primary Lithology	Secondary Lithology

Well Construction Information		Dug Well Information		Water Yield	
Total depth below surface (ft)	<input type="text" value="60"/>	Depth of liner (crock) (ft)	<input type="text"/>	Estimated Yield (igpm)	<input type="text"/>
Depth to bedrock (ft)	<input type="text"/>	Reservoir material	<input type="text"/>	Method	<input type="text"/>
Water bearing fractures encountered at (ft):	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd)	<input type="text"/>	Rate (igpm)	<input type="text"/>
Outer Well Casing:		Reservoir material size	<input type="text"/>	Duration (hrs)	<input type="text"/>
From (ft) <input type="text" value="0"/>	To (ft) <input type="text" value="21"/>	Apron Material	<input type="text"/>	Depth to water at end of test (ft)	<input type="text"/>
Diameter (in)	<input type="text" value="4.5"/>	Apron depth (ft)	<input type="text"/>	Total drawdown (ft)	<input type="text"/>
Length of casing above ground :		Apron thickness (ft)	<input type="text"/>	Water level recovered to (ft)	<input type="text"/>
(ft) <input type="text"/>	(in) <input type="text"/>	Apron width (ft)	<input type="text"/>	Recovery time (hrs)	<input type="text"/>
Driveshoe make	<input type="text"/>	Apron volume (cu.yd)	<input type="text"/>	Depth to static level (ft)	<input type="text"/>
		Bottom material	<input type="text"/>	Overflow	<input type="checkbox"/>

Comments	NS OBSERVATION WELL - WILMOT (005)	Well Status/Water Use/Date Completed	
		Final status of well	OBSERVATION WELL
		Water use	MONITORING
		Method of drilling	
		Date well completed	18-May-66

Well Report

(Summary Log)

NSEL Well No. 681252

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MINES"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF MINES"/>
Certificate No. <input type="text" value="1"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="N. S. DEPARTMENT OF MINES"/>	Civic Address of Well <input type="text" value="NS OBS WELL - WOLFVILLE (010)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="KINGS"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="WOLFVILLE"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input type="text"/>	Map Sheet <input type="text" value="21H1"/>	Northing (m) <input type="text" value="4993828"/>
Map Page No. <input type="text"/>	Reference Map <input type="text" value="B"/>	Easting (m) <input type="text" value="392086"/>
Reference Letter <input type="text"/>	Tract No. <input type="text" value="78"/>	Property (PID) <input type="text"/>
Reference Number <input type="text"/>	Claim <input type="text" value="K"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input type="text"/>		
Roamer Number <input type="text"/>		

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 3 RED CLAYEY TILL		
3 15 FINE GRAINED SAND GRAVEL		
15 35 RED CLAYEY TILL		
35 79 RED SANDSTONE		

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="79"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text"/>
Depth to bedrock (ft) <input type="text" value="35"/>	Reservoir material <input type="text"/>	Method <input type="text"/>
Water bearing fractures encountered at (ft): <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text"/>
Outer Well Casing: From (ft) <input type="text"/> To (ft) <input type="text" value="75"/>	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
Diameter (in) <input type="text" value="4.5"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Driveshoe make <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL - WOLFVILLE (010)	Final status of well <input type="text" value="OBSERVATION WELL"/>
	Water use <input type="text" value="MONITORING"/>
	Method of drilling <input type="text"/>
	Date well completed <input type="text" value="17-Dec-68"/>

Well Report

(Summary Log)

NSEL Well No. 701431

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input style="width:90%;" type="text" value="MINES"/>	Well Drilled For: Owner <input style="width:100%;" type="text" value="NS DEPT. OF MINES"/>
Certificate No. <input style="width:100%;" type="text" value="1"/>	or Contractor/Builder/Consultant, etc. <input style="width:100%;" type="text"/>
Company <input style="width:90%;" type="text" value="N. S. DEPARTMENT OF MINES"/>	Civic Address of Well <input style="width:90%;" type="text" value="NS OBS WELL - TRURO (014)"/>
	Lot Number <input style="width:100%;" type="text"/>
	County <input style="width:100%;" type="text" value="COLCHESTER"/> Postal Code <input style="width:100%;" type="text"/>
	Nearest Community in Atlas/Map Book <input style="width:100%;" type="text" value="ATLAS"/> <input style="width:100%;" type="text" value="TRURO"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input style="width:100%;" type="text"/>	Map Sheet <input style="width:100%;" type="text" value="11E6"/>	Northing (m) <input style="width:100%;" type="text" value="5023778"/>
Map Page No. <input style="width:100%;" type="text"/>	Reference Map <input style="width:100%;" type="text" value="B"/>	Easting (m) <input style="width:100%;" type="text" value="476052"/>
Reference Letter <input style="width:100%;" type="text"/>	Tract No. <input style="width:100%;" type="text" value="99"/>	Property (PID) <input style="width:100%;" type="text"/>
Reference Number <input style="width:100%;" type="text"/>	Claim <input style="width:100%;" type="text" value="F"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input style="width:100%;" type="text"/>		
Roamer Number <input style="width:100%;" type="text"/>		

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 20	GRAVEL	<input type="checkbox"/>
20 35	GLACIAL TILL	<input type="checkbox"/>
35 300	SHALE	SEAM SANSTONE <input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input style="width:100%;" type="text" value="300"/>	Depth of liner (crock) (ft) <input style="width:100%;" type="text"/>	Estimated Yield (igpm) <input style="width:100%;" type="text"/>
Depth to bedrock (ft) <input style="width:100%;" type="text" value="35"/>	Reservoir material <input style="width:100%;" type="text"/>	Method <input style="width:100%;" type="text"/>
Water bearing fractures encountered at (ft): <input style="width:100%;" type="text"/>	Reservoir vol. (cu.yd) <input style="width:100%;" type="text"/>	Rate (igpm) <input style="width:100%;" type="text"/>
Outer Well Casing: From (ft) <input style="width:100%;" type="text" value="0"/> To (ft) <input style="width:100%;" type="text" value="60"/>	Reservoir material size <input style="width:100%;" type="text"/>	Duration (hrs) <input style="width:100%;" type="text"/>
Diameter (in) <input style="width:100%;" type="text" value="6"/>	Apron Material <input style="width:100%;" type="text"/>	Depth to water at end of test (ft) <input style="width:100%;" type="text"/>
Length of casing above ground : (ft) <input style="width:100%;" type="text"/> (in) <input style="width:100%;" type="text"/>	Apron depth (ft) <input style="width:100%;" type="text"/>	Total drawdown (ft) <input style="width:100%;" type="text"/>
Driveshoe make <input style="width:100%;" type="text"/>	Apron thickness (ft) <input style="width:100%;" type="text"/>	Water level recovered to (ft) <input style="width:100%;" type="text"/>
	Apron width (ft) <input style="width:100%;" type="text"/>	Recovery time (hrs) <input style="width:100%;" type="text"/>
	Apron volume (cu.yd) <input style="width:100%;" type="text"/>	Depth to static level (ft) <input style="width:100%;" type="text"/>
	Bottom material <input style="width:100%;" type="text"/>	Overflow <input type="checkbox"/>

Comments <input style="width:90%;" type="text" value="NS OBSERVATION WELL - TRURO (014)"/>	Well Status/Water Use/Date Completed Final status of well <input style="width:100%;" type="text" value="OBSERVATION WELL"/> Water use <input style="width:100%;" type="text" value="MONITORING"/> Method of drilling <input style="width:100%;" type="text"/> Date well completed <input style="width:100%;" type="text" value="16-Nov-70"/>
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Well Report

(Summary Log)

NSEL Well No. 742420

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MINES"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF MINES"/>
Certificate No. <input type="text" value="1"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="N. S. DEPARTMENT OF MINES"/>	Civic Address of Well <input type="text" value="NS OBS WELL - MONASTERY (028)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="ANTIGONISH"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="MONASTERY"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text"/>	Map Sheet	<input type="text" value="11F12"/>	Northing (m)	<input type="text" value="5052489"/>
Map Page No.	<input type="text"/>	Reference Map	<input type="text" value="A"/>	Easting (m)	<input type="text" value="606083"/>
Reference Letter	<input type="text"/>	Tract No.	<input type="text" value="91"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text"/>				
Roamer Number	<input type="text"/>				

Depth in feet	Primary Lithology	Secondary Lithology						
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	1		CLAYEY	TILL				<input type="checkbox"/>
1	520			SANDSTONE			SHALE & CONGLOM	<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="520"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text" value="67"/>
Depth to bedrock (ft) <input type="text"/>	Reservoir material <input type="text"/>	Method <input type="text"/>
Water bearing fractures encountered at (ft): <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="40"/>
Outer Well Casing: From (ft) <input type="text"/> To (ft) <input type="text"/>	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text" value="50"/>
Diameter (in) <input type="text"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Driveshoe make <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments <input type="text" value="NS OBSERVATION WELL - MONASTERY (028)"/>	Well Status/Water Use/Date Completed	
	Final status of well	<input type="text" value="OBSERVATION WELL"/>
	Water use	<input type="text" value="MONITORING"/>
	Method of drilling	<input type="text"/>
	Date well completed	<input type="text" value="01-Jan-74"/>

Well Report

(Summary Log)

NSEL Well No. 761408

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MCDONALD, IAN"/>	Well Drilled For: Owner <input type="text" value="CAPE BRETON DEVELOPMEN"/>
Certificate No. <input type="text" value="45"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="ISLAND WELL DRILLERS"/>	Civic Address of Well <input type="text" value="NS OBS WELL - POINT ACONI (030)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="CAPE BRETON"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="POINT ACONI"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input type="text" value="MAP"/>	Map Sheet <input type="text" value="11K8"/>	Northing (m) <input type="text" value="5133152"/>
Map Page No. <input type="text" value="43"/>	Reference Map <input type="text" value="B"/>	Easting (m) <input type="text" value="707986"/>
Reference Letter <input type="text" value="A"/>	Tract No. <input type="text" value="70"/>	Property (PID) <input type="text"/>
Reference Number <input type="text" value="1"/>	Claim <input type="text"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input type="text" value="O"/>		
Roamer Number <input type="text" value="13"/>		

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 14	SHALE & CLAY	<input type="checkbox"/>
14 100	SANDSTONE	<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="100"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text" value="10"/>
Depth to bedrock (ft) <input type="text" value="14"/>	Reservoir material <input type="text"/>	Method <input type="text" value="PUMPED"/>
Water bearing fractures encountered at (ft): <input type="text" value="70"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="10"/>
Outer Well Casing: From (ft) <input type="text" value="6"/> To (ft) <input type="text" value="42"/>	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text" value="1"/>
Diameter (in) <input type="text" value="6"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Driveshoe make <input type="text" value="UNKNOWN"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL - POINT ACONI (030)	Final status of well <input type="text" value="OBSERVATION WELL"/>
	Water use <input type="text" value="MONITORING"/>
	Method of drilling <input type="text" value="ROTARY"/>
	Date well completed <input type="text" value="11-Aug-76"/>

Well Report

Environment and Labour

(Summary Log)

NSEL Well No. 771538

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name EDWARDS, HARRY A.	Well Drilled For: Owner NS DEPT. OF ENVIRONMENT
Certificate No. 83	or Contractor/Builder/Consultant, etc.
Company H. J. EDWARDS WELL DRILLING LTD.	Civic Address of Well NS OBS WELL - LAWRENCETOWN (043)
	Lot Number Subdivision
	County HALIFAX Postal Code
	Nearest Community in Atlas/Map Book ATLAS UPPER LAWRENCETOWN

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book MAP	Map Sheet	Northing (m) 4947712
Map Page No. 24	Reference Map	Easting (m) 464172
Reference Letter D	Tract No.	Property (PID)
Reference Number 3	Claim	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter N		
Roamer Number 11		

Depth in feet		Primary Lithology		Secondary Lithology					
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found	
0	5			SAND & GRAVEL & BOU				<input type="checkbox"/>	
5	12			BOULDER & ROCK				<input type="checkbox"/>	
12	152	GRAY		QUARTZITE			SLATE	<input type="checkbox"/>	
152	165	DARK GRA		SLATE		QUARTZ VEINS		<input checked="" type="checkbox"/>	
165	174	GREENISH		QUARTZITE			SLATE	<input type="checkbox"/>	

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) 175	Depth of liner (crock) (ft)	Estimated Yield (igpm) 14.5
Depth to bedrock (ft) 10	Reservoir material	Method
Water bearing fractures encountered at (ft): 152 155	Reservoir vol. (cu.yd)	Rate (igpm) 8
Outer Well Casing: From (ft) 0 To (ft) 145	Reservoir material size	Duration (hrs) 1.5
Diameter (in) 6	Apron Material	Depth to water at end of test (ft)
Length of casing above ground : (ft) (in)	Apron depth (ft)	Total drawdown (ft)
Driveshoe make UNKNOWN	Apron thickness (ft)	Water level recovered to (ft)
	Apron width (ft)	Recovery time (hrs)
	Apron volume (cu.yd)	Depth to static level (ft) 4
	Bottom material	Overflow <input type="checkbox"/>

Comments NS OBSERVATION WELL - LAWRENCETOWN (043)	Well Status/Water Use/Date Completed	
	Final status of well	OBSERVATION WELL
	Water use	MONITORING
	Method of drilling	ROTARY
	Date well completed	16-Mar-77

Well Report

(Summary Log)

NSEL Well No. 782683

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="STEWART, EDMUND"/> Certificate No. <input type="text" value="4"/> Company <input type="text" value="E. D. STEWART LTD."/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/> or Contractor/Builder/Consultant, etc. <input type="text"/> Civic Address of Well <input type="text" value="NS OBS WELL - DURHAM (045)"/> Lot Number <input type="text"/> Subdivision <input type="text"/> County <input type="text" value="PICTOU"/> Postal Code <input type="text"/> Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="DURHAM"/>

Well Location		
NS Atlas or Map Book Reference : Atlas or Map Book <input type="text"/> Map Page No. <input type="text"/> Reference Letter <input type="text"/> Reference Number <input type="text"/> Roamer Letter <input type="text"/> Roamer Number <input type="text"/>	NTS Map Reference : Map Sheet <input type="text" value="11E10"/> Reference Map <input type="text"/> Tract No. <input type="text"/> Claim <input type="text"/>	GPS (WGS84 UTM) : Northing (m) <input type="text" value="5052105"/> Easting (m) <input type="text" value="516224"/> Property (PID) <input type="text"/> Well Location Sketch Available <input type="checkbox"/>

Depth in feet	Primary Lithology	Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	20		SANDY	TILL				<input type="checkbox"/>
20	247	RED		SANDSTONE & SHALE	GRAY		SANDSTONE & SHA	<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="247"/> Depth to bedrock (ft) <input type="text" value="20"/> Water bearing fractures encountered at (ft): <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Outer Well Casing: From (ft) <input type="text"/> To (ft) <input type="text"/> Diameter (in) <input type="text"/> Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/> Driveshoe make <input type="text"/>	Depth of liner (crock) (ft) <input type="text"/> Reservoir material <input type="text"/> Reservoir vol. (cu.yd) <input type="text"/> Reservoir material size <input type="text"/> Apron Material <input type="text"/> Apron depth (ft) <input type="text"/> Apron thickness (ft) <input type="text"/> Apron width (ft) <input type="text"/> Apron volume (cu.yd) <input type="text"/> Bottom material <input type="text"/>	Estimated Yield (igpm) <input type="text" value="100"/> Method <input type="text" value="PUMPED"/> Rate (igpm) <input type="text" value="100"/> Duration (hrs) <input type="text" value="72"/> Depth to water at end of test (ft) <input type="text"/> Total drawdown (ft) <input type="text"/> Water level recovered to (ft) <input type="text"/> Recovery time (hrs) <input type="text"/> Depth to static level (ft) <input type="text"/> Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL - DURHAM (045) <input style="width:100%; height:100px;" type="text"/>	Final status of well <input type="text" value="OBSERVATION WELL"/> Water use <input type="text" value="MONITORING"/> Method of drilling <input type="text"/> Date well completed <input type="text" value="01-Jul-78"/>

Well Report

(Summary Log)

NSEL Well No. 772021

Well Type **DRILLED**

Certified Well Contractor				Well Owner/Contractor Information				
Name <input type="text" value="HOPPER, RUSSELL"/>				Well Drilled For: Owner <input type="text" value="NS DEPT. OF DEVELOPMENT"/>				
Certificate No. <input type="text" value="20"/>				or Contractor/Builder/Consultant, etc. <input type="text" value="CBCL"/>				
Company <input type="text" value="HOPPER BROS. LTD."/>				Civic Address of Well <input type="text" value="NS OBS WELL - KENTVILLE (048)"/>				
				Lot Number <input type="text"/> Subdivision <input type="text"/>				
				County <input type="text" value="KINGS"/> Postal Code <input type="text"/>				
				Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="KENTVILLE"/>				
Well Location								
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :				
Atlas or Map Book <input type="text"/>		Map Sheet <input type="text" value="21A2"/>		Northing (m) <input type="text" value="4992245"/>				
Map Page No. <input type="text"/>		Reference Map <input type="text" value="A"/>		Easting (m) <input type="text" value="377628"/>				
Reference Letter <input type="text"/>		Tract No. <input type="text" value="71"/>		Property (PID) <input type="text"/>				
Reference Number <input type="text"/>		Claim <input type="text"/>		Well Location Sketch Available <input type="checkbox"/>				
Roamer Letter <input type="text"/>								
Roamer Number <input type="text"/>								
Depth in feet <input type="text"/> Primary Lithology <input type="text"/> Secondary Lithology <input type="text"/>								
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	55		FINE GRAINED	SAND		MEDIUM GRAINE	SAND	<input type="checkbox"/>
55	60		MEDIUM GRAIN	SAND		COARSE GRAIN	SAND	<input type="checkbox"/>
60	95			GRAVEL				<input checked="" type="checkbox"/>
95	380	GRAY		SANDSTONE		INTERBEDDED	SHALE	<input checked="" type="checkbox"/>
380	400	BROWN	ARGILLACEOU	METASEDIMENT	PURPLE			<input type="checkbox"/>
Well Construction Information								
Total depth below surface (ft) <input type="text" value="400"/>		Depth of liner (crock) (ft) <input type="text"/>		Estimated Yield (igpm) <input type="text" value="150"/>				
Depth to bedrock (ft) <input type="text" value="95"/>		Reservoir material <input type="text"/>		Method <input type="text" value="PUMPED"/>				
Water bearing fractures encountered at (ft): <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>		Reservoir vol. (cu.yd) <input type="text"/>		Rate (igpm) <input type="text" value="150"/>				
Outer Well Casing:		Reservoir material size <input type="text"/>		Duration (hrs) <input type="text" value="72"/>				
From (ft) <input type="text" value="0"/> To (ft) <input type="text" value="100"/>		Apron Material <input type="text"/>		Depth to water at end of test (ft) <input type="text" value="122"/>				
Diameter (in) <input type="text" value="8"/>		Apron depth (ft) <input type="text"/>		Total drawdown (ft) <input type="text" value="140"/>				
Length of casing above ground :		Apron thickness (ft) <input type="text"/>		Water level recovered to (ft) <input type="text"/>				
(ft) <input type="text"/> (in) <input type="text"/>		Apron width (ft) <input type="text"/>		Recovery time (hrs) <input type="text"/>				
Driveshoe make <input type="text"/>		Apron volume (cu.yd) <input type="text"/>		Depth to static level (ft) <input type="text"/>				
		Bottom material <input type="text"/>		Overflow <input type="checkbox"/>				
Comments <input type="text" value="NS OBSERVATION WELL - KENTVILLE (048)"/>								
Well Status/Water Use/Date Completed								
Final status of well <input type="text" value="OBSERVATION WELL"/>								
Water use <input type="text" value="MONITORING"/>								
Method of drilling <input type="text"/>								
Date well completed <input type="text" value="20-May-77"/>								

Well Report

(Summary Log)

NSEL Well No. 771077

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name: MCDONALD, IAN	Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT
Certificate No.: 45	or Contractor/Builder/Consultant, etc.:
Company: ISLAND WELL DRILLERS	Civic Address of Well: NS OBS WELL - SYDNEY (050)
	Lot Number: Subdivision:
	County: CAPE BRETON Postal Code:
	Nearest Community in Atlas/Map Book: ATLAS SYDNEY

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book: MAP	Map Sheet: 11K1	Northing (m): 5106450
Map Page No.: 24	Reference Map: A	Easting (m): 720589
Reference Letter: A	Tract No.: 66	Property (PID):
Reference Number: 5	Claim:	Well Location Sketch Available: <input type="checkbox"/>
Roamer Letter: J		
Roamer Number: 13		

