NOVA SCOTIA GROUNDWATER OBSERVATION WELL NETWORK

2009 REPORT

Prepared: December 2009

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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 2008 the network included 27 observation wells and four additional wells were added during 2008, bringing the total number of active wells to 31 by the end of 2008. This report presents the monitoring results collected up to the end of 2008.

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 42 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 eight of the 31 observation wells exhibit statistically significant groundwater level trends, with three having small upward trends and five 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. Three of the five observation wells with downward trends are located in municipal wellfields and, therefore, groundwater level drops in these wells are expected to have been caused by wellfield pumping.

The groundwater quality monitoring results indicate that