Depth in feet	Primary Lithology	Secondary Lithology
From To	Colour 1 Description 1	Colour 2 Description 2
0 13	BOULDER & GRAVEL	
13 330	COAL & SHALE & SANDS	

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft): 330	Depth of liner (crock) (ft):	Estimated Yield (igpm): 250
Depth to bedrock (ft): 13	Reservoir material:	Method: PUMPED
Water bearing fractures encountered at (ft): 63	Reservoir vol. (cu.yd):	Rate (igpm): 250
Outer Well Casing:	Reservoir material size:	Duration (hrs): 1
From (ft): 6 To (ft): 22	Apron Material:	Depth to water at end of test (ft):
Diameter (in): 6	Apron depth (ft):	Total drawdown (ft):
Length of casing above ground :	Apron thickness (ft):	Water level recovered to (ft):
(ft): (in):	Apron width (ft):	Recovery time (hrs):
Driveshoe make: UNKNOWN	Apron volume (cu.yd):	Depth to static level (ft):
	Bottom material:	Overflow: <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL - SYDNEY (050)	Final status of well: OBSERVATION WELL
	Water use: MONITORING
	Method of drilling: ROTARY
	Date well completed: 09-Mar-77

Well Report

(Summary Log)

NSEL Well No. 871262

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="CHISHOLM, WAYNE"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="2"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="G. W. REID WELL DRILLING LTD."/>	Civic Address of Well <input type="text" value="NS OBS WELL - NORTH GRANT (054)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="ANTIGONISH"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="LOWER NORTH GRANT"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text"/>	Map Sheet	<input type="text"/>	Northing (m)	<input type="text" value="5055139"/>
Map Page No.	<input type="text" value="29"/>	Reference Map	<input type="text"/>	Easting (m)	<input type="text" value="576403"/>
Reference Letter	<input type="text" value="C"/>	Tract No.	<input type="text"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text" value="4"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text" value="M"/>				
Roamer Number	<input type="text" value="12"/>				

Depth in feet	Primary Lithology	Secondary Lithology						
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	34			MUD				<input type="checkbox"/>
34	150			SHALE			SLATE	<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="150"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text"/>
Depth to bedrock (ft) <input type="text"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="20"/>
Outer Well Casing:	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
From (ft) <input type="text"/> To (ft) <input type="text" value="43"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Length of casing above ground :	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
(ft) <input type="text"/> (in) <input type="text"/>	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
Driveshoe make <input type="text"/>	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text" value="14"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	<input type="text" value="NS OBSERVATION WELL NORTH GRANT (054)"/>	Well Status/Water Use/Date Completed	
		Final status of well	<input type="text" value="OBSERVATION WELL"/>
		Water use	<input type="text" value="OTHER"/>
		Method of drilling	<input type="text"/>
		Date well completed	<input type="text" value="30-Mar-87"/>

Well Report

(Summary Log)

NSEL Well No. 871263

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="CHISHOLM, WAYNE"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="2"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="G. W. REID WELL DRILLING LTD."/>	Civic Address of Well <input type="text" value="NS OBS WELL - STILLWATER (055)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="GUYSBOROUGH"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="STILLWATER"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text"/>	Map Sheet	<input type="text"/>	Northing (m)	<input type="text" value="5004212"/>
Map Page No.	<input type="text" value="30"/>	Reference Map	<input type="text"/>	Easting (m)	<input type="text" value="579938"/>
Reference Letter	<input type="text" value="C"/>	Tract No.	<input type="text"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text" value="4"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text" value="P"/>				
Roamer Number	<input type="text" value="12"/>				

Depth in feet	Primary Lithology	Secondary Lithology						
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	24			MUD			GRAVEL	<input type="checkbox"/>
24	38			ROCK				<input type="checkbox"/>
38	118			BEDROCK				<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="118"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text"/>
Depth to bedrock (ft) <input type="text"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft) <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="4.5"/>
Outer Well Casing:	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
From (ft) <input type="text"/> To (ft) <input type="text" value="44"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Length of casing above ground :	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
(ft) <input type="text"/> (in) <input type="text"/>	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
Driveshoe make <input type="text"/>	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text" value="30"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments NS OBSERVATION WELL STILLWATER (055)	Well Status/Water Use/Date Completed	
	Final status of well	<input type="text" value="OBSERVATION WELL"/>
	Water use	<input type="text" value="MONITORING"/>
	Method of drilling	<input type="text"/>
	Date well completed	<input type="text" value="01-Apr-87"/>

Well Report

(Summary Log)

NSEL Well No. 871264

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name CHISHOLM, WAYNE	Well Drilled For: Owner NS DEPT. OF ENVIRONMENT
Certificate No. 2	or Contractor/Builder/Consultant, etc.
Company G. W. REID WELL DRILLING LTD.	Civic Address of Well NS OBS WELL - SHEET HARBOUR (056)
	Lot Number Subdivision
	County HALIFAX Postal Code
	Nearest Community in Atlas/Map Book BEAVER HARBOUR

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book	Map Sheet	Northing (m) 4972468
Map Page No. 28	Reference Map	Easting (m) 543176
Reference Letter E	Tract No.	Property (PID)
Reference Number 2	Claim	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter H		
Roamer Number 14		

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 8	GRAVEL	
8 18	ROCK	
18 150	BEDROCK	

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) 150	Depth of liner (crock) (ft)	Estimated Yield (igpm)
Depth to bedrock (ft)	Reservoir material	Method AIR LIFT
Water bearing fractures encountered at (ft)	Reservoir vol. (cu.yd)	Rate (igpm) 0.7
Outer Well Casing:	Reservoir material size	Duration (hrs)
From (ft) To (ft) 23	Apron Material	Depth to water at end of test (ft)
Diameter (in) 6	Apron depth (ft)	Total drawdown (ft)
Length of casing above ground :	Apron thickness (ft)	Water level recovered to (ft)
(ft) (in)	Apron width (ft)	Recovery time (hrs)
Driveshoe make	Apron volume (cu.yd)	Depth to static level (ft) 10
	Bottom material	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL SHEET HARBOUR (056)	Final status of well OBSERVATION WELL
	Water use OTHER
	Method of drilling
	Date well completed 06-Apr-87

Well Report

(Summary Log)

NSEL Well No. 870190

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MOWAT, DONALD"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="210"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="MOWAT'S WELL DRILLING LTD."/>	Civic Address of Well <input type="text" value="NS OBS WELL - CHARLESTON (058)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="QUEENS"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="RIVERSDALE"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text" value="MAP"/>	Map Sheet	<input type="text"/>	Northing (m)	<input type="text" value="4894476"/>
Map Page No.	<input type="text" value="15"/>	Reference Map	<input type="text"/>	Easting (m)	<input type="text" value="366778"/>
Reference Letter	<input type="text" value="B"/>	Tract No.	<input type="text"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text" value="5"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text" value="M"/>				
Roamer Number	<input type="text" value="12"/>				

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 20		CLAY BOULDER <input type="checkbox"/>
20 40		SLATE GRANITE <input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="40"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text"/>
Depth to bedrock (ft) <input type="text" value="20"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input type="text" value="19"/> <input type="text" value="35"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text"/>
Outer Well Casing: From (ft) <input type="text"/> To (ft) <input type="text"/>	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Driveshoe make <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text" value="6"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
<input type="text" value="NS OBSERVATION WELL - CHARLESTON (058)"/>	Final status of well <input type="text" value="OBSERVATION WELL"/>
	Water use <input type="text" value="MONITORING"/>
	Method of drilling <input type="text"/>
	Date well completed <input type="text" value="01-Apr-87"/>

Well Report

(Summary Log)

NSEL Well No. 870189

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MOWAT, DONALD"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="210"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="MOWAT'S WELL DRILLING LTD."/>	Civic Address of Well <input type="text" value="NS OBS WELL - HAYDEN LAKE (059)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="SHELBURNE"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="EAST JORDAN"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text" value="MAP"/>	Map Sheet	<input type="text"/>	Northing (m)	<input type="text" value="4849195"/>
Map Page No.	<input type="text" value="10"/>	Reference Map	<input type="text"/>	Easting (m)	<input type="text" value="321365"/>
Reference Letter	<input type="text" value="C"/>	Tract No.	<input type="text"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text" value="5"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text" value="G"/>				
Roamer Number	<input type="text" value="7"/>				

Depth in feet	Primary Lithology	Secondary Lithology
From To	Colour 1 Description 1	Colour 2 Description 2
0 10		
10 160	CLAY	BOULDER
	GREYWACKE	

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="160"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text" value="3.7"/>
Depth to bedrock (ft) <input type="text" value="10"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input type="text" value="30"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="3.7"/>
Outer Well Casing: From (ft) <input type="text" value="0"/> To (ft) <input type="text" value="20"/>	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Driveshoe make <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
<input type="text" value="NS OBSERVATION WELL - HAYDEN LAKE (059)"/>	Final status of well <input type="text" value="OBSERVATION WELL"/>
	Water use <input type="text" value="MONITORING"/>
	Method of drilling <input type="text"/>
	Date well completed <input type="text" value="31-Mar-87"/>

Well Report

(Summary Log)

NSE Well No. 870188

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input style="width:90%;" type="text" value="MOWAT, DONALD"/>	Well Drilled For: Owner <input style="width:100%;" type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input style="width:100%;" type="text" value="210"/>	or Contractor/Builder/Consultant, etc. <input style="width:100%;" type="text"/>
Company <input style="width:90%;" type="text" value="MOWAT'S WELL DRILLING LTD."/>	Civic Address of Well <input style="width:100%;" type="text" value="NS OBS WELL - METEGHAN (060)"/>
	Lot Number <input style="width:100%;" type="text"/> Subdivision <input style="width:100%;" type="text"/>
	County <input style="width:100%;" type="text" value="DIGBY"/> Postal Code <input style="width:100%;" type="text"/>
	Nearest Community in Atlas/Map Book <input style="width:100%;" type="text" value="METEGHAN RIVER"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input style="width:100%;" type="text"/>	Map Sheet <input style="width:100%;" type="text"/>	Northing (m) <input style="width:100%;" type="text" value="4900628"/>
Map Page No. <input style="width:100%;" type="text" value="4"/>	Reference Map <input style="width:100%;" type="text"/>	Easting (m) <input style="width:100%;" type="text" value="250890"/>
Reference Letter <input style="width:100%;" type="text" value="A"/>	Tract No. <input style="width:100%;" type="text"/>	Property (PID) <input style="width:100%;" type="text"/>
Reference Number <input style="width:100%;" type="text" value="4"/>	Claim <input style="width:100%;" type="text"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input style="width:100%;" type="text" value="F"/>		
Roamer Number <input style="width:100%;" type="text" value="16"/>		

Depth in feet	Primary Lithology	Secondary Lithology
From To	Colour 1 Description 1	Colour 2 Description 2
0 4	GRAVEL	<input type="checkbox"/>
4 200	SLATE	<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input style="width:100%;" type="text" value="200"/>	Depth of liner (crock) (ft) <input style="width:100%;" type="text"/>	Estimated Yield (igpm) <input style="width:100%;" type="text"/>
Depth to bedrock (ft) <input style="width:100%;" type="text"/>	Reservoir material <input style="width:100%;" type="text"/>	Method <input style="width:100%;" type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input style="width:100%;" type="text" value="90"/> <input style="width:100%;" type="text" value="180"/> <input style="width:100%;" type="text"/> <input style="width:100%;" type="text"/> <input style="width:100%;" type="text"/>	Reservoir vol. (cu.yd) <input style="width:100%;" type="text"/>	Rate (igpm) <input style="width:100%;" type="text" value="0.7"/>
Outer Well Casing:	Reservoir material size <input style="width:100%;" type="text"/>	Duration (hrs) <input style="width:100%;" type="text"/>
From (ft) <input style="width:100%;" type="text"/> To (ft) <input style="width:100%;" type="text" value="40"/>	Apron Material <input style="width:100%;" type="text"/>	Depth to water at end of test (ft) <input style="width:100%;" type="text"/>
Diameter (in) <input style="width:100%;" type="text" value="6"/>	Apron depth (ft) <input style="width:100%;" type="text"/>	Total drawdown (ft) <input style="width:100%;" type="text"/>
Length of casing above ground : (ft) <input style="width:100%;" type="text"/> (in) <input style="width:100%;" type="text"/>	Apron thickness (ft) <input style="width:100%;" type="text"/>	Water level recovered to (ft) <input style="width:100%;" type="text"/>
Driveshoe make <input style="width:100%;" type="text"/>	Apron width (ft) <input style="width:100%;" type="text"/>	Recovery time (hrs) <input style="width:100%;" type="text"/>
	Apron volume (cu.yd) <input style="width:100%;" type="text"/>	Depth to static level (ft) <input style="width:100%;" type="text"/>
	Bottom material <input style="width:100%;" type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
<div style="border: 1px solid black; padding: 5px; min-height: 100px;"> NS OBSERVATION WELL METEGHAN (060) </div>	Final status of well <input style="width:100%;" type="text" value="OBSERVATION WELL"/>
	Water use <input style="width:100%;" type="text" value="MONITORING"/>
	Method of drilling <input style="width:100%;" type="text"/>
	Date well completed <input style="width:100%;" type="text" value="31-Mar-87"/>

Well Report

(Summary Log)

NSEL Well No. 891722

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MOWAT, DONALD"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="210"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="MOWAT'S WELL DRILLING LTD."/>	Civic Address of Well <input type="text" value="NS OBS WELL - ANNAPOLIS ROYAL (062)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="ANNAPOLIS"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="LAKE LA ROSE"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text" value="MAP"/>	Map Sheet	<input type="text"/>	Northing (m)	<input type="text" value="4952588"/>
Map Page No.	<input type="text" value="8"/>	Reference Map	<input type="text"/>	Easting (m)	<input type="text" value="303029"/>
Reference Letter	<input type="text" value="A"/>	Tract No.	<input type="text"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text" value="4"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text" value="H"/>				
Roamer Number	<input type="text" value="14"/>				

Depth in feet	Primary Lithology	Secondary Lithology
From To	Colour 1 Description 1	Colour 2 Description 2
0 71	CLAY	BOULDER
71 205	GRANITE	

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="205"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text" value="0.5"/>
Depth to bedrock (ft) <input type="text" value="71"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input type="text" value="120"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="0.5"/>
Outer Well Casing: From (ft) <input type="text" value="0"/> To (ft) <input type="text" value="80"/>	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Driveshoe make <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments NS OBSERVATION WELL - ANNAPOLIS ROYAL (062)	Well Status/Water Use/Date Completed	
	Final status of well	<input type="text" value="OBSERVATION WELL"/>
	Water use	<input type="text" value="MONITORING"/>
	Method of drilling	<input type="text"/>
	Date well completed	<input type="text" value="20-Dec-89"/>

Well Report

(Summary Log)

NSEL Well No. 891721

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MOWAT, DONALD"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="210"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="MOWAT'S WELL DRILLING LTD."/>	Civic Address of Well <input type="text" value="NS OBS WELL - HEBRON (063)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="YARMOUTH"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="ATLAS"/> <input type="text" value="DAYTON"/>

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	<input type="text" value="MAP"/>	Map Sheet	<input type="text"/>	Northing (m)	<input type="text" value="4862322"/>
Map Page No.	<input type="text" value="5"/>	Reference Map	<input type="text"/>	Easting (m)	<input type="text" value="250697"/>
Reference Letter	<input type="text" value="A"/>	Tract No.	<input type="text"/>	Property (PID)	<input type="text"/>
Reference Number	<input type="text" value="3"/>	Claim	<input type="text"/>	Well Location Sketch Available	<input type="checkbox"/>
Roamer Letter	<input type="text" value="F"/>				
Roamer Number	<input type="text" value="14"/>				

Depth in feet	Primary Lithology	Secondary Lithology
From To Colour 1 Description 1 Lithology 1 Colour 2 Description 2 Lithology 2 Water Found		
0 3	TOPSOIL	<input type="checkbox"/>
3 140	SLATE	<input type="checkbox"/>
140 144	QUARTZITE	<input type="checkbox"/>
144 150	SHALE	<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="150"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text" value="45"/>
Depth to bedrock (ft) <input type="text" value="3"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input type="text" value="57"/> <input type="text" value="150"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="45"/>
Outer Well Casing:	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
From (ft) <input type="text" value="0"/> To (ft) <input type="text" value="40"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text"/> (in) <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
Driveshoe make <input type="text"/>	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments NS OBSERVATION WELL - HEBRON (063)	Well Status/Water Use/Date Completed	
	Final status of well	<input type="text" value="OBSERVATION WELL"/>
	Water use	<input type="text" value="MONITORING"/>
	Method of drilling	<input type="text"/>
	Date well completed	<input type="text" value="19-Dec-89"/>

Well Report

(Summary Log)

NSE Well No. 902524

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input type="text" value="MCDONALD, IAN"/>	Well Drilled For: Owner <input type="text" value="NS DEPT. OF ENVIRONMENT"/>
Certificate No. <input type="text" value="45"/>	or Contractor/Builder/Consultant, etc. <input type="text"/>
Company <input type="text" value="ISLAND WELL DRILLERS"/>	Civic Address of Well <input type="text" value="NS OBS WELL - MARGAREE (064)"/>
	Lot Number <input type="text"/> Subdivision <input type="text"/>
	County <input type="text" value="INVERNESS"/> Postal Code <input type="text"/>
	Nearest Community in Atlas/Map Book <input type="text" value="MARGAREE VALLEY"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input type="text"/>	Map Sheet <input type="text"/>	Northing (m) <input type="text" value="5137031"/>
Map Page No. <input type="text" value="38"/>	Reference Map <input type="text"/>	Easting (m) <input type="text" value="655717"/>
Reference Letter <input type="text" value="A"/>	Tract No. <input type="text"/>	Property (PID) <input type="text"/>
Reference Number <input type="text" value="1"/>	Claim <input type="text"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input type="text" value="L"/>		
Roamer Number <input type="text" value="12"/>		

Depth in feet	Primary Lithology	Secondary Lithology
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From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	9			GRAVEL			TILL	<input type="checkbox"/>
9	150			CONGLOMERATE				<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="150"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text"/>
Depth to bedrock (ft) <input type="text"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="10"/>
Outer Well Casing:	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text"/>
From (ft) <input type="text"/> To (ft) <input type="text" value="40"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Length of casing above ground :	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text"/>
(ft) <input type="text"/> (in) <input type="text"/>	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text"/>
Driveshoe make <input type="text"/>	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NOFRACTUREINCREASEDFR80'- NS OBSERVATION WELL MARGAREE (064)	Final status of well <input type="text"/>
	Water use <input type="text"/>
	Method of drilling <input type="text"/>
	Date well completed <input type="text" value="16-Jan-90"/>

Certified Well Contractor		Well Owner/Contractor Information	
Name	MCDONALD, IAN	Well Drilled For: Owner	DEPT. OF ENVIRONMENT
Certificate No.	45	or Contractor/Builder/Consultant, etc.	
Company	ISLAND WELL DRILLERS	Civic Address of Well	NS OBS WELL - INGONISH (065)
		Lot Number	Subdivision
		County	VICTORIA
		Postal Code	
		Nearest Community in Atlas/Map Book	INGONISH

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book	Map Sheet	Northing (m)
Map Page No.	Reference Map	Easting (m)
Reference Letter	Tract No.	Property (PID)
Reference Number	Claim	Well Location Sketch Available
Roamer Letter		<input type="checkbox"/>
Roamer Number		

Depth in feet		Primary Lithology			Secondary Lithology			
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	30			GRAVEL			BOULDERS	<input type="checkbox"/>
30	33			GRANITE				<input type="checkbox"/>
33	150			GRANITE				<input type="checkbox"/>

Well Construction Information		Dug Well Information		Water Yield	
Total depth below surface (ft)	150	Depth of liner (crock) (ft)		Estimated Yield (igpm)	
Depth to bedrock (ft)		Reservoir material		Method	AIR LIFT
Water bearing fractures encountered at (ft):		Reservoir vol. (cu.yd)		Rate (igpm)	100
44 149		Reservoir material size		Duration (hrs)	
Outer Well Casing:		Apron Material		Depth to water at end of test (ft)	
From (ft)	To (ft) 40	Apron depth (ft)		Total drawdown (ft)	
Diameter (in)	6	Apron thickness (ft)		Water level recovered to (ft)	
Length of casing above ground :		Apron width (ft)		Recovery time (hrs)	
(ft)	(in)	Apron volume (cu.yd)		Depth to static level (ft)	
Driveshoe make		Bottom material		Overflow	<input type="checkbox"/>
Comments	NS OBSERVATION WELL INCONISH (065)			Well Status/Water Use/Date Completed	
				Final status of well	OBSERVATION WELL
				Water use	
				Method of drilling	
				Date well completed	12-Dec-89

Well Report

(Summary Log)

NSE Well No. 832002

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input style="width:90%;" type="text" value="JOHNSON, GREGORY I."/>	Well Drilled For: Owner <input style="width:20%;" type="text" value="PHILLIP"/> <input style="width:20%;" type="text" value="BARLEY"/>
Certificate No. <input style="width:10%;" type="text" value="6"/>	or Contractor/Builder/Consultant, etc. <input style="width:90%;" type="text"/>
Company <input style="width:90%;" type="text" value="HUB WELL DRILLING LTD."/>	Civic Address of Well <input style="width:90%;" type="text" value="NS OBS WELL - DEBERT (068)"/>
	Lot Number <input style="width:10%;" type="text"/> Subdivision <input style="width:20%;" type="text"/>
	County <input style="width:20%;" type="text" value="COLCHESTER"/> Postal Code <input style="width:20%;" type="text"/>
	Nearest Community in Atlas/Map Book <input style="width:10%;" type="text"/> <input style="width:20%;" type="text" value="DEBERT"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input style="width:100%;" type="text"/>	Map Sheet <input style="width:100%;" type="text" value="11E6"/>	Northing (m) <input style="width:100%;" type="text" value="5028483"/>
Map Page No. <input style="width:100%;" type="text"/>	Reference Map <input style="width:100%;" type="text" value="C"/>	Easting (m) <input style="width:100%;" type="text" value="466921"/>
Reference Letter <input style="width:100%;" type="text"/>	Tract No. <input style="width:100%;" type="text" value="60"/>	Property (PID) <input style="width:100%;" type="text"/>
Reference Number <input style="width:100%;" type="text"/>	Claim <input style="width:100%;" type="text"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input style="width:100%;" type="text"/>		
Roamer Number <input style="width:100%;" type="text"/>		

Depth in feet	Primary Lithology	Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	18			CLAY			SAND /LENSES	<input type="checkbox"/>
18	153			CONGLOMERATE				<input type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input style="width:100%;" type="text" value="153"/>	Depth of liner (crock) (ft) <input style="width:100%;" type="text"/>	Estimated Yield (igpm) <input style="width:100%;" type="text"/>
Depth to bedrock (ft) <input style="width:100%;" type="text"/>	Reservoir material <input style="width:100%;" type="text"/>	Method <input style="width:100%;" type="text"/>
Water bearing fractures encountered at (ft): <input style="width:100%;" type="text" value="112"/> <input style="width:100%;" type="text"/>	Reservoir vol. (cu.yd) <input style="width:100%;" type="text"/>	Rate (igpm) <input style="width:100%;" type="text" value="10"/>
Outer Well Casing: From (ft) <input style="width:100%;" type="text"/> To (ft) <input style="width:100%;" type="text" value="26"/>	Reservoir material size <input style="width:100%;" type="text"/>	Duration (hrs) <input style="width:100%;" type="text"/>
Diameter (in) <input style="width:100%;" type="text" value="4"/>	Apron Material <input style="width:100%;" type="text"/>	Depth to water at end of test (ft) <input style="width:100%;" type="text"/>
Length of casing above ground : (ft) <input style="width:100%;" type="text"/> (in) <input style="width:100%;" type="text"/>	Apron depth (ft) <input style="width:100%;" type="text"/>	Total drawdown (ft) <input style="width:100%;" type="text"/>
Driveshoe make <input style="width:100%;" type="text"/>	Apron thickness (ft) <input style="width:100%;" type="text"/>	Water level recovered to (ft) <input style="width:100%;" type="text"/>
	Apron width (ft) <input style="width:100%;" type="text"/>	Recovery time (hrs) <input style="width:100%;" type="text"/>
	Apron volume (cu.yd) <input style="width:100%;" type="text"/>	Depth to static level (ft) <input style="width:100%;" type="text" value="112"/>
	Bottom material <input style="width:100%;" type="text"/>	Overflow <input type="checkbox"/>

Comments	Well Status/Water Use/Date Completed
NS OBSERVATION WELL DEBERT (068)	Final status of well <input style="width:100%;" type="text" value="WATER SUPPLY WELL"/>
	Water use <input style="width:100%;" type="text" value="DOMESTIC"/>
	Method of drilling <input style="width:100%;" type="text"/>
	Date well completed <input style="width:100%;" type="text" value="13-Aug-83"/>

Well Report

(Summary Log)

NSE Well No. 943326

Well Type DRILLED

Certified Well Contractor

Name
 Certificate No.
 Company ISLAND WELL DRILLERS

Well Owner/Contractor Information

Well Drilled For: Owner NS DEPT. OF ENVIRONMENT
 or Contractor/Builder/Consultant, etc.
 Civic Address of Well NS OBS WELL - DALEM LAKE (069)
 Lot Number Subdivision
 County VICTORIA Postal Code
 Nearest Community in Atlas/Map Book ATLAS DALEM LAKE

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book MAP
 Map Page No. 38
 Reference Letter E
 Reference Number 2
 Roamer Letter O
 Roamer Number 12

NTS Map Reference :

Map Sheet
 Reference Map
 Tract No.
 Claim

GPS (WGS84 UTM) :

Northing (m) 5124576
 Easting (m) 698221
 Property (PID)
 Well Location Sketch Available ☐

Depth in feet

Primary Lithology

Secondary Lithology

Well Construction Information

Total depth below surface (ft) 200
 Depth to bedrock (ft)
 Water bearing fractures encountered at (ft):

 Outer Well Casing:
 From (ft) 0 To (ft) 41
 Diameter (in) 6
 Length of casing above ground :
 (ft) (in)
 Driveshoe make

Dug Well Information

Depth of liner (crock) (ft)
 Reservoir material
 Reservoir vol. (cu.yd)
 Reservoir material size
 Apron Material
 Apron depth (ft)
 Apron thickness (ft)
 Apron width (ft)
 Apron volume (cu.yd)
 Bottom material

Water Yield

Estimated Yield (igpm)
 Method
 Rate (igpm)
 Duration (hrs)
 Depth to water at end of test (ft)
 Total drawdown (ft)
 Water level recovered to (ft)
 Recovery time (hrs)
 Depth to static level (ft)
 Overflow ☐

Comments NS OBSERVATION WELL - DALEM LAKE (069)

Well Status/Water Use/Date Completed

Final status of well OBSERVATION WELL
 Water use MONITORING
 Method of drilling
 Date well completed 01-Jan-94

Well Report

(Summary Log)

NSE Well No. 862667

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name <input style="width:90%;" type="text" value="CHAPPELL, WALTER"/>	Well Drilled For: Owner <input style="width:100%;" type="text" value="TOWN OF AMHERST"/>
Certificate No. <input style="width:100%;" type="text" value="32"/>	or Contractor/Builder/Consultant, etc. <input style="width:100%;" type="text"/>
Company <input style="width:90%;" type="text" value="WALTER CHAPPELL WELL DRILLING LTD."/>	Civic Address of Well <input style="width:90%;" type="text" value="NS OBS WELL - AMHERST (071)"/>
	Lot Number <input style="width:100%;" type="text"/>
	County <input style="width:100%;" type="text" value="CUMBERLAND"/> Postal Code <input style="width:100%;" type="text"/>
	Nearest Community in Atlas/Map Book <input style="width:100%;" type="text" value="ATLAS"/> <input style="width:100%;" type="text" value="AMHERST"/>

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book <input style="width:100%;" type="text" value="MAP"/>	Map Sheet <input style="width:100%;" type="text"/>	Northing (m) <input style="width:100%;" type="text" value="5079213"/>
Map Page No. <input style="width:100%;" type="text" value="18"/>	Reference Map <input style="width:100%;" type="text"/>	Easting (m) <input style="width:100%;" type="text" value="411279"/>
Reference Letter <input style="width:100%;" type="text" value="B"/>	Tract No. <input style="width:100%;" type="text"/>	Property (PID) <input style="width:100%;" type="text"/>
Reference Number <input style="width:100%;" type="text" value="2"/>	Claim <input style="width:100%;" type="text"/>	Well Location Sketch Available <input type="checkbox"/>
Roamer Letter <input style="width:100%;" type="text" value="G"/>		
Roamer Number <input style="width:100%;" type="text" value="8"/>		

Depth in feet		Primary Lithology			Secondary Lithology			
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	15			TILL				<input type="checkbox"/>
15	45			SANDSTONE				<input type="checkbox"/>
45	101	REDDISH		SHALE	BROWN			<input type="checkbox"/>
101	109	BROWN	FINE GRAINED	SANDSTONE				<input type="checkbox"/>
109	114	REDDISH	FINE GRAINED					<input type="checkbox"/>
114	124	REDDISH	FINE GRAINED	SANDSTONE		MEDIUM GRAINE		<input type="checkbox"/>
124	127	BROWN	FINE GRAINED	SHALE				<input type="checkbox"/>
127	130			SHALE			SANDSTONE	<input type="checkbox"/>
130	157	REDDISH	MEDIUM GRAIN	SANDSTONE	RED	COARSE GRAINE		<input type="checkbox"/>
157	161	GRAYISH	MEDIUM GRAIN	SANDSTONE		COARSE GRAINE		<input type="checkbox"/>
161	165	REDDISH		SHALE	BROWN			<input type="checkbox"/>
165	166	BROWN		MUDSTONE				<input type="checkbox"/>
166	196	GRAYISH	MEDIUM GRAIN	SANDSTONE				<input type="checkbox"/>
196	198	REDDISH		SHALE			SANDSTONE	<input type="checkbox"/>
198	202	REDDISH		SILTSTONE				<input type="checkbox"/>
202	206	BROWN		SHALE				<input type="checkbox"/>
206	211	BROWN		SILTSTONE				<input type="checkbox"/>
211	227	BROWN		SILTSTONE			SHALE	<input type="checkbox"/>
227	235	REDDISH		SHALE				<input type="checkbox"/>
235	258	BROWN		SILTSTONE	GREENIS			<input type="checkbox"/>
258	262	REDDISH	MEDIUM GRAIN	SANDSTONE				<input type="checkbox"/>
262	263	REDDISH		SHALE				<input type="checkbox"/>
263	277	REDDISH	MEDIUM GRAIN	SANDSTONE				<input type="checkbox"/>
277	281	REDDISH		SHALE				<input type="checkbox"/>
281	294	BROWN		SILTSTONE				<input type="checkbox"/>
294	296	BROWN		SHALE				<input type="checkbox"/>
296	358	BROWN	FINE GRAINED	SILTSTONE			SHALE	<input type="checkbox"/>
358	370	REDDISH		SANDSTONE				<input type="checkbox"/>
370	378	GRAYISH		SANDSTONE				<input type="checkbox"/>
378	382	BROWN		SILTSTONE				<input type="checkbox"/>

Well Construction Information		Dug Well Information	Water Yield	
Total depth below surface (ft)	<input type="text" value="382"/>	Depth of liner (crock) (ft)	<input type="text"/>	
Depth to bedrock (ft)	<input type="text" value="15"/>	Reservoir material	<input type="text"/>	
Water bearing fractures encountered at (ft):	<input type="text" value="140"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd)	<input type="text"/>	
		Reservoir material size	<input type="text"/>	
Outer Well Casing:		Apron Material	<input type="text"/>	
From (ft)	<input type="text" value="0"/>	Apron depth (ft)	<input type="text"/>	
To (ft)	<input type="text" value="20"/>	Apron thickness (ft)	<input type="text"/>	
Diameter (in)	<input type="text" value="6"/>	Apron width (ft)	<input type="text"/>	
Length of casing above ground :		Apron volume (cu.yd)	<input type="text"/>	
(ft)	<input type="text"/>	Bottom material	<input type="text"/>	
(in)	<input type="text"/>			
Driveshoe make	<input type="text"/>			
Comments	NS OBSERVATION WELL - AMHERST (071)		Well Status/Water Use/Date Completed	
			Final status of well	<input type="text" value="TEST HOLE"/>
			Water use	<input type="text" value="MONITORING"/>
			Method of drilling	<input type="text"/>
			Date well completed	<input type="text" value="29-Jul-86"/>

Well Report

(Summary Log)

NSE Well No. 721858

Well Type DRILLED

Certified Well Contractor

Name

Certificate No.

Company

Well Owner/Contractor Information

Well Drilled For: Owner NS DEPT. OF ENVIRONMENT

or Contractor/Builder/Consultant, etc.

Civic Address of Well NS OBS WELL - KELLEY RIVER (073)

Lot Number Subdivision

County CUMBERLAND Postal Code

Nearest Community in Atlas/Map Book ATLAS KELLEY RIVER

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book MAP

Map Page No. 12

Reference Letter D

Reference Number 5

Roamer Letter

Roamer Number

NTS Map Reference :

Map Sheet

Reference Map

Tract No.

Claim

GPS (WGS84 UTM) :

Northing (m) 5049171

Easting (m) 386806

Property (PID)

Well Location Sketch Available ☐

Depth in feet

Primary Lithology

Secondary Lithology

Well Construction Information

Total depth below surface (ft) 38

Depth to bedrock (ft)

Water bearing fractures encountered at (ft):

Outer Well Casing:
 From (ft) 0 To (ft) 14

Diameter (in)

Length of casing above ground :
 (ft) (in)

Driveshoe make

Dug Well Information

Depth of liner (crock) (ft)

Reservoir material

Reservoir vol. (cu.yd)

Reservoir material size

Apron Material

Apron depth (ft)

Apron thickness (ft)

Apron width (ft)

Apron volume (cu.yd)

Bottom material

Water Yield

Estimated Yield (igpm)

Method

Rate (igpm)

Duration (hrs)

Depth to water at end of test (ft)

Total drawdown (ft)

Water level recovered to (ft)

Recovery time (hrs)

Depth to static level (ft)

Overflow ☐

Comments NS OBSERVATION WELL - KELLEY RIVER (073)

Well Status/Water Use/Date Completed

Final status of well OBSERVATION WELL

Water use MONITORING

Method of drilling

Date well completed 01-Jul-72

Well Report

(Summary Log)

NSE Well No. 070613

Well Type DRILLED

Certified Well Contractor	Well Owner/Contractor Information
Name ROGERS, KIRK	Well Drilled For: Owner NS DEPT. OF ENVIRONMENT &
Certificate No. 307	or Contractor/Builder/Consultant, etc.
Company K. D. ROGERS WELL DRILLING LTD.	Civic Address of Well NS OBS WELL - ATLANTA (074)
	Lot Number Subdivision
	County KINGS Postal Code B0P 1H0
	Nearest Community in Atlas/Map Book ATLAS ATLANTA

Well Location		
NS Atlas or Map Book Reference :	NTS Map Reference :	GPS (WGS84 UTM) :
Atlas or Map Book ATLAS	Map Sheet	Northing (m) 5000758
Map Page No. 46	Reference Map	Easting (m) 381956
Reference Letter Z	Tract No.	Property (PID) 55045942
Reference Number 2	Claim	Well Location Sketch Available <input checked="" type="checkbox"/>
Roamer Letter H		
Roamer Number 6		

Depth in feet	Primary Lithology	Secondary Lithology
From To	Colour 1 Description 1 Lithology 1	Colour 2 Description 2 Lithology 2 Water Found
0 112		SAND <input checked="" type="checkbox"/>
112 175		SANDSTONE <input checked="" type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) 175	Depth of liner (crock) (ft)	Estimated Yield (igpm)
Depth to bedrock (ft) 112	Reservoir material	Method AIR LIFT
Water bearing fractures encountered at (ft): 115 175	Reservoir vol. (cu.yd)	Rate (igpm) 100
Outer Well Casing: From (ft) 0 To (ft) 118	Reservoir material size	Duration (hrs) 1
Diameter (in) 6	Apron Material	Depth to water at end of test (ft)
Length of casing above ground : (ft) 4 (in)	Apron depth (ft)	Total drawdown (ft)
Driveshoe make MEDIUM	Apron thickness (ft)	Water level recovered to (ft) 10
	Apron width (ft)	Recovery time (hrs) 24
	Apron volume (cu.yd)	Depth to static level (ft)
	Bottom material	Overflow <input type="checkbox"/>
Comments NS OBSERVATION WELL - ATLANTA (074) FRACTURES 115-175 FT. DIST TO PROP LINE 300+', WATERCOURSE 200+'. WELL LOC EDGE OF WOOD ROAD, WELLHEAD 4 FT ABOVE GROUND.		Well Status/Water Use/Date Completed
		Final status of well OBSERVATION WELL
		Water use MONITORING
		Method of drilling ROTARY
		Date well completed 29-Aug-07

Certified Well Contractor		Well Owner/Contractor Information	
Name	ROGERS, KIRK	Well Drilled For: Owner	NS DEPT. OF ENVIRONMENT &
Certificate No.	307	or Contractor/Builder/Consultant, etc.	
Company	K. D. ROGERS WELL DRILLING LTD.	Civic Address of Well	NS OBS WELL - SHEFFIELD MILLS (075)
		Lot Number	Subdivision
		County	KINGS Postal Code B0P 1H0
		Nearest Community in Atlas/Map Book	ATLAS SHEFFIELD MILLS

Well Location					
NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	ATLAS	Map Sheet		Northing (m)	5000590
Map Page No.	47	Reference Map		Easting (m)	384693
Reference Letter	V	Tract No.		Property (PID)	55301667
Reference Number	2	Claim		Well Location Sketch Available	<input checked="" type="checkbox"/>
Roamer Letter	D				
Roamer Number	6				

Depth in feet		Primary Lithology		Secondary Lithology				
From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	16			SAND				<input type="checkbox"/>
16	175			SANDSTONE				<input checked="" type="checkbox"/>

Well Construction Information	Dug Well Information	Water Yield
Total depth below surface (ft) <input type="text" value="175"/>	Depth of liner (crock) (ft) <input type="text"/>	Estimated Yield (igpm) <input type="text"/>
Depth to bedrock (ft) <input type="text" value="16"/>	Reservoir material <input type="text"/>	Method <input type="text" value="AIR LIFT"/>
Water bearing fractures encountered at (ft): <input type="text" value="60"/> <input type="text" value="175"/> <input type="text"/> <input type="text"/> <input type="text"/>	Reservoir vol. (cu.yd) <input type="text"/>	Rate (igpm) <input type="text" value="60"/>
Outer Well Casing:	Reservoir material size <input type="text"/>	Duration (hrs) <input type="text" value="1"/>
From (ft) <input type="text" value="0"/> To (ft) <input type="text" value="63"/>	Apron Material <input type="text"/>	Depth to water at end of test (ft) <input type="text"/>
Diameter (in) <input type="text" value="6"/>	Apron depth (ft) <input type="text"/>	Total drawdown (ft) <input type="text"/>
Length of casing above ground : (ft) <input type="text" value="4"/> (in) <input type="text"/>	Apron thickness (ft) <input type="text"/>	Water level recovered to (ft) <input type="text" value="20"/>
Driveshoe make <input type="text" value="MEDIUM"/>	Apron width (ft) <input type="text"/>	Recovery time (hrs) <input type="text" value="24"/>
	Apron volume (cu.yd) <input type="text"/>	Depth to static level (ft) <input type="text"/>
	Bottom material <input type="text"/>	Overflow <input type="checkbox"/>

Comments	NS OBSERVATION WELL - SHEFFIELD MILLS (075) FRACTURES 60-175 FT. WELL LOC AT EDGE OF FIELD. WELLHEAD 4 FT ABOVE GROUND.	Well Status/Water Use/Date Completed	
		Final status of well	OBSERVATION WELL
		Water use	MONITORING
		Method of drilling	ROTARY
		Date well completed	29-Aug-07

APPENDIX B
GROUNDWATER CHEMISTRY RESULTS

Table B1. Summary of parameters which have been sampled at each well

Observation Well	General Chemistry	Metals	VOC	Pesticides	Tritium	Perchlorate
Greenwood (003)	✓	✓	✓	✓	✓	✓
Fraser Brook (004)	✓	✓	✓	✓		✓
Wilmot (005)	✓	✓	✓			
Wolfville (010)	✓	✓	✓	✓	✓	✓
Truro (014)						
Monastery (028)	✓	✓	✓	✓	✓	✓
Point Aconi (030)	✓	✓	✓	✓	✓	✓
Lawrencetown (043)	✓	✓				
Durham (045)	✓	✓	✓	✓*	✓	✓
Kentville (048)	✓	✓	✓	✓	✓	✓
Sydney (050)	✓	✓	✓	✓	✓	✓
North Grant (054)	✓	✓	✓	✓	✓	
Stillwater (055)	✓	✓	✓	✓	✓	
Sheet Harbour (056)						
Charleston (058)						
Hayden Lake (059)	✓	✓	✓	✓*	✓	✓
Meteghan (060)	✓	✓	✓	✓	✓	
Annapolis Royal (062)	✓	✓	✓	✓	✓	✓
Hebron (063)	✓	✓	✓	✓*	✓	✓
Margaree (064)	✓	✓	✓	✓	✓	
Ingonish (065)						
Debert (068)						
Dalem Lake (069)	✓	✓	✓	✓	✓	
Amherst (071)	✓	✓	✓	✓	✓	
Kelley River (073)	✓	✓	✓	✓	✓	
Atlanta (074)	✓	✓	✓	✓		
Sheffield Mills (075)	✓	✓	✓	✓		

Notes:

* = limited suite of pesticides analysed at this site

Table B2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Greenwood	Fraser Brook	Wilmot	Wolfville	Truro
				(Well 003) 23-Nov-2005	(Well 004) 10-Dec-2004	(Well 005) 29-Nov-2006	(Well 010) 22-Dec-2004	(Well 014) -
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	ND	74	16	25	-
Chloride (Cl)	mg/L	250 AO	1	6	5	22	78	-
Colour	TCU	15 AO	5	5	ND	ND	ND	-
Hardness (CaCO3)	mg/L	500 AO		10	79.1	180	101	-
Nitrate + Nitrite	mg/L	10	0.05	ND	ND	30	1.9	-
Nitrite (N)	mg/L	1	0.01	ND	ND	0.02	ND	-
Nitrate (N)	mg/L	10	0.05	ND	ND	30	1.9	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	0.22	ND	ND	ND	-
Total Organic Carbon (C)	mg/L	-	0.5	2	ND	ND	ND	-
Orthophosphate (P)	mg/L	-	0.01	0.05	0.02	0.07	ND	-
pH	pH	6.5 - 8.5 AO		6.41	7.6	6.7	6.5	-
Reactive Silica (SiO2)	mg/L		0.5	11	7.8	7.9	17	-
Sulphate (SO4)	mg/L	500 AO	2	9	5	27	12	-
Turbidity	NTU	5 AO	0.1	39	0.2	50	0.9	-
Conductivity	uS/cm	-		79	166	410	382	-
Anion Sum	me/L	-		0.372	1.73	3.65	3.08	-
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	74	16	25	-
Calculated TDS	mg/L	-	1	40	94	275	196	-
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	-
Cation Sum	me/L	-		0.549	1.78	3.92	3.3	-
Ion Balance (% Difference)	%	-		19.2	1.56	3.58	3.3	-
Langelier Index (@ 20C)	N/A	-		-	-0.68	-1.75	-2.12	-
Langelier Index (@ 4C)	N/A	-		-	-1.08	-2	-2.52	-
Saturation pH (@ 20C)	N/A	-		-	8.28	8.45	8.62	-
Saturation pH (@ 4C)	N/A	-		-	8.68	8.7	9.02	-
Calcium (Ca)	mg/L	-	0.1	2.2	19.3	56	27.4	-
Magnesium (Mg)	mg/L	-	0.1	1	7.5	8.5	7.8	-
Phosphorus (P)	mg/L	-	0.1	ND	ND	0.2	ND	-
Potassium (K)	mg/L	-	0.1	2.4	1	3.1	2	-
Sodium (Na)	mg/L	200 AO	0.1	3.6	4	7.5	28.3	-
Bromide (Br)	mg/L	-	0.5	ND	0.03	-	0.06	-
Fluoride (F)	mg/L	1.5	0.1	ND	ND	-	ND	-
Metals								
Aluminum (Al)	ug/L	-	10	47	ND	ND	ND	-
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	-
Arsenic (As)	ug/L	10	2	2	14	ND	ND	-
Barium (Ba)	ug/L	1000	5	59	5	89	69	-
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	-
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	-
Boron (B)	ug/L	5000	5	ND	30	14	26	-
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	-
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	-
Cobalt (Co)	ug/L	-	1	3	ND	ND	ND	-
Copper (Cu)	ug/L	1000 AO	2	3	ND	ND	ND	-
Iron (Fe)	ug/L	300 AO	50	8700	ND	ND	230	-
Lead (Pb)	ug/L	10	0.5	1.7	ND	2.3	ND	-
Manganese (Mn)	ug/L	50 AO	2	140	ND	15	14	-
Molybdenum (Mo)	ug/L	-	2	ND	ND	ND	ND	-
Mercury (Hg)	ug/L		0.01			-		-
Nickel (Ni)	ug/L	-	2	4	ND	3	ND	-
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	-
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	-
Strontium (Sr)	ug/L	-	5	9	150	160	110	-
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	-
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	-
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	-
Uranium (U)	ug/L	20	0.1	0.2	1.5	ND	ND	-
Vanadium (V)	ug/L	-	2	ND	2	ND	ND	-
Zinc (Zn)	ug/L	5000 AO	5	87	ND	7	ND	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Monastery	Point Aconi	Lawrencetown	Durham	Kentville
				(Well 028)	(Well 030)	(Well 043)	(Well 045)	(Well 048)
				15-Dec-2006	15-Sep-2005	18-Nov-2004	5-Oct-2005	15-Jun-2005
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	240	140	82	140	20
Chloride (Cl)	mg/L	250 AO	1	31	19	150	44	230
Colour	TCU	15 AO	5	ND	ND	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO		120	140	98.9	86	150
Nitrate + Nitrite	mg/L	10	0.05	ND	ND	ND	ND	1.2
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	ND	ND	ND	ND	1.2
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	0.14	ND	0.19	0.11	0.06
Total Organic Carbon (C)	mg/L	-	0.5	2.1	ND	ND	ND	ND
Orthophosphate (P)	mg/L	-	0.01	ND	ND	ND	ND	ND
pH	pH	6.5 - 8.5 AO		8.14	8.01	7.3	8.16	6.84
Reactive Silica (SiO2)	mg/L		0.5	11	7.6	7.3	11	11
Sulphate (SO4)	mg/L	500 AO	2	72	10	ND	16	16
Turbidity	NTU	5 AO	0.1	0.2	ND	1	ND	5
Conductivity	uS/cm	-		660	380	695	410	910
Anion Sum	me/L	-		7.13	3.6	5.92	4.31	7.36
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	235	140	82	134	20.3
Calculated TDS	mg/L	-	1	417	207	341	243	223
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	3	1	ND	2	ND
Cation Sum	me/L	-		7.51	4.11	6.19	4.22	8.18
Ion Balance (% Difference)	%	-		2.61	6.56	2.27	1.01	5.28
Langelier Index (@ 20C)	N/A	-		0.553	0.41	-0.85	0.382	-1.54
Langelier Index (@ 4C)	N/A	-		0.304	0.16	-1.25	0.132	-1.79
Saturation pH (@ 20C)	N/A	-		7.59	7.6	8.15	7.78	8.38
Saturation pH (@ 4C)	N/A	-		7.84	7.85	8.55	8.03	8.63
Calcium (Ca)	mg/L	-	0.1	31	44	26.1	30	52
Magnesium (Mg)	mg/L	-	0.1	9.3	6.3	8.2	2.7	5.6
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	0.1	ND (0.2)
Potassium (K)	mg/L	-	0.1	2.3	4	1.9	1.6	4.9
Sodium (Na)	mg/L	200 AO	0.1	120	30	95.4	57	120
Bromide (Br)	mg/L	-	0.5	ND		0.53	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.3		0.11	0.3	ND
Metals								
Aluminum (Al)	ug/L	-	10	ND	15	ND	16	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	6	ND	56	4	ND
Barium (Ba)	ug/L	1000	5	25	40	26	130	64
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	250	35	93	38	5.7
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	7	6	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	ND	ND	ND	ND	ND
Lead (Pb)	ug/L	10	0.5	ND	0.6	ND	ND	ND
Manganese (Mn)	ug/L	50 AO	2	42	360	16	21	ND
Molybdenum (Mo)	ug/L	-	2	3	ND	ND	8	ND
Mercury (Hg)	ug/L		0.01	ND				
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	2400	230	1100	1100	210
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	0.6	0.3	ND	0.7	ND
Vanadium (V)	ug/L	-	2	ND	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	34	18	ND	21	150

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Kentville	Sydney	North Grant	Stillwater	Sheet Harbour
				(Well 048)	(Well 050)	(Well 054)	(Well 055)	(Well 056)
				7-Nov-2007	15-Sep-2005	13-Dec-2006	13-Dec-2006	-
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	22	83	93	58	-
Chloride (Cl)	mg/L	250 AO	1	270	7	30	5	-
Colour	TCU	15 AO	5	ND	ND	ND	ND	-
Hardness (CaCO3)	mg/L	500 AO		180	87	38	58	-
Nitrate + Nitrite	mg/L	10	0.05	0.96	0.17	0.55	0.13	-
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	-
Nitrate (N)	mg/L	10	0.05	0.96	0.17	0.55	0.13	-
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	ND	ND	0.09	-
Total Organic Carbon (C)	mg/L	-	0.5	ND	ND	2.5	2.5	-
Orthophosphate (P)	mg/L	-	0.01	0.05	ND	ND	ND	-
pH	pH	6.5 - 8.5 AO		7.39	8.03	7.83	7.32	-
Reactive Silica (SiO2)	mg/L	-	0.5	11	8.6	9.6	12	-
Sulphate (SO4)	mg/L	500 AO	2	19	7	35	6	-
Turbidity	NTU	5 AO	0.1	0.7	0.3	1.1	0.4	-
Conductivity	uS/cm	-		1000	210	340	140	-
Anion Sum	me/L	-		8.5	2.02	3.5	1.44	-
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	22	82	93	58	-
Calculated TDS	mg/L	-	1	503	115	209	89	-
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	-
Cation Sum	me/L	-		8.67	2.07	3.43	1.5	-
Ion Balance (% Difference)	%	-		0.99	1.29	1.07	2.18	-
Langelier Index (@ 20C)	N/A	-		-0.975	0.069	-0.526	-0.962	-
Langelier Index (@ 4C)	N/A	-		-1.22	-0.182	-0.776	-1.21	-
Saturation pH (@ 20C)	N/A	-		8.37	7.96	8.36	8.28	-
Saturation pH (@ 4C)	N/A	-		8.61	8.21	8.61	8.53	-
Calcium (Ca)	mg/L	-	0.1	58	30	12	19	-
Magnesium (Mg)	mg/L	-	0.1	7.5	3	2.2	2.2	-
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	-
Potassium (K)	mg/L	-	0.1	5.4	1.7	1	1.8	-
Sodium (Na)	mg/L	200 AO	0.1	120	6.6	61	6.8	-
Bromide (Br)	mg/L	-	0.5	ND	ND	ND	ND	-
Fluoride (F)	mg/L	1.5	0.1	ND	0.1	0.6	ND	-
Metals								
Aluminum (Al)	ug/L	-	10	ND	11	46	35	-
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	-
Arsenic (As)	ug/L	10	2	ND	ND	3	ND	-
Barium (Ba)	ug/L	1000	5	76	93	88	11	-
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	-
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	-
Boron (B)	ug/L	5000	5	6	15	610	8	-
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	-
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	-
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND	-
Copper (Cu)	ug/L	1000 AO	2	ND	7	ND	ND	-
Iron (Fe)	ug/L	300 AO	50	410	80	85	ND	-
Lead (Pb)	ug/L	10	0.5	45	ND	ND	ND	-
Manganese (Mn)	ug/L	50 AO	2	12	630	8	37	-
Molybdenum (Mo)	ug/L	-	2	ND	ND	3	ND	-
Mercury (Hg)	ug/L		0.01	0.01		ND	ND	-
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	-
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	-
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	-
Strontium (Sr)	ug/L	-	5	260	230	180	64	-
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	-
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	-
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	-
Uranium (U)	ug/L	20	0.1	ND	ND	1.3	0.5	-
Vanadium (V)	ug/L	-	2	ND	ND	2	ND	-
Zinc (Zn)	ug/L	5000 AO	5	8	6	ND	ND	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Charleston	Hayden Lake	Meteghan	Annapolis Royal	Annapolis Royal
				(Well 058)	(Well 059)	(Well 060)	(Well 062)	(Well 062)
				-	9-Jun-2005	12-Dec-2006	9-Nov-2005	26-Nov-2007
General Chemistry								
Total Alkalinity (Total as CaCO ₃)	mg/L	-	5	-	14	67	52	54
Chloride (Cl)	mg/L	250 AO	1	-	9.2	16	6	6
Colour	TCU	15 AO	5	-	ND	6	ND	ND
Hardness (CaCO ₃)	mg/L	500 AO	-	-	15	85	43	41
Nitrate + Nitrite	mg/L	10	0.05	-	ND	ND	ND	ND
Nitrite (N)	mg/L	1	0.01	-	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	-	ND	ND	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	-	ND	0.07	ND	ND
Total Organic Carbon (C)	mg/L	-	0.5	-	0.8	3.3	ND	ND
Orthophosphate (P)	mg/L	-	0.01	-	ND	ND	0.03	0.02
pH	pH	6.5 - 8.5 AO	-	-	6.74	7.42	7.3	8.03
Reactive Silica (SiO ₂)	mg/L	-	0.5	-	5.9	8.7	14	12
Sulphate (SO ₄)	mg/L	500 AO	2	-	4.3	13	7	7
Turbidity	NTU	5 AO	0.1	-	ND	59	0.2	15
Conductivity	uS/cm	-	-	-	70	200	130	140
Anion Sum	me/L	-	-	-	0.622	2.11	1.38	1.4
Bicarb. Alkalinity (calc. as CaCO ₃)	mg/L	-	1	-	13.6	67	52	53
Calculated TDS	mg/L	-	1	-	41.2	124	89	88
Carb. Alkalinity (calc. as CaCO ₃)	mg/L	-	1	-	ND	ND	ND	ND
Cation Sum	me/L	-	-	-	0.659	2.29	1.44	1.42
Ion Balance (% Difference)	%	-	-	-	2.9	4.09	2.2	0.71
Langelier Index (@ 20C)	N/A	-	-	-	-2.86	-0.765	-1.15	-0.431
Langelier Index (@ 4C)	N/A	-	-	-	-3.11	-1.02	-1.41	-0.682
Saturation pH (@ 20C)	N/A	-	-	-	9.6	8.19	8.45	8.46
Saturation pH (@ 4C)	N/A	-	-	-	9.85	8.44	8.71	8.71
Calcium (Ca)	mg/L	-	0.1	-	3.7	22	15	14
Magnesium (Mg)	mg/L	-	0.1	-	1.5	7.3	1.6	1.5
Phosphorus (P)	mg/L	-	0.1	-	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	-	0.9	1.7	1	1.2
Sodium (Na)	mg/L	200 AO	0.1	-	7.5	8.5	13	13
Bromide (Br)	mg/L	-	0.5	-	ND	ND	ND	ND
Fluoride (F)	mg/L	1.5	0.1	-	ND	0.6	0.2	0.2
Metals								
Aluminum (Al)	ug/L	-	10	-	25	ND	ND	ND
Antimony (Sb)	ug/L	6	2	-	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	-	ND	ND	4	4
Barium (Ba)	ug/L	1000	5	-	7.4	5	52	66
Beryllium (Be)	ug/L	-	2	-	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	-	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	-	6.9	47	12	12
Cadmium (Cd)	ug/L	5	0.3	-	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	-	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	-	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	-	37	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	-	ND	4900	ND	ND
Lead (Pb)	ug/L	10	0.5	-	ND	ND	ND	1
Manganese (Mn)	ug/L	50 AO	2	-	13	60	110	93
Molybdenum (Mo)	ug/L	-	2	-	ND	ND	4	4
Mercury (Hg)	ug/L	-	0.01	-	-	ND	-	0.02
Nickel (Ni)	ug/L	-	2	-	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	-	ND	ND	ND	ND
Silver (Ag)	ug/L	-	0.5	-	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	-	19	36	59	61
Thallium (Tl)	ug/L	-	0.1	-	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	-	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	-	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	-	ND	ND	1.9	3.6
Vanadium (V)	ug/L	-	2	-	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	-	21	5	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Hebron	Margaree	Ingonish	Debert	Dalem Lake
				(Well 063) 9-Jun-2005	(Well 064) 14-Dec-2006	(Well 065) -	(Well 068) -	(Well 069) 14-Dec-2006
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	23	160	-	-	63
Chloride (Cl)	mg/L	250 AO	1	49	10	-	-	38
Colour	TCU	15 AO	5	5.8	ND	-	-	ND
Hardness (CaCO3)	mg/L	500 AO		71	210	-	-	120
Nitrate + Nitrite	mg/L	10	0.05	ND	ND	-	-	ND
Nitrite (N)	mg/L	1	0.01	ND	ND	-	-	ND
Nitrate (N)	mg/L	10	0.05	ND	ND	-	-	ND
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	0.13	-	-	ND
Total Organic Carbon (C)	mg/L	-	0.5	1.2	3.6	-	-	2.6
Orthophosphate (P)	mg/L	-	0.01	ND	ND	-	-	0.01
pH	pH	6.5 - 8.5 AO		6.29	8.13	-	-	7.8
Reactive Silica (SiO2)	mg/L		0.5	17	12	-	-	12
Sulphate (SO4)	mg/L	500 AO	2	13	93	-	-	8
Turbidity	NTU	5 AO	0.1	150	0.2	-	-	0.3
Conductivity	uS/cm	-		270	510	-	-	260
Anion Sum	me/L	-		2.12	5.48	-	-	2.51
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	23.2	160	-	-	62
Calculated TDS	mg/L	-	1	169	311	-	-	150
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	2	-	-	ND
Cation Sum	me/L	-		3.38	5.5	-	-	2.77
Ion Balance (% Difference)	%	-		22.9	0.182	-	-	4.97
Langelier Index (@ 20C)	N/A	-		-2.47	0.525	-	-	-0.191
Langelier Index (@ 4C)	N/A	-		-2.72	0.276	-	-	-0.442
Saturation pH (@ 20C)	N/A	-		8.76	7.61	-	-	7.99
Saturation pH (@ 4C)	N/A	-		9.01	7.85	-	-	8.24
Calcium (Ca)	mg/L	-	0.1	18	41	-	-	38
Magnesium (Mg)	mg/L	-	0.1	6.3	26	-	-	6.1
Phosphorus (P)	mg/L	-	0.1	ND	ND	-	-	ND
Potassium (K)	mg/L	-	0.1	1.7	1.7	-	-	1.3
Sodium (Na)	mg/L	200 AO	0.1	20	28	-	-	7.5
Bromide (Br)	mg/L	-	0.5	0.5	ND	-	-	ND
Fluoride (F)	mg/L	1.5	0.1	ND	0.6	-	-	0.2
Metals								
Aluminum (Al)	ug/L	-	10	ND	12	-	-	ND
Antimony (Sb)	ug/L	6	2	ND	ND	-	-	ND
Arsenic (As)	ug/L	10	2	ND	ND	-	-	4
Barium (Ba)	ug/L	1000	5	14	21	-	-	150
Beryllium (Be)	ug/L	-	2	ND	ND	-	-	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	-	-	ND
Boron (B)	ug/L	5000	5	8.8	450	-	-	9
Cadmium (Cd)	ug/L	5	0.3	ND	ND	-	-	ND
Chromium (Cr)	ug/L	50	2	ND	ND	-	-	ND
Cobalt (Co)	ug/L	-	1	ND	ND	-	-	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	-	-	ND
Iron (Fe)	ug/L	300 AO	50	27000	ND	-	-	180
Lead (Pb)	ug/L	10	0.5	ND	ND	-	-	ND
Manganese (Mn)	ug/L	50 AO	2	440	5	-	-	330
Molybdenum (Mo)	ug/L	-	2	ND	ND	-	-	ND
Mercury (Hg)	ug/L		0.01		ND	-	-	ND
Nickel (Ni)	ug/L	-	2	ND	ND	-	-	ND
Selenium (Se)	ug/L	10	2	ND	ND	-	-	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	-	-	ND
Strontium (Sr)	ug/L	-	5	91	15000	-	-	77
Thallium (Tl)	ug/L	-	0.1	ND	ND	-	-	ND
Tin (Sn)	ug/L	-	2	ND	ND	-	-	ND
Titanium (Ti)	ug/L	-	2	ND	ND	-	-	ND
Uranium (U)	ug/L	20	0.1	ND	ND	-	-	ND
Vanadium (V)	ug/L	-	2	ND	ND	-	-	ND
Zinc (Zn)	ug/L	5000 AO	5	16	ND	-	-	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Amherst	Kelley River	Atlanta	Sheffield Mills
				(Well 071) 16-Dec-2006	(Well 073) 12-Jan-2007	(Well 074) 03-Sep-2007	(Well 075) 10-Sep-2007
General Chemistry							
Total Alkalinity (Total as CaCO3)	mg/L	-	5	120	22	95	95
Chloride (Cl)	mg/L	250 AO	1	33	8	8	6
Colour	TCU	15 AO	5	ND	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO		83	13	75	98
Nitrate + Nitrite	mg/L	10	0.05	1.3	0.07	0.74	0.78
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	1.3	0.07	0.74	0.78
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	ND	ND	ND
Total Organic Carbon (C)	mg/L	-	0.5	2.3	2.7	ND	ND
Orthophosphate (P)	mg/L	-	0.01	0.04	ND	ND	ND
pH	pH	6.5 - 8.5 AO		8.08	7.22	8.08	7.99
Reactive Silica (SiO2)	mg/L	-	0.5	11	4.3	11	8.9
Sulphate (SO4)	mg/L	500 AO	2	40	4	4	3
Turbidity	NTU	5 AO	0.1	ND	0.2	ND	ND
Conductivity	uS/cm	-		430	81	210	210
Anion Sum	me/L	-		4.3	0.765	2.26	2.17
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	120	22	94	94
Calculated TDS	mg/L	-	1	260	46	135	124
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	1	ND	1	ND
Cation Sum	me/L	-		4.55	0.746	2.47	2.31
Ion Balance (% Difference)	%	-		2.89	1.26	4.44	3.13
Langelier Index (@ 20C)	N/A	-		0.17	-2.19	0.116	0.147
Langelier Index (@ 4C)	N/A	-		-0.08	-2.44	-0.135	-0.104
Saturation pH (@ 20C)	N/A	-		7.91	9.41	7.96	7.84
Saturation pH (@ 4C)	N/A	-		8.16	9.66	8.22	8.09
Calcium (Ca)	mg/L	-	0.1	26	3.6	27	35
Magnesium (Mg)	mg/L	-	0.1	4.3	1	2.2	2.7
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	1.3	1	2.2	2.5
Sodium (Na)	mg/L	200 AO	0.1	66	11	21	6.8
Bromide (Br)	mg/L	-	0.5	ND	ND	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.6	ND	ND	ND
Metals							
Aluminum (Al)	ug/L	-	10	ND	ND	ND	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	ND	ND	ND	ND
Barium (Ba)	ug/L	1000	5	170	24	8	18
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	12	14	13	7
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	ND	87	ND	ND
Lead (Pb)	ug/L	10	0.5	ND	ND	ND	ND
Manganese (Mn)	ug/L	50 AO	2	3	20	ND	ND
Molybdenum (Mo)	ug/L	-	2	50	ND	ND	ND
Mercury (Hg)	ug/L	-	0.01	ND	ND	ND	ND
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	ND	ND	2	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	58	20	280	420
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	3.7	ND	21	8.4
Vanadium (V)	ug/L	-	2	5	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	ND	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Greenwood	Fraser Brook	Wilmot	Wolfville	Truro	Monastery
			(Well 003)	(Well 004)	(Well 005)	(Well 010)	(Well 014)	(Well 028)
			23-Nov-2005	10-Dec-2004	29-Nov-2006	22-Dec-2004	-	15-Dec-2006
CHLOROENZES								
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	ND	-	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	ND	-	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	ND	-	ND
Chlorobenzene	80	1	ND	ND	ND	ND	-	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	ND	ND	ND	-	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	ND	-	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	ND	-	ND
1,1-Dichloroethane	-	2	ND	ND	ND	ND	-	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	ND	-	ND
1,2-Dichloroethane	5	1	ND	ND	ND	ND	-	ND
1,2-Dichloropropane	-	1	ND	ND	ND	ND	-	ND
Benzene	-	1	ND	ND	ND	ND	-	ND
Bromodichloromethane	16	1	ND	ND	ND	ND	-	ND
Bromoform	100	1	ND	ND	ND	ND	-	ND
Bromomethane	-	8	ND	ND	ND	ND	-	ND
Carbon Tetrachloride	5	1	ND	ND	ND	ND	-	ND
Chloroethane	-	8	ND	ND	ND	ND	-	ND
Chloroform	100	1	ND	ND	ND	ND	-	ND
Chloromethane	-	8	ND	ND	ND	ND	-	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	-	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	ND	-	ND
Dibromochloromethane	100	1	ND	ND	ND	ND	-	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	ND	-	ND
Ethylene Dibromide	-	1	ND	ND	ND	ND	-	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	ND	-	ND
o-Xylene	300 AO	1	ND	ND	ND	ND	-	ND
p+m-Xylene	300 AO	2	ND	ND	ND	ND	-	ND
Styrene	-	1	ND	ND	ND	ND	-	ND
Tetrachloroethylene	30	1	ND	ND	ND	ND	-	ND
Toluene	24 AO	1	ND	ND	ND	ND	-	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	-	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND	-	ND
Trichloroethylene	50	1	ND	ND	ND	ND	-	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	ND	-	ND
Vinyl Chloride	2	1	ND	ND	ND	ND	-	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Point Aconi (Well 030) 15-Sep-2005	Lawrencetown (Well 043) 18-Nov-2004	Durham (Well 045) 5-Oct-2005	Kentville (Well 048) 7/Nov/2007	Sydney (Well 050) 15-Sep-2005	North Grant (Well 054) 13/Dec/2006
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	-	ND	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	-	ND	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	-	ND	ND	ND	ND
Chlorobenzene	80	1	ND	-	ND	ND	ND	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	-	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	-	ND	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	-	ND	ND	ND	ND
1,1-Dichloroethane	-	2	ND	-	ND	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	-	ND	ND	ND	ND
1,2-Dichloroethane	5	1	ND	-	ND	ND	ND	ND
1,2-Dichloropropane	-	1	ND	-	ND	ND	ND	ND
Benzene	-	1	ND	-	ND	ND	ND	ND
Bromodichloromethane	16	1	ND	-	ND	ND	ND	ND
Bromoform	100	1	ND	-	ND	ND	ND	ND
Bromomethane	-	8	ND	-	ND	ND	ND	ND
Carbon Tetrachloride	5	1	ND	-	ND	ND	ND	ND
Chloroethane	-	8	ND	-	ND	ND	ND	ND
Chloroform	100	1	ND	-	ND	ND	ND	ND
Chloromethane	-	8	ND	-	ND	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	-	ND	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	-	ND	ND	ND	ND
Dibromochloromethane	100	1	ND	-	ND	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	-	ND	ND	ND	ND
Ethylene Dibromide	-	1	ND	-	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	-	ND	ND	ND	ND
o-Xylene	300 AO	1	ND	-	ND	ND	ND	ND
p+m-Xylene	300 AO	2	ND	-	ND	ND	ND	ND
Styrene	-	1	ND	-	ND	ND	ND	ND
Tetrachloroethylene	30	1	ND	-	ND	ND	ND	ND
Toluene	24 AO	1	ND	-	ND	ND	ND	ND
trans-1,2-Dichloroethylene	-	2	ND	-	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	-	ND	ND	ND	ND
Trichloroethylene	50	1	ND	-	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	-	ND	ND	ND	ND
Vinyl Chloride	2	1	ND	-	ND	ND	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets

All guidelines are health-based MACs or IMACs, unless otherwise noted.

Shaded values exceed guidelines.

Table B3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Stillwater	Sheet Harbour	Charleston	Hayden Lake	Meteghan	Annapolis Royal
			(Well 055)	(Well 056)	(Well 058)	(Well 059)	(Well 060)	(Well 062)
			13/Dec/2006	-	-	9-Jun-2005	13/Dec/2006	9-Nov-2005
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	-	-	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	-	-	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	-	-	ND	ND	ND
Chlorobenzene	80	1	ND	-	-	ND	ND	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	-	-	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	-	-	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	-	-	ND	ND	ND
1,1-Dichloroethane	-	2	ND	-	-	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	-	-	ND	ND	ND
1,2-Dichloroethane	5	1	ND	-	-	ND	ND	ND
1,2-Dichloropropane	-	1	ND	-	-	ND	ND	ND
Benzene	-	1	ND	-	-	ND	ND	ND
Bromodichloromethane	16	1	ND	-	-	ND	ND	ND
Bromoform	100	1	ND	-	-	ND	ND	ND
Bromomethane	-	8	ND	-	-	ND	ND	ND
Carbon Tetrachloride	5	1	ND	-	-	ND	ND	ND
Chloroethane	-	8	ND	-	-	ND	ND	ND
Chloroform	100	1	ND	-	-	3.2	ND	ND (2)
Chloromethane	-	8	ND	-	-	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	-	-	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	-	-	ND	ND	ND
Dibromochloromethane	100	1	ND	-	-	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	-	-	ND	ND	ND
Ethylene Dibromide	-	1	ND	-	-	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	-	-	ND	ND	ND
o-Xylene	300 AO	1	ND	-	-	ND	ND	ND
p+m-Xylene	300 AO	2	ND	-	-	ND	ND	ND
Styrene	-	1	ND	-	-	ND	ND	ND
Tetrachloroethylene	30	1	ND	-	-	ND	ND	ND
Toluene	24 AO	1	1	-	-	ND	ND	2
trans-1,2-Dichloroethylene	-	2	ND	-	-	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	-	-	ND	ND	ND
Trichloroethylene	50	1	ND	-	-	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	-	-	ND	ND	ND
Vinyl Chloride	2	1	ND	-	-	ND	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets

All guidelines are health-based MACs or IMACs, unless otherwise noted.

Shaded values exceed guidelines.

Table B3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Annapolis Royal	Hebron	Margaree	Ingonish	Debert	Dalem Lake
			(Well 062)	(Well 063)	(Well 064)	(Well 065)	(Well 068)	(Well 069)
			26/Nov/2007	9-Jun-2005	14/Dec/2006	-	-	14/Dec/2006
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	-	-	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	-	-	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	-	-	ND
Chlorobenzene	80	1	ND	ND	ND	-	-	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	ND	ND	-	-	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	-	-	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	-	-	ND
1,1-Dichloroethane	-	2	ND	ND	ND	-	-	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	-	-	ND
1,2-Dichloroethane	5	1	ND	ND	ND	-	-	ND
1,2-Dichloropropane	-	1	ND	ND	ND	-	-	ND
Benzene	-	1	ND	ND	ND	-	-	ND
Bromodichloromethane	16	1	ND	ND	ND	-	-	ND
Bromoform	100	1	ND	ND	ND	-	-	ND
Bromomethane	-	8	ND	ND	ND	-	-	ND
Carbon Tetrachloride	5	1	ND	ND	ND	-	-	ND
Chloroethane	-	8	ND	ND	ND	-	-	ND
Chloroform	100	1	ND	ND	ND	-	-	ND
Chloromethane	-	8	ND	ND	ND	-	-	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	-	-	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	-	-	ND
Dibromochloromethane	100	1	ND	ND	ND	-	-	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	-	-	ND
Ethylene Dibromide	-	1	ND	ND	ND	-	-	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	-	-	ND
o-Xylene	300 AO	1	ND	ND	ND	-	-	ND
p+m-Xylene	300 AO	2	ND	ND	ND	-	-	ND
Styrene	-	1	ND	ND	ND	-	-	ND
Tetrachloroethylene	30	1	ND	ND	ND	-	-	ND
Toluene	24 AO	1	1	ND	ND	-	-	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	-	-	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	-	-	ND
Trichloroethylene	50	1	ND	ND	ND	-	-	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	-	-	ND
Vinyl Chloride	2	1	ND	ND	ND	-	-	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets

All guidelines are health-based MACs or IMACs, unless otherwise noted.

Shaded values exceed guidelines.

Table B3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Amherst	Kelley River	Atlanta	Sheffield Mills
			(Well 071)	(Well 073)	(Well 074)	(Well 075)
			16/Dec/2006	12/Jan/2007	03-Sep-2007	10-Sep-2007
CHLOROBENZENES						
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	ND
Chlorobenzene	80	1	ND	ND	ND	ND
VOLATILES						
1,1,1-Trichloroethane	-	1	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	ND
1,1-Dichloroethane	-	2	ND	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	ND
1,2-Dichloroethane	5	1	ND	ND	ND	ND
1,2-Dichloropropane	-	1	ND	ND	ND	ND
Benzene	-	1	ND	ND	ND	ND
Bromodichloromethane	16	1	ND	ND	ND	ND
Bromoform	100	1	ND	ND	ND	ND
Bromomethane	-	8	ND	ND	ND	ND
Carbon Tetrachloride	5	1	ND	ND	ND	ND
Chloroethane	-	8	ND	ND	ND	ND
Chloroform	100	1	ND	ND	ND	ND
Chloromethane	-	8	ND	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	ND
Dibromochloromethane	100	1	ND	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	ND
Ethylene Dibromide	-	1	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	ND
o-Xylene	300 AO	1	ND	ND	ND	ND
p+m-Xylene	300 AO	2	ND	ND	ND	ND
Styrene	-	1	ND	ND	ND	ND
Tetrachloroethylene	30	1	ND	ND	ND	ND
Toluene	24 AO	1	ND	ND	ND	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND
Trichloroethylene	50	1	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	ND
Vinyl Chloride	2	1	ND	ND	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets

All guidelines are health-based MACs or IMACs, unless otherwise noted.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Greenwood	Fraser Brook	Wilmot	Wolfville	Truro	Monastery
			(Well 003)	(Well 004)	(Well 005)	(Well 010)	(Well 014)	(Well 028)
			23-Nov-2005	10-Dec-2004	-	22-Dec-2004	-	15-Dec-2006
Herbicides								
Atrazine	5	0.2	ND	ND	-	ND	-	ND
De-ethyl Atrazine		0.3	ND	ND	-	ND	-	ND
Butylate		0.5	ND	ND	-	ND	-	ND
Cyanazine	10	0.5	ND	ND	-	ND	-	ND
Desmetryn		0.3	ND	ND	-	ND	-	ND
Diphenylamine		0.1	ND	ND	-	ND	-	ND
Eptam		0.5	ND	ND	-	ND	-	ND
Ethalfuralin		0.5	ND	ND	-	ND	-	ND
Hexazinone		0.1	ND	ND	-	ND	-	ND
Metolachlor		0.3	ND	ND	-	ND	-	ND
Metribuzin	80	0.3	ND	ND	-	ND	-	ND
Pirimicarb	50	0.2	ND	ND	-	ND	-	ND
Profluralin		0.5	ND	ND	-	ND	-	ND
Prometryn		0.2	ND	ND	-	ND	-	ND
Propazine		0.1	ND	ND	-	ND	-	ND
Simazine	10	0.5	ND	ND	-	ND	-	ND
Terbutylazine		0.1	ND	ND	-	ND	-	ND
Terbutryn		0.2	ND	ND	-	ND	-	ND
Triallate		0.3	ND	ND	-	ND	-	ND
Triadimefon		0.3	ND	ND	-	ND	-	ND
Trifluralin	45	0.2	ND	ND	-	ND	-	ND
Organochlorine Pesticides								
Alachlor		0.5	ND	ND	-	ND	-	ND
Aldrin + Dieldrin	0.7	0.5	ND	ND	-	ND	-	ND
BHC, alpha-		0.3	ND	ND	-	ND	-	ND
BHC, beta-		0.3	ND	ND	-	ND	-	ND
Captan		1	ND	ND	-	ND	-	ND
Chlorbenside		0.1	ND	ND	-	ND	-	ND
Chlordane, alpha-		0.5	ND	ND	-	ND	-	ND
Chlordane, gamma-		0.5	ND	ND	-	ND	-	ND
Chlorfenson (Ovex)		0.2	ND	ND	-	ND	-	ND
Chlorothalonil (Daconil)		1	ND	ND	-	ND	-	ND
Chlorpropham		0.2	ND	ND	-	ND	-	ND
Dacthal (DCPA)		0.1	ND	ND	-	ND	-	ND
4,4'-DDE		0.01	ND (0.1)	ND (0.1)	-	ND (0.1)	-	ND (0.1)
DDT - orthopara (2,4')		0.01	ND (0.2)	ND (0.2)	-	ND (0.2)	-	ND (0.2)
DDT - parapara (4,4')		0.01	ND (0.2)	ND (0.2)	-	ND (0.2)	-	ND (0.2)
Diallate(e/z)		0.5	ND	ND	-	ND	-	ND
Dichlobenil		0.2	ND	ND	-	ND	-	ND
Dichloran		0.5	ND	ND	-	ND	-	ND
Dichlofluanid		0.5	ND	ND	-	ND	-	ND
Dicofol		0.2	ND	ND	-	ND	-	ND
Endosulfan I		0.5	ND	ND	-	ND	-	ND
Endosulfan II		0.5	ND	ND	-	ND	-	ND
Endosulfan Sulphate		0.5	ND	ND	-	ND	-	ND
Endrin		0.5	ND	ND	-	ND	-	ND
Folpet		1	ND	ND	-	ND	-	ND
Heptachlor		0.5	ND	ND	-	ND	-	ND
Lindane (BHC), gamma-		0.5	ND	ND	-	ND	-	ND
Methidathion		0.3	ND	ND	-	ND	-	ND
Methoxychlor	900	0.1	ND	ND	-	ND	-	ND
Mirex		0.3	ND	ND	-	ND	-	ND
Nitrofen		0.2	ND	ND	-	ND	-	ND
Permethrin-cis/trans		0.5	ND	ND	-	ND	-	ND
Procymidone		0.2	ND	ND	-	ND	-	ND
Pronamide		0.2	ND	ND	-	ND	-	ND
Quintozone (Pentachloronitrobenzene)		0.5	ND	-	-	-	-	-
Tecnazene		0.5	ND	ND	-	ND	-	ND
Tetradifon		0.2	ND	ND	-	ND	-	ND
Tolylfluanid		0.5	ND	ND	-	ND	-	ND
Vinclozolin		0.5	ND	ND	-	ND	-	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Point Aconi	Lawrencetown	Durham	Kentville	Kentville	Sydney
			(Well 030)	(Well 043)	(Well 045)	(Well 048)	(Well 048)	(Well 050)
			15-Sep-2005	-	5-Oct-2005	15-Jun-2005	7/Nov/2007	15-Sep-2005
Herbicides								
Atrazine	5	0.2	ND	-	ND	ND (1)	ND	ND
De-ethyl Atrazine		0.3	ND	-	ND	-	ND	ND
Butylate		0.5	ND	-	ND	-	ND	ND
Cyanazine	10	0.5	ND	-	ND	-	ND	ND
Desmetryn		0.3	ND	-	ND	-	ND	ND
Diphenylamine		0.1	ND	-	ND	-	ND	ND
Eptam		0.5	ND	-	ND	-	ND	ND
Ethalfuralin		0.5	ND	-	ND	-	ND	ND
Hexazinone		0.1	ND	-	ND	-	ND	ND
Metalaxyl		0.3	ND	-	ND	-	ND	ND
Metribuzin	80	0.3	ND	-	ND	-	ND	ND
Metolachlor	50	0.2	ND	-	ND	-	ND	ND
Pirimicarb		0.5	ND	-	ND	-	ND	ND
Profluralin		0.5	ND	-	ND	-	ND	ND
Prometryn		0.2	ND	-	ND	-	ND	ND
Propazine		0.1	ND	-	ND	-	ND	ND
Simazine	10	0.5	ND	-	ND	-	ND	ND
Terbutylazine		0.1	ND	-	ND	-	ND	ND
Terbutryn		0.2	ND	-	ND	-	ND	ND
Triallate		0.3	ND	-	ND	-	ND	ND
Triadimefon		0.3	ND	-	ND	-	ND	ND
Trifluralin	45	0.2	ND	-	ND	-	ND	ND
Organochlorine Pesticides								
Alachlor		0.5	ND	-	ND	-	ND	ND
Aldrin + Dieldrin	0.7	0.5	ND	-	ND	-	ND	ND
BHC, alpha-		0.3	ND	-	ND	-	ND	ND
BHC, beta-		0.3	ND	-	ND	-	ND	ND
Captan		1	ND	-	ND	-	ND	ND
Chlorbenside		0.1	ND	-	ND	-	ND	ND
Chlordane, alpha-		0.5	ND	-	ND	-	ND	ND
Chlordane, gamma-		0.5	ND	-	ND	-	ND	ND
Chlorfenson (Ovex)		0.2	ND	-	ND	-	ND	ND
Chlorothalonil (Daconil)		1	ND	-	ND	-	ND	ND
Chlorpropham		0.2	ND	-	ND	-	ND	ND
Dacthal (DCPA)		0.1	ND	-	ND	-	ND	ND
4,4'-DDE		0.01	ND (0.1)	-	ND (0.1)	ND	ND	ND (0.1)
DDT - orthopara (2,4')		0.01	ND (0.2)	-	ND (0.2)	ND	ND	ND (0.2)
DDT - parapara (4,4')		0.01	ND (0.2)	-	ND (0.2)	ND	ND	ND (0.2)
Diallate(e/z)		0.5	ND	-	ND	-	ND	ND
Dichlobenil		0.2	ND	-	ND	-	ND	ND
Dichloran		0.5	ND	-	ND	-	ND	ND
Dichlofuanid		0.5	ND	-	ND	-	ND	ND
Dicofol		0.2	ND	-	ND	-	ND	ND
Endosulfan I		0.5	ND	-	ND	-	ND	ND
Endosulfan II		0.5	ND	-	ND	-	ND	ND
Endosulfan Sulphate		0.5	ND	-	ND	-	ND	ND
Endrin		0.5	ND	-	ND	-	ND	ND
Folpet		1	ND	-	ND	-	ND	ND
Heptachlor		0.5	ND	-	ND	-	ND	ND
Lindane (BHC), gamma-		0.5	ND	-	ND	-	ND	ND
Methidathion		0.3	ND	-	ND	-	ND	ND
Methoxychlor	900	0.1	ND	-	ND	-	ND	ND
Mirex		0.3	ND	-	ND	-	ND	ND
Nitrofen		0.2	ND	-	ND	-	ND	ND
Permethrin-cis/trans		0.5	ND	-	ND	-	ND	ND
Procymidone		0.2	ND	-	ND	-	ND	ND
Pronamide		0.2	ND	-	ND	-	ND	ND
Quintozone (Pentachloronitrobenzene)		0.5	ND	-	ND	-	ND	ND
Tecnazene		0.5	ND	-	ND	-	ND	ND
Tetradifon		0.2	ND	-	ND	-	ND	ND
Tolyfluanid		0.5	ND	-	ND	-	ND	ND
Vinclozolin		0.5	ND	-	ND	-	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	North Grant (Well 054) 12/Dec/2006	Stillwater (Well 055) 12/Dec/2006	Sheet Harbour (Well 056) -	Charleston (Well 058) -	Hayden Lake (Well 059) 9-Jun-2005	Meteghan (Well 060) 13/Dec/2006
Herbicides								
Atrazine	5	0.2	ND	ND	-	-	ND (2.5)	ND
De-ethyl Atrazine		0.3	ND	ND	-	-	-	ND
Butylate		0.5	ND	ND	-	-	-	ND
Cyanazine	10	0.5	ND	ND	-	-	-	ND
Desmetryn		0.3	ND	ND	-	-	-	ND
Diphenylamine		0.1	ND	ND	-	-	-	ND
Eptam		0.5	ND	ND	-	-	-	ND
Ethalfuralin		0.5	ND	ND	-	-	-	ND
Hexazinone		0.1	ND	ND	-	-	-	ND
Metalaxyl		0.3	ND	ND	-	-	-	ND
Metribuzin	80	0.3	ND	ND	-	-	-	ND
Metolachlor	50	0.2	ND	ND	-	-	-	ND
Pirimicarb		0.5	ND	ND	-	-	-	ND
Profluralin		0.5	ND	ND	-	-	-	ND
Prometryn		0.2	ND	ND	-	-	-	ND
Propazine		0.1	ND	ND	-	-	-	ND
Simazine	10	0.5	ND	ND	-	-	-	ND
Terbutylazine		0.1	ND	ND	-	-	-	ND
Terbutryn		0.2	ND	ND	-	-	-	ND
Triallate		0.3	ND	ND	-	-	-	ND
Triadimefon		0.3	ND	ND	-	-	-	ND
Trifluralin	45	0.2	ND	ND	-	-	-	ND
Organochlorine Pesticides								
Alachlor		0.5	ND	ND	-	-	-	ND
Aldrin + Dieldrin	0.7	0.5	ND	ND	-	-	-	ND
BHC, alpha-		0.3	ND	ND	-	-	-	ND
BHC, beta-		0.3	ND	ND	-	-	-	ND
Captan		1	ND	ND	-	-	-	ND
Chlorbenside		0.1	ND	ND	-	-	-	ND
Chlordane, alpha-		0.5	ND	ND	-	-	-	ND
Chlordane, gamma-		0.5	ND	ND	-	-	-	ND
Chlorfenson (Ovex)		0.2	ND	ND	-	-	-	ND
Chlorothalonil (Daconil)		1	ND	ND	-	-	-	ND
Chlorpropham		0.2	ND	ND	-	-	-	ND
Dacthal (DCPA)		0.1	ND	ND	-	-	-	ND
4,4'-DDE		0.01	ND	ND	-	-	ND	ND
DDT - orthopara (2,4')		0.01	ND	ND	-	-	ND	ND
DDT - parapara (4,4')		0.01	ND	ND	-	-	ND	ND
Diallate(e/z)		0.5	ND	ND	-	-	-	ND
Dichlobenil		0.2	ND	ND	-	-	-	ND
Dichloran		0.5	ND	ND	-	-	-	ND
Dichlofuanid		0.5	ND	ND	-	-	-	ND
Dicofol		0.2	ND	ND	-	-	-	ND
Endosulfan I		0.5	ND	ND	-	-	-	ND
Endosulfan II		0.5	ND	ND	-	-	-	ND
Endosulfan Sulphate		0.5	ND	ND	-	-	-	ND
Endrin		0.5	ND	ND	-	-	-	ND
Folpet		1	ND	ND	-	-	-	ND
Heptachlor		0.5	ND	ND	-	-	-	ND
Lindane (BHC), gamma-		0.5	ND	ND	-	-	-	ND
Methodathion		0.3	ND	ND	-	-	-	ND
Methoxychlor	900	0.1	ND	ND	-	-	-	ND
Mirex		0.3	ND	ND	-	-	-	ND
Nitrofen		0.2	ND	ND	-	-	-	ND
Permethrin-cis/trans		0.5	ND	ND	-	-	-	ND
Procymidone		0.2	ND	ND	-	-	-	ND
Pronamide		0.2	ND	ND	-	-	-	ND
Quintozene (Pentachloronitrobenzene)		0.5	ND	ND	-	-	-	ND
Tecnazene		0.5	ND	ND	-	-	-	ND
Tetradifon		0.2	ND	ND	-	-	-	ND
Tolyfluanid		0.5	ND	ND	-	-	-	ND
Vinclozolin		0.5	ND	ND	-	-	-	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Annapolis Royal (Well 062) 9-Nov-2005	Annapolis Royal (Well 062) 26/Nov/2007	Hebron (Well 063) 9-Jun-2005	Margaree (Well 064) 14/Dec/2006	Ingonish (Well 065) -	Debert (Well 068) -
Herbicides								
Atrazine	5	0.2	ND	ND	ND (2.5)	ND	-	-
De-ethyl Atrazine		0.3	ND	ND	-	ND	-	-
Butylate		0.5	ND	ND	-	ND	-	-
Cyanazine	10	0.5	ND	ND	-	ND	-	-
Desmetryn		0.3	ND	ND	-	ND	-	-
Diphenylamine		0.1	ND	ND	-	ND	-	-
Eptam		0.5	ND	ND	-	ND	-	-
Ethalfuralin		0.5	ND	ND	-	ND	-	-
Hexazinone		0.1	ND	ND	-	ND	-	-
Metalaxyl		0.3	ND	ND	-	ND	-	-
Metribuzin	80	0.3	ND	ND	-	ND	-	-
Metolachlor	50	0.2	ND	ND	-	ND	-	-
Pirimicarb		0.5	ND	ND	-	ND	-	-
Profluralin		0.5	ND	ND	-	ND	-	-
Prometryn		0.2	ND	ND	-	ND	-	-
Propazine		0.1	ND	ND	-	ND	-	-
Simazine	10	0.5	ND	ND	-	ND	-	-
Terbutylazine		0.1	ND	ND	-	ND	-	-
Terbutryn		0.2	ND	ND	-	ND	-	-
Triallate		0.3	ND	ND	-	ND	-	-
Triadimefon		0.3	ND	ND	-	ND	-	-
Trifluralin	45	0.2	ND	ND	-	ND	-	-
Organochlorine Pesticides								
Alachlor		0.5	ND	ND	-	ND	-	-
Aldrin + Dieldrin	0.7	0.5	ND	ND	-	ND	-	-
BHC, alpha-		0.3	ND	ND	-	ND	-	-
BHC, beta-		0.3	ND	ND	-	ND	-	-
Captan		1	ND	ND	-	ND	-	-
Chlorbenside		0.1	ND	ND	-	ND	-	-
Chlordane, alpha-		0.5	ND	ND	-	ND	-	-
Chlordane, gamma-		0.5	ND	ND	-	ND	-	-
Chlorfenson (Ovex)		0.2	ND	ND	-	ND	-	-
Chlorothalonil (Daconil)		1	ND	ND	-	ND	-	-
Chlorpropham		0.2	ND	ND	-	ND	-	-
Dacthal (DCPA)		0.1	ND	ND	-	ND	-	-
4,4'-DDE		0.01	ND (0.1)	ND	ND	ND	-	-
DDT - orthopara (2,4')		0.01	ND (0.2)	ND	ND	ND	-	-
DDT - parapara (4,4')		0.01	ND (0.2)	ND	ND	ND	-	-
Diallate(e/z)		0.5	ND	ND	-	ND	-	-
Dichlobenil		0.2	ND	ND	-	ND	-	-
Dichloran		0.5	ND	ND	-	ND	-	-
Dichlofuanid		0.5	ND	ND	-	ND	-	-
Dicofol		0.2	ND	ND	-	ND	-	-
Endosulfan I		0.5	ND	ND	-	ND	-	-
Endosulfan II		0.5	ND	ND	-	ND	-	-
Endosulfan Sulphate		0.5	ND	ND	-	ND	-	-
Endrin		0.5	ND	ND	-	ND	-	-
Folpet		1	ND	ND	-	ND	-	-
Heptachlor		0.5	ND	ND	-	ND	-	-
Lindane (BHC), gamma-		0.5	ND	ND	-	ND	-	-
Methidathion		0.3	ND	ND	-	ND	-	-
Methoxychlor	900	0.1	ND	ND	-	ND	-	-
Mirex		0.3	ND	ND	-	ND	-	-
Nitrofen		0.2	ND	ND	-	ND	-	-
Permethrin-cis/trans		0.5	ND	ND	-	ND	-	-
Procymidone		0.2	ND	ND	-	ND	-	-
Pronamide		0.2	ND	ND	-	ND	-	-
Quintozone (Pentachloronitrobenzene)		0.5	ND	ND	-	ND	-	-
Tecnazene		0.5	ND	ND	-	ND	-	-
Tetradifon		0.2	ND	ND	-	ND	-	-
Tolyfluanid		0.5	ND	ND	-	ND	-	-
Vinclozolin		0.5	ND	ND	-	ND	-	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Dalem Lake (Well 069) 14/Dec/2006	Amherst (Well 071) 16/Dec/2006	Kelley River (Well 073) 12/Jan/2007	Atlanta (Well 074) 03-Sep-2007	Sheffield Mills (Well 075) 10-Sep-2007
Herbicides							
Atrazine	5	0.2	ND	ND	ND	ND	ND
De-ethyl Atrazine		0.3	ND	ND	ND	ND	ND
Butylate		0.5	ND	ND	ND	ND	ND
Cyanazine	10	0.5	ND	ND	ND	ND	ND
Desmetryn		0.3	ND	ND	ND	ND	ND
Diphenylamine		0.1	ND	ND	ND	ND	ND
Eptam		0.5	ND	ND	ND	ND	ND
Ethalfuralin		0.5	ND	ND	ND	ND	ND
Hexazinone		0.1	ND	ND	ND	ND	ND
Metalaxyl		0.3	ND	ND	ND	ND	ND
Metribuzin	80	0.3	ND	ND	ND	ND	ND
Metolachlor	50	0.2	ND	ND	ND	ND	ND
Pirimicarb		0.5	ND	ND	ND	ND	ND
Profluralin		0.5	ND	ND	ND	ND	ND
Prometryn		0.2	ND	ND	ND	ND	ND
Propazine		0.1	ND	ND	ND	ND	ND
Simazine	10	0.5	ND	ND	ND	ND	ND
Terbutylazine		0.1	ND	ND	ND	ND	ND
Terbutryn		0.2	ND	ND	ND	ND	ND
Triallate		0.3	ND	ND	ND	ND	ND
Triadimefon		0.3	ND	ND	ND	ND	ND
Trifluralin	45	0.2	ND	ND	ND	ND	ND
Organochlorine Pesticides							
Alachlor		0.5	ND	ND	ND	ND	ND
Aldrin + Dieldrin	0.7	0.5	ND	ND	ND	ND	ND
BHC, alpha-		0.3	ND	ND	ND	ND	ND
BHC, beta-		0.3	ND	ND	ND	ND	ND
Captan		1	ND	ND	ND	ND	ND
Chlorbenside		0.1	ND	ND	ND	ND	ND
Chlordane, alpha-		0.5	ND	ND	ND	ND	ND
Chlordane, gamma-		0.5	ND	ND	ND	ND	ND
Chlorfenson (Ovex)		0.2	ND	ND	ND	ND	ND
Chlorothalonil (Daconil)		1	ND	ND	ND	ND	ND
Chlorpropham		0.2	ND	ND	ND	ND	ND
Dacthal (DCPA)		0.1	ND	ND	ND	ND	ND
4,4'-DDE		0.01	ND	ND	ND	ND	ND
DDT - orthopara (2,4')		0.01	ND	ND	ND	ND	ND
DDT - parapara (4,4')		0.01	ND	ND	ND	ND	ND
Diallate(e/z)		0.5	ND	ND	ND	ND	ND
Dichlobenil		0.2	ND	ND	ND	ND	ND
Dichloran		0.5	ND	ND	ND	ND	ND
Dichlofuanid		0.5	ND	ND	ND	ND	ND
Dicofol		0.2	ND	ND	ND	ND	ND
Endosulfan I		0.5	ND	ND	ND	ND	ND
Endosulfan II		0.5	ND	ND	ND	ND	ND
Endosulfan Sulphate		0.5	ND	ND	ND	ND	ND
Endrin		0.5	ND	ND	ND	ND	ND
Folpet		1	ND	ND	ND	ND	ND
Heptachlor		0.5	ND	ND	ND	ND	ND
Lindane (BHC), gamma-		0.5	ND	ND	ND	ND	ND
Methidathion		0.3	ND	ND	ND	ND	ND
Methoxychlor	900	0.1	ND	ND	ND	ND	ND
Mirex		0.3	ND	ND	ND	ND	ND
Nitrofen		0.2	ND	ND	ND	ND	ND
Permethrin-cis/trans		0.5	ND	ND	ND	ND	ND
Procymidone		0.2	ND	ND	ND	ND	ND
Pronamide		0.2	ND	ND	ND	ND	ND
Quintozene (Pentachloronitrobenzene)		0.5	ND	ND	ND	ND	ND
Tecnazene		0.5	ND	ND	ND	ND	ND
Tetradifon		0.2	ND	ND	ND	ND	ND
Tolyfluanid		0.5	ND	ND	ND	ND	ND
Vinclozolin		0.5	ND	ND	ND	ND	ND

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Greenwood	Fraser Brook	Wilmot	Wolfville	Truro	Monastery
			(Well 003)	(Well 004)	(Well 005)	(Well 010)	(Well 014)	(Well 028)
			23-Nov-2005	10-Dec-2004	-	22-Dec-2004	-	15-Dec-2006
Organophosphorus Pesticides								
Aspon		0.2	ND	ND	-	ND	-	ND
Azinphos ethyl		0.5	ND	ND	-	ND	-	ND
Azinphos methyl	20	1	ND	ND	-	ND	-	ND
Bromacil		0.1	ND	ND	-	ND	-	ND (1)
Benfluralin		0.1	ND	ND	-	ND	-	ND
Bromophos		0.1	ND	ND	-	ND	-	ND
Bromophos-ethyl		0.3	ND	ND	-	ND	-	ND
Carbophenothion		0.3	ND	ND	-	ND	-	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	-	ND	-	ND
Chlormephos		0.5	ND	ND	-	ND	-	ND
Chlorpyrifos	90	0.2	ND	ND	-	ND	-	ND
Chlorpyrifos-methyl		0.1	ND	ND	-	ND	-	ND
Chlorthiophos		0.3	ND	ND	-	ND	-	ND
Cyanophos		0.2	ND	ND	-	ND	-	ND
Demeton		1	ND	ND	-	ND	-	ND
Diazinon	20	0.3	ND	ND	-	ND	-	ND
Dichlofenthion		0.2	ND	ND	-	ND	-	ND
Dichlorvos/Naled		0.1	ND	ND	-	ND	-	ND
Dicrotophos		0.5	ND	ND	-	ND	-	ND
Dimethoate	20	0.5	ND	ND	-	ND	-	ND
Dioxathion		1	ND	ND	-	ND	-	ND
Disulfoton (Di-Syston)		1	ND	ND	-	ND	-	ND
EPN		0.5	ND	ND	-	ND	-	ND
Ethion		0.2	ND	ND	-	ND	-	ND
Fenchlorphos (Ronnel)		0.1	ND	ND	-	ND	-	
Fenitrothion		0.5	ND	ND	-	ND	-	ND
Fensulfotthion		0.1	ND	ND	-	ND	-	ND
Fenthion		0.1	ND	ND	-	ND	-	ND
Fonofos		0.1	ND	ND	-	ND	-	ND
Iodofenphos		0.1	ND	ND	-	ND	-	ND
Isofenphos		0.3	ND	ND	-	ND	-	ND
Malaoxon		1	ND	ND	-	ND	-	ND
Malathion	190	0.5	ND	ND	-	ND	-	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	-	ND	-	ND
Omethoate		1	ND	ND	-	ND	-	ND
Parathion	50	0.5	ND	ND	-	ND	-	ND
Parathion methyl		0.5	ND	ND	-	ND	-	ND
Phorate (Thimet)	2	0.5	ND	ND	-	ND	-	ND
Phosalone		0.2	ND	ND	-	ND	-	ND
Phosmet		0.2	ND	ND	-	ND	-	ND
Phosphamidon		0.2	ND	ND	-	ND	-	ND
Pirimiphos-ethyl		0.5	ND	ND	-	ND	-	ND
Pirimiphos-methyl		0.2	ND	ND	-	ND	-	ND
Profenophos		0.5	ND	ND	-	ND	-	ND
Pyrazophos		0.1	ND	ND	-	ND	-	ND
Quinalphos		0.3	ND	ND	-	ND	-	ND
Sulfotep		0.1	ND	ND	-	ND	-	ND
Terbufos	1	0.3	ND	ND	-	ND	-	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	-	-	-	-	
Other								
Hexachlorobenzene		0.2	ND	ND	-	ND	-	ND
Iprodione		1	-	-	-	-	-	-
Propiconazole		0.5	-	-	-	-	-	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND () = not detected at the elevated detection limit shown in brackets ()

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Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Point Aconi	Lawrencetown	Durham	Kentville	Kentville	Sydney
			(Well 030)	(Well 043)	(Well 045)	(Well 048)	(Well 048)	(Well 050)
			15-Sep-2005	-	5-Oct-2005	15-Jun-2005	7/Nov/2007	15-Sep-2005
Organophosphorus Pesticides								
Aspon		0.2	ND	-	ND	-	ND	ND
Azinphos ethyl		0.5	ND	-	ND	-	ND	ND
Azinphos methyl	20	1	ND	-	ND	-	ND	ND
Bromacil		0.1	ND	-	ND	-	ND	ND
Benfluralin		0.1	ND	-	ND	-	ND	ND
Bromophos		0.1	ND	-	ND	-	ND	ND
Bromophos-ethyl		0.3	ND	-	ND	-	ND	ND
Carbophenothion		0.3	ND	-	ND	-	ND	ND
Chlorfenvinphos(e/z)		0.1	ND	-	ND	-	ND	ND
Chlormephos		0.5	ND	-	ND	-	ND	ND
Chlorpyrifos	90	0.2	ND	-	ND	-	ND	ND
Chlorpyrifos-methyl		0.1	ND	-	ND	-	ND	ND
Chlorthiophos		0.3	ND	-	ND	-	ND	ND
Cyanophos		0.2	ND	-	ND	-	ND	ND
Demeton		1	ND	-	ND	-	ND	ND
Diazinon	20	0.3	ND	-	ND	ND (2)	ND	ND
Dichlofenthion		0.2	ND	-	ND	-	ND	ND
Dichlorvos/Naled		0.1	ND	-	ND	-	ND	ND
Dicrotophos		0.5	ND	-	ND	-	ND	ND
Dimethoate	20	0.5	ND	-	ND	-	ND	ND
Dioxathion		1	ND	-	ND	-	ND	ND
Disulfoton (Di-Syston)		1	ND	-	ND	-	ND	ND
EPN		0.5	ND	-	ND	-	ND	ND
Ethion		0.2	ND	-	ND	-	ND	ND
Fenchlorphos (Ronnel)		0.1	ND	-	ND	-	ND	ND
Fenitrothion		0.5	ND	-	ND	-	ND	ND
Fensulfothion		0.1	ND	-	ND	-	ND	ND
Fenthion		0.1	ND	-	ND	-	ND	ND
Fonofos		0.1	ND	-	ND	-	ND	ND
Iodofenphos		0.1	ND	-	ND	-	ND	ND
Isofenphos		0.3	ND	-	ND	-	ND	ND
Malaoxon		1	ND	-	ND	-	ND	ND
Malathion	190	0.5	ND	-	ND	ND (2)	ND	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	-	ND	-	ND	ND
Omethoate		1	ND	-	ND	-	ND	ND
Parathion	50	0.5	ND	-	ND	ND (2)	ND	ND
Parathion methyl		0.5	ND	-	ND	ND (2)	ND	ND
Phorate (Thimet)	2	0.5	ND	-	ND	-	ND	ND
Phosalone		0.2	ND	-	ND	-	ND	ND
Phosmet		0.2	ND	-	ND	-	ND	ND
Phosphamidon		0.2	ND	-	ND	-	ND	ND
Pirimiphos-ethyl		0.5	ND	-	ND	-	ND	ND
Pirimiphos-methyl		0.2	ND	-	ND	-	ND	ND
Profenophos		0.5	ND	-	ND	-	ND	ND
Pyrazophos		0.1	ND	-	ND	-	ND	ND
Quinalphos		0.3	ND	-	ND	-	ND	ND
Sulfotep		0.1	ND	-	ND	-	ND	ND
Terbufos	1	0.3	ND	-	ND	-	ND	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	-	ND	-	ND	ND
Other								
Hexachlorobenzene		0.2	ND	-	ND	-	ND	ND
Iprodione		1	-	-	-	-	ND	-
Propiconazole		0.5	-	-	-	-	ND	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	North Grant	Stillwater	Sheet Harbour	Charleston	Hayden Lake	Meteghan
			(Well 054)	(Well 055)	(Well 056)	(Well 058)	(Well 059)	(Well 060)
			12/Dec/2006	12/Dec/2006	-	-	9-Jun-2005	13/Dec/2006
Organophosphorus Pesticides								
Aspon		0.2	ND	ND	-	-	-	ND
Azinphos ethyl		0.5	ND	ND	-	-	-	ND
Azinphos methyl	20	1	ND	ND	-	-	-	ND
Bromacil		0.1	ND	ND	-	-	-	ND
Benfluralin		0.1	ND	ND	-	-	-	ND
Bromophos		0.1	ND	ND	-	-	-	ND
Bromophos-ethyl		0.3	ND	ND	-	-	-	ND
Carbophenothion		0.3	ND	ND	-	-	-	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	-	-	-	ND
Chlormephos		0.5	ND	ND	-	-	-	ND
Chlorpyrifos	90	0.2	ND	ND	-	-	-	ND
Chlorpyrifos-methyl		0.1	ND	ND	-	-	-	ND
Chlorthiophos		0.3	ND	ND	-	-	-	ND
Cyanophos		0.2	ND	ND	-	-	-	ND
Demeton		1	ND	ND	-	-	-	ND
Diazinon	20	0.3	ND	ND	-	-	ND (5)	ND
Dichlofenthion		0.2	ND	ND	-	-	-	ND
Dichlorvos/Naled		0.1	ND	ND	-	-	-	ND
Dicrotophos		0.5	ND	ND	-	-	-	ND
Dimethoate	20	0.5	ND	ND	-	-	-	ND
Dioxathion		1	ND	ND	-	-	-	ND
Disulfoton (Di-Syston)		1	ND	ND	-	-	-	ND
EPN		0.5	ND	ND	-	-	-	ND
Ethion		0.2	ND	ND	-	-	-	ND
Fenchlorphos (Ronnell)		0.1	ND	ND	-	-	-	ND
Fenitrothion		0.5	ND	ND	-	-	-	ND
Fensulfothion		0.1	ND	ND	-	-	-	ND
Fenthion		0.1	ND	ND	-	-	-	ND
Fonofos		0.1	ND	ND	-	-	-	ND
Iodofenphos		0.1	ND	ND	-	-	-	ND
Isofenphos		0.3	ND	ND	-	-	-	ND
Malaoxon		1	ND	ND	-	-	-	ND
Malathion	190	0.5	ND	ND	-	-	ND (5)	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	-	-	-	ND
Omethoate		1	ND	ND	-	-	-	ND
Parathion	50	0.5	ND	ND	-	-	ND (5)	ND
Parathion methyl		0.5	ND	ND	-	-	ND (5)	ND
Phorate (Thimet)	2	0.5	ND	ND	-	-	-	ND
Phosalone		0.2	ND	ND	-	-	-	ND
Phosmet		0.2	ND	ND	-	-	-	ND
Phosphamidon		0.2	ND	ND	-	-	-	ND
Pirimiphos-ethyl		0.5	ND	ND	-	-	-	ND
Pirimiphos-methyl		0.2	ND	ND	-	-	-	ND
Profenophos		0.5	ND	ND	-	-	-	ND
Pyrzophos		0.1	ND	ND	-	-	-	ND
Quinalphos		0.3	ND	ND	-	-	-	ND
Sulfotep		0.1	ND	ND	-	-	-	ND
Terbufos	1	0.3	ND	ND	-	-	-	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	ND	-	-	-	ND
Other								
Hexachlorobenzene		0.2	ND	ND	-	-	-	ND
Iprodione		1	-	-	-	-	-	-
Propiconazole		0.5	-	-	-	-	-	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Annapolis Royal	Annapolis Royal	Hebron	Margaree	Ingonish	Debert
			(Well 062)	(Well 062)	(Well 063)	(Well 064)	(Well 065)	(Well 068)
			9-Nov-2005	26/Nov/2007	9-Jun-2005	14/Dec/2006	-	-
Organophosphorus Pesticides								
Aspon		0.2	ND	ND	-	ND	-	-
Azinphos ethyl		0.5	ND	ND	-	ND	-	-
Azinphos methyl	20	1	ND	ND	-	ND	-	-
Bromacil		0.1	ND	ND	-	ND	-	-
Benfluralin		0.1	ND	ND	-	ND	-	-
Bromophos		0.1	ND	ND	-	ND	-	-
Bromophos-ethyl		0.3	ND	ND	-	ND	-	-
Carbophenothion		0.3	ND	ND	-	ND	-	-
Chlorfenvinphos(e/z)		0.1	ND	ND	-	ND	-	-
Chlormephos		0.5	ND	ND	-	ND	-	-
Chlorpyrifos	90	0.2	ND	ND	-	ND	-	-
Chlorpyrifos-methyl		0.1	ND	ND	-	ND	-	-
Chlorthiophos		0.3	ND	ND	-	ND	-	-
Cyanophos		0.2	ND	ND	-	ND	-	-
Demeton		1	ND	ND	-	ND	-	-
Diazinon	20	0.3	ND	ND	ND (5)	ND	-	-
Dichlofenthion		0.2	ND	ND	-	ND	-	-
Dichlorvos/Naled		0.1	ND	ND	-	ND	-	-
Dicrotophos		0.5	ND	ND	-	ND	-	-
Dimethoate	20	0.5	ND	ND	-	ND	-	-
Dioxathion		1	ND	ND	-	ND	-	-
Disulfoton (Di-Syston)		1	ND	ND	-	ND	-	-
EPN		0.5	ND	ND	-	ND	-	-
Ethion		0.2	ND	ND	-	ND	-	-
Fenchlorphos (Ronnell)		0.1	ND	ND	-	ND	-	-
Fenitrothion		0.5	ND	ND	-	ND	-	-
Fensulfothion		0.1	ND	ND	-	ND	-	-
Fenthion		0.1	ND	ND	-	ND	-	-
Fonofos		0.1	ND	ND	-	ND	-	-
Iodofenphos		0.1	ND	ND	-	ND	-	-
Isofenphos		0.3	ND	ND	-	ND	-	-
Malaoxon		1	ND	ND	-	ND	-	-
Malathion	190	0.5	ND	ND	ND (5)	ND	-	-
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	-	ND	-	-
Omethoate		1	ND	ND	-	ND	-	-
Parathion	50	0.5	ND	ND	ND (5)	ND	-	-
Parathion methyl		0.5	ND	ND	ND (5)	ND	-	-
Phorate (Thimet)	2	0.5	ND	ND	-	ND	-	-
Phosalone		0.2	ND	ND	-	ND	-	-
Phosmet		0.2	ND	ND	-	ND	-	-
Phosphamidon		0.2	ND	ND	-	ND	-	-
Pirimiphos-ethyl		0.5	ND	ND	-	ND	-	-
Pirimiphos-methyl		0.2	ND	ND	-	ND	-	-
Profenophos		0.5	ND	ND	-	ND	-	-
Pyrazophos		0.1	ND	ND	-	ND	-	-
Quinalphos		0.3	ND	ND	-	ND	-	-
Sulfotep		0.1	ND	ND	-	ND	-	-
Terbufos	1	0.3	ND	ND	-	ND	-	-
Tetrachlorvinphos (Stirophos)		0.2	ND	ND	-	ND	-	-
Other								
Hexachlorobenzene		0.2	ND	ND	-	ND	-	-
Iprodione		1	-	ND	-	-	-	-
Propiconazole		0.5	-	ND	-	-	-	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Dalem Lake	Amherst	Kelley River	Atlanta	Sheffield Mills
			(Well 069)	(Well 071)	(Well 073)	(Well 074)	(Well 075)
			14/Dec/2006	16/Dec/2006	12/Jan/2007	03-Sep-2007	10-Sep-2007
Organophosphorus Pesticides							
Aspon		0.2	ND	ND	ND	ND	ND
Azinphos ethyl		0.5	ND	ND	ND	ND	ND
Azinphos methyl	20	1	ND	ND	ND	ND	ND
Bromacil		0.1	ND	ND	ND	ND	ND
Benfluralin		0.1	ND	ND	ND	ND	ND
Bromophos		0.1	ND	ND	ND	ND	ND
Bromophos-ethyl		0.3	ND	ND	ND	ND	ND
Carbophenothion		0.3	ND	ND	ND	ND	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	ND	ND	ND
Chlormephos		0.5	ND	ND	ND	ND	ND
Chlorpyrifos	90	0.2	ND	ND	ND	ND	ND
Chlorpyrifos-methyl		0.1	ND	ND	ND	ND	ND
Chlorthiophos		0.3	ND	ND	ND	ND	ND
Cyanophos		0.2	ND	ND	ND	ND	ND
Demeton		1	ND	ND	ND	ND	ND
Diazinon	20	0.3	ND	ND	ND	ND	ND
Dichlofenthion		0.2	ND	ND	ND	ND	ND
Dichlorvos/Naled		0.1	ND	ND	ND	ND	ND
Dicrotophos		0.5	ND	ND	ND	ND	ND
Dimethoate	20	0.5	ND	ND	ND	ND	ND
Dioxathion		1	ND	ND	ND	ND	ND
Disulfoton (Di-Syston)		1	ND	ND	ND	ND	ND
EPN		0.5	ND	ND	ND	ND	ND
Ethion		0.2	ND	ND	ND	ND	ND
Fenchlorphos (Ronnel)		0.1	ND	ND	ND	ND	ND
Fenitrothion		0.5	ND	ND	ND	ND	ND
Fensulfothion		0.1	ND	ND	ND	ND	ND
Fenthion		0.1	ND	ND	ND	ND	ND
Fonofos		0.1	ND	ND	ND	ND	ND
Iodofenphos		0.1	ND	ND	ND	ND	ND
Isofenphos		0.3	ND	ND	ND	ND	ND
Malaoxon		1	ND	ND	ND	ND	ND
Malathion	190	0.5	ND	ND	ND	ND	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	ND	ND	ND
Omethoate		1	ND	ND	ND	ND	ND
Parathion	50	0.5	ND	ND	ND	ND	ND
Parathion methyl		0.5	ND	ND	ND	ND	ND
Phorate (Thimet)	2	0.5	ND	ND	ND	ND	ND
Phosalone		0.2	ND	ND	ND	ND	ND
Phosmet		0.2	ND	ND	ND	ND	ND
Phosphamidon		0.2	ND	ND	ND	ND	ND
Pirimiphos-ethyl		0.5	ND	ND	ND	ND	ND
Pirimiphos-methyl		0.2	ND	ND	ND	ND	ND
Profenophos		0.5	ND	ND	ND	ND	ND
Pyrazophos		0.1	ND	ND	ND	ND	ND
Quinalphos		0.3	ND	ND	ND	ND	ND
Sulfotep		0.1	ND	ND	ND	ND	ND
Terbufos	1	0.3	ND	ND	ND	ND	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	ND	ND	ND	ND
Other							
Hexachlorobenzene		0.2	ND	ND	ND	ND	ND
Iprodione		1	-	-	-	-	-
Propiconazole		0.5	-	-	-	-	-

Notes:

AO = Aesthetic Objective.

ND = not detected

ND() = not detected at the elevated detection limit shown in brackets ()

All guidelines are health-based MACs or IMACs, unless otherwise indicated.

Shaded values exceed guidelines.

Table B5: Tritium Results

Observation Well	Date Sampled	Tritium Level (TU)	Accuracy (+/- TU)	Age Estimate (Recent is >1952)
Wolfville (010)	22/Dec/2004	4.7	0.4	Mix/Recent
Hayden Lake (059)	9/Jun/2005	3.4	0.3	Mix
Hebron (063)	9/Jun/2005	4.6	0.4	Mix/Recent
Kentville (048)	15/Jun/2005	3.8	0.3	Mix
Point Aconi (030)	15/Sep/2005	3.62	0.34	Mix
Sydney (050)	15/Sep/2005	4.92	0.43	Mix/Recent
Durham (045)	5/Oct/2005	2.04	0.28	Mix
Annapolis Royal (062)	9/Nov/2005	0.27	0.17	Old
Greenwood (003)	23/Nov/2005	5.76	0.47	Recent
Meteghan ('060)	12/Dec/2006	0.46	0.14	Old
North Grant ('054)	13/Dec/2006	1.95	0.22	Mix
Stillwater ('055)	13/Dec/2006	3.82	0.34	Mix
Margaree ('064)	14/Dec/2006	0.41	0.14	Old
Dalem Lake ('069)	14/Dec/2006	3.61	0.3	Mix
Monastery ('028)	15/Dec/2006	0.94	0.17	Old
Amherst ('071)	16/Dec/2006	4	0.32	Mix/Recent
Kelley River ('073)	12/Jan/2007	3.78	0.32	Mix

Age Estimate Guide	Tritium Level (TU)
Recent - (recharged after 1952) =	>5
Mix - Mixture of recent and old =	1 to 4
Mix/Recent - Mixture of mostly recent with a small portion being old	4 to 5
Old (recharged before 1952) =	<1
Source: Clark and Fritz, 1997	

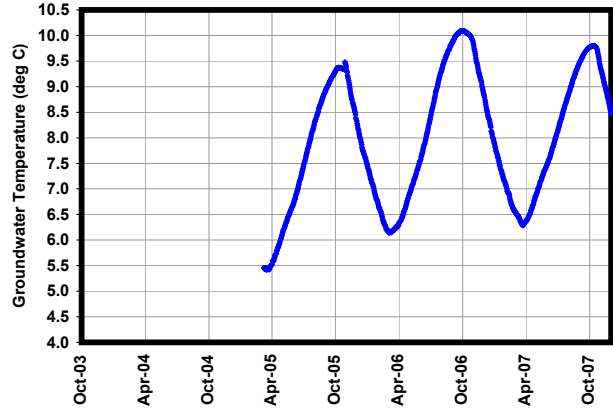
Table B6: Perchlorate Results

Observation Well	Date Sampled	Recommended Guidance	Detection Limit	Perchlorate Result
		Value (Health Canada, 2007)		
		(ug/L)	(ug/L)	(ug/L)
Fraser Brook (004)	10-Dec-2004	6	0.2	ND
Wolfville (010)	22-Dec-2004	6	0.2	ND
Hayden Lake (059)	9-Jun-2005	6	0.011	0.014
Hebron (063)	9-Jun-2005	6	0.011	ND
Kentville (048)	15-Jun-2005	6	0.011	0.05
Point Aconi (030)	15-Sep-2005	6	0.011	ND
Sydney (050)	15-Sep-2005	6	0.011	ND
Durham (045)	5-Oct-2005	6	0.011	ND
Annapolis Royal (062)	9-Nov-2005	6	0.011	ND
Greenwood (003)	23-Nov-2005	6	0.011	ND
Monastery (028)	15-Dec-2006	6	0.011	ND

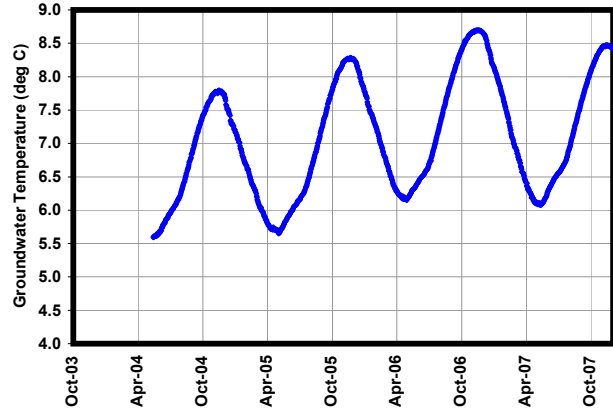
ND = Not Detected

APPENDIX C
GROUNDWATER TEMPERATURE GRAPHS

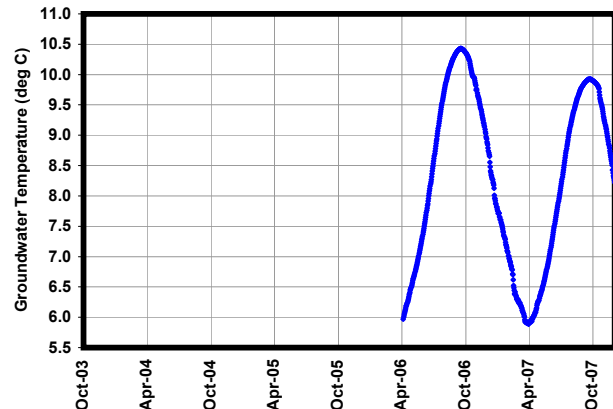
Greenwood (003) - Average Daily Groundwater Temperature
(2005 - 2007)



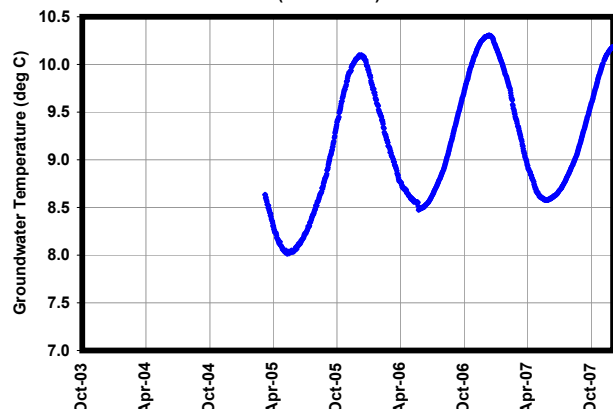
Fraser Brook (004) - Average Daily Groundwater Temperature
(2004 - 2007)



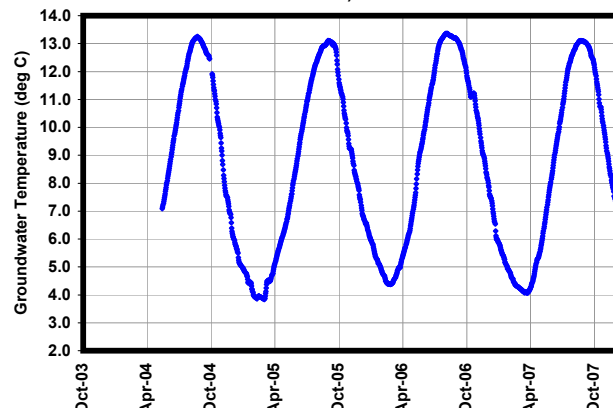
Wilmot (005) - Average Daily Groundwater Temperature (2006 - 2007)



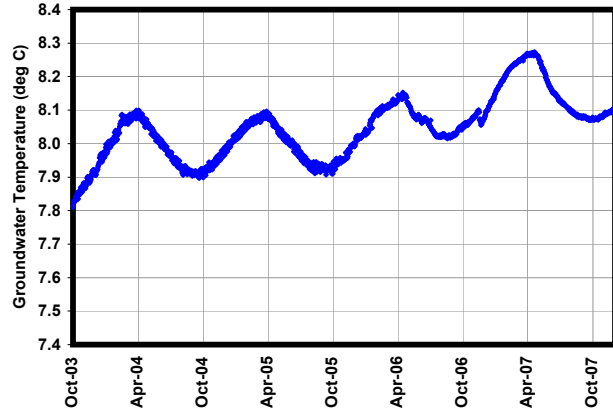
Wolfville (010) - Average Daily Groundwater Temperature
(2005 - 2007)



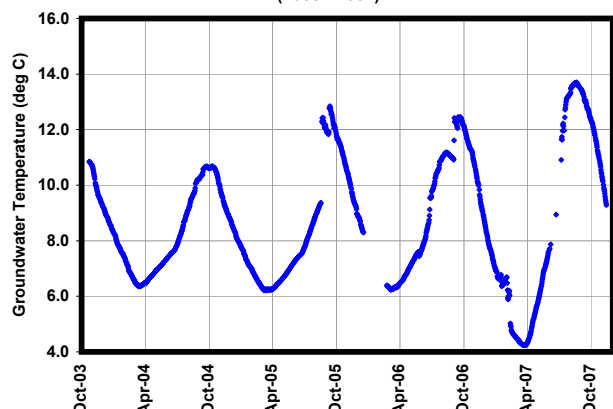
Truro (014) - Average Daily Groundwater Temperature (2004 - 2007)



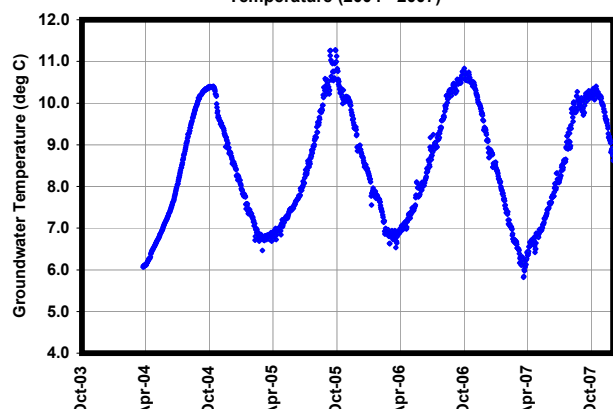
Monastery (028) - Average Daily Groundwater Temperature
(2003 - 2007)

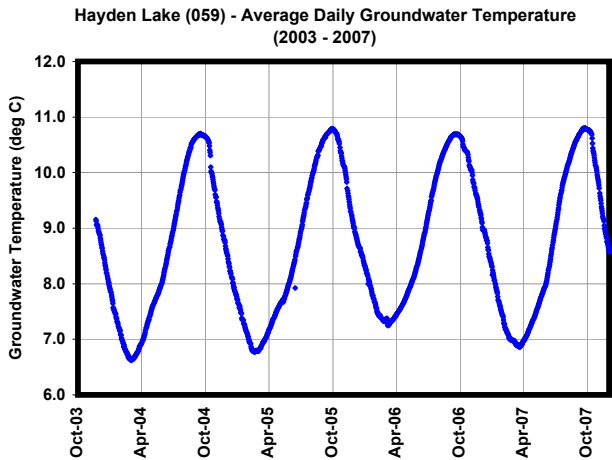
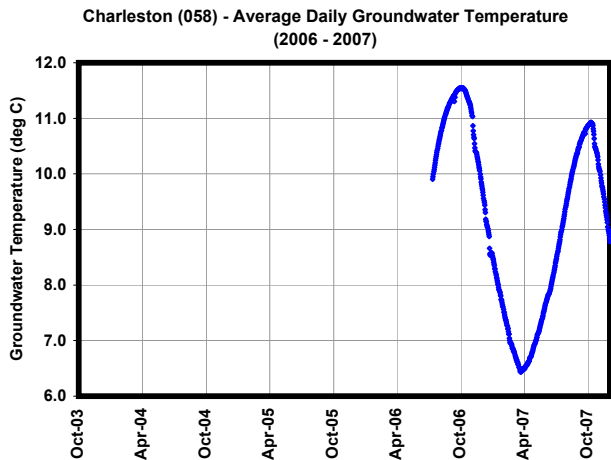
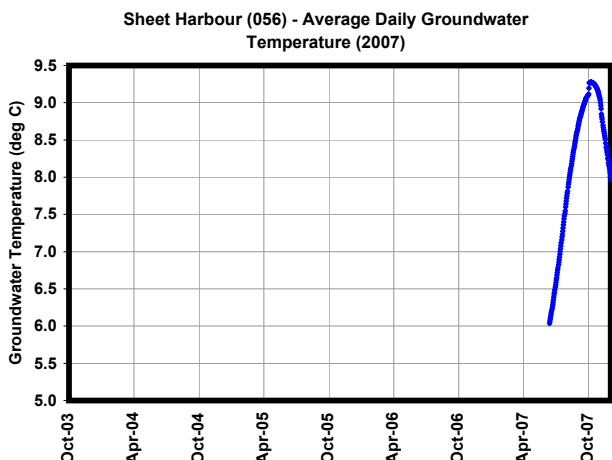
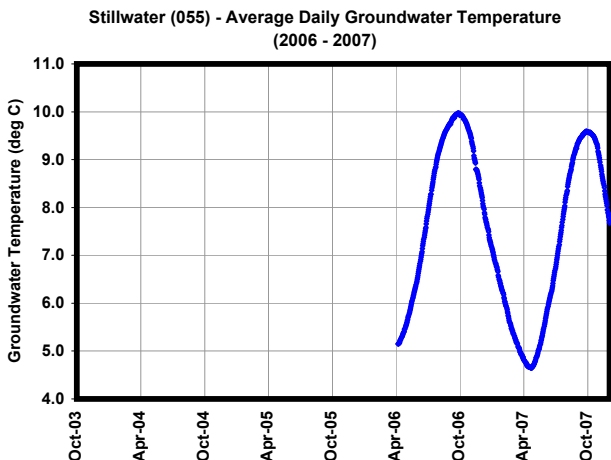
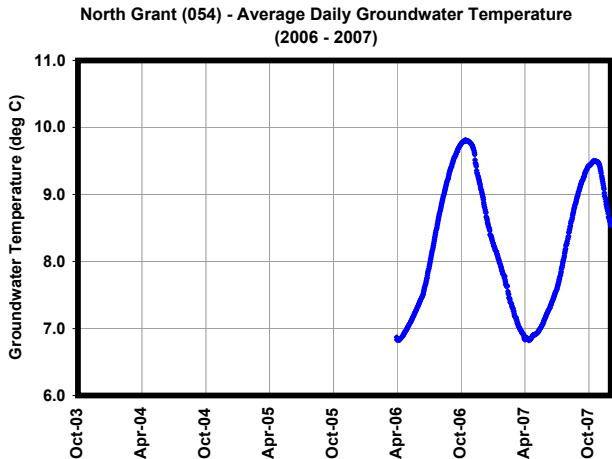
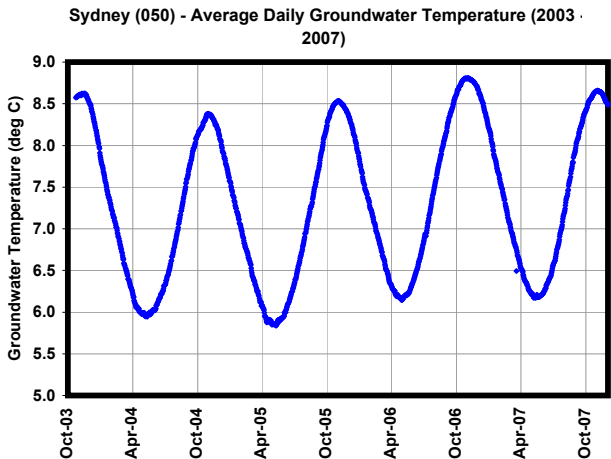
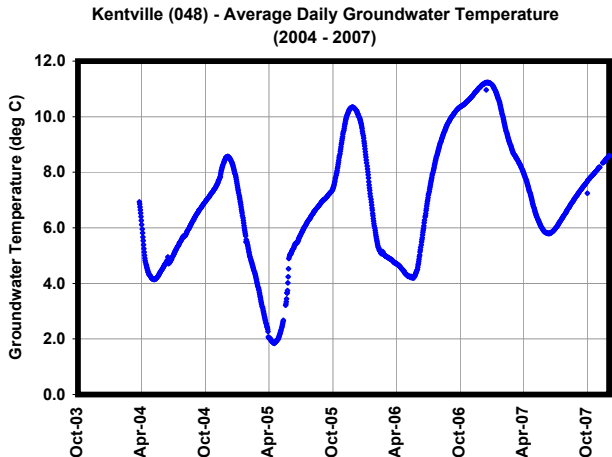
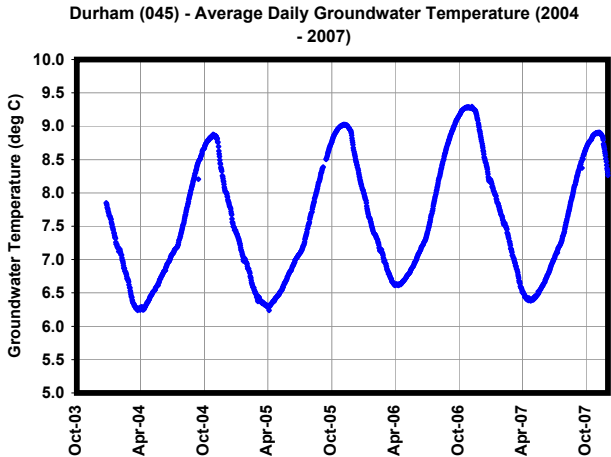


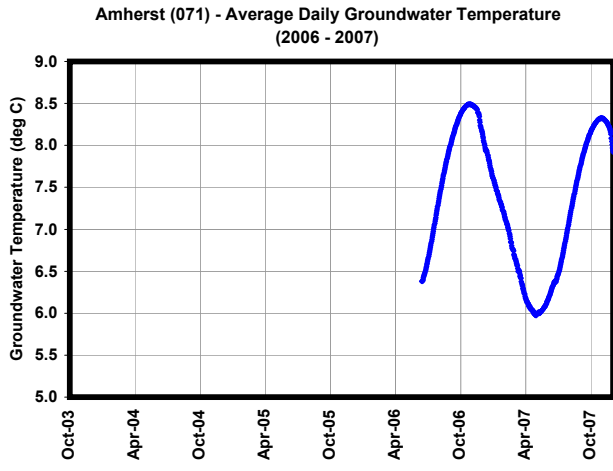
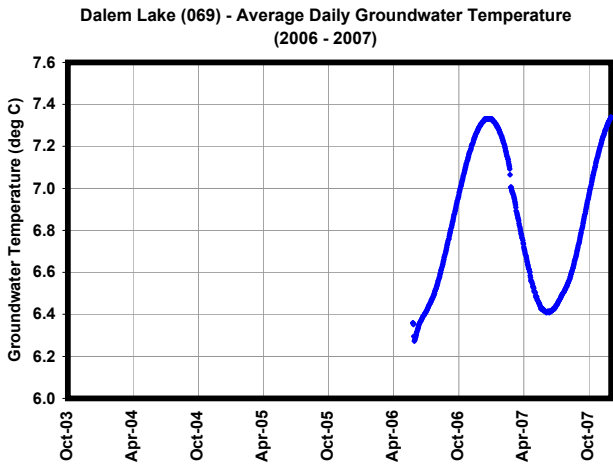
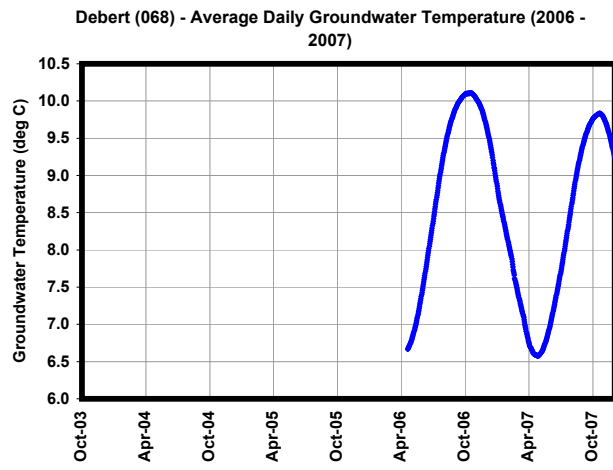
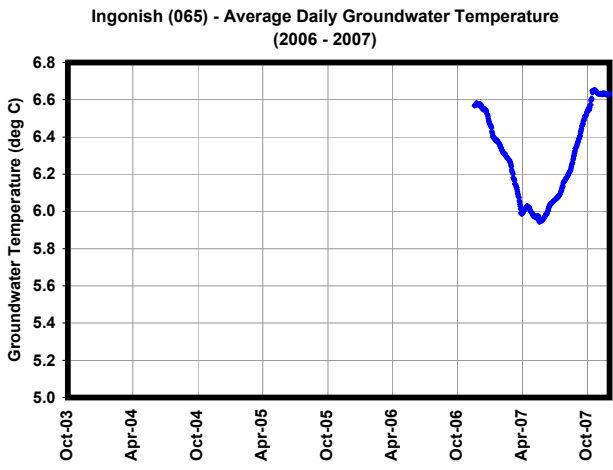
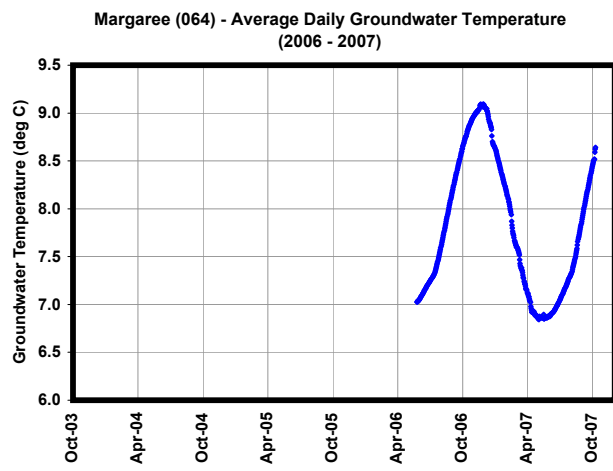
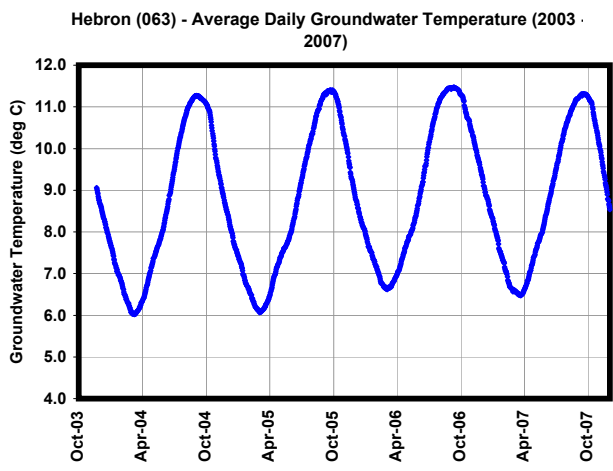
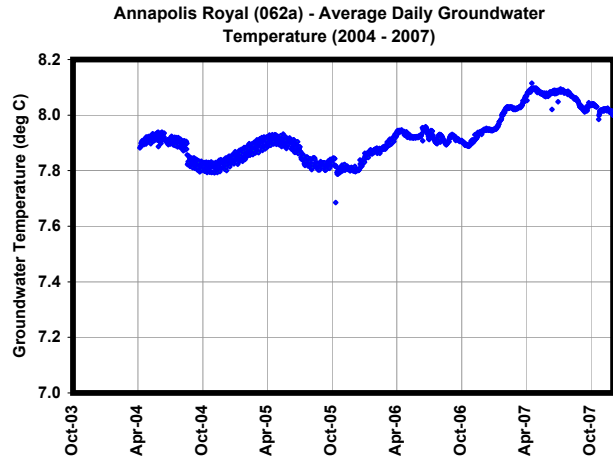
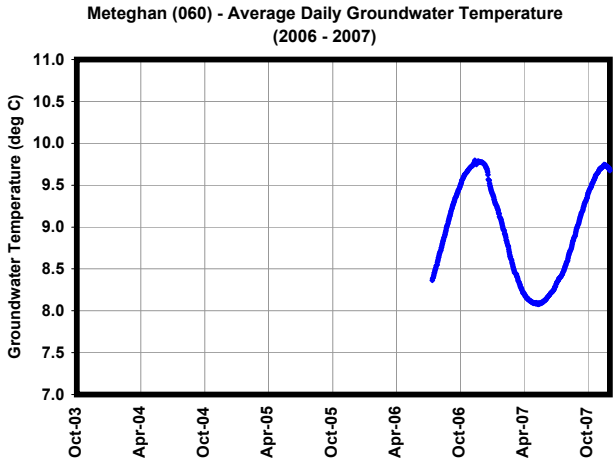
Point Aconi (030) - Average Daily Groundwater Temperature
(2003 - 2007)

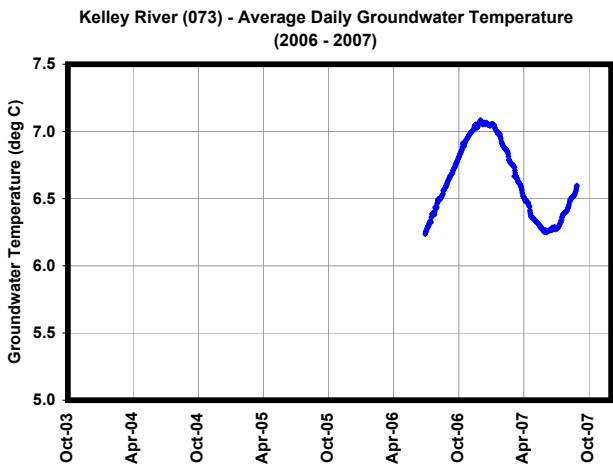


Lawrencetown (043) - Average Daily Groundwater
Temperature (2004 - 2007)









APPENDIX D
WATER LEVEL TREND ANALYSIS

Table D1. Water Level Statistical Trend Analyses

Observation Well	Well Number	First Year	Last Year	n ¹	Mann-Kendall Statistics		Confidence Level ⁴
					S ²	Q ³ (cm/year)	
Greenwood	003	1968	2007	19	-31	-0.3	60%
Fraser Brook	004	1968	2007	18	47	0.3	95%
Wilmot	005	1967	2007	17	8	0.1	60%
Wolfville	010	1970	2007	19	-125	-2.7	100%
Truro	014	1974	2007	15	3	0.4	50%
Monastery	028	1979	2007	9	NA	NA	NA
Point Aconi	030	1979	2007	15	23	0.7	85%
Lawrencetown	043	1979	2007	11	-11	-2.4	75%
Durham	045	1980	2007	22	69	2.2	95%
Kentville	048	1983	2007	14	-39	-0.8	95%
Sydney	050	1985	2007	13	-54	-5.4	100%
North Grant	054	1988	2007	6	NA	NA	NA
Stillwater	055	1988	2007	5	NA	NA	NA
Charleston	058	1989	2007	5	NA	NA	NA
Hayden Lake	059	1988	2007	13	52	1.6	100%
Meteghan	060	1988	2007	7	NA	NA	NA
Annapolis Royal	062	1992	2007	6	NA	NA	NA
Hebron	063	1993	2007	6	NA	NA	NA
Margaree	064	1991	2007	6	NA	NA	NA
Ingonish	065	1991	2007	5	NA	NA	NA
Dalem Lake	069	1994	2007	4	NA	NA	NA

Notes:

1. n is the number of "usable" years. For a year of data to be considered a "usable", data must be available for at least 75% of the year, unless otherwise noted. Trend analyses were not completed for wells with less than 10 years of usable data.
2. S is the Mann-Kendall statistic, which is based on the differences between data values. Positive values indicate upward trends and negative values indicate downward trends (Gilbert, 1987).
3. Q is Sen's estimator of slope. Positive values indicate upward trends and negative values indicate downward trends (Gilbert, 1987).
4. The trend is considered to be statistically significant if the confidence level is at least 80%.
5. NA = Not Applicable (there were insufficient data to complete a trend analysis at this well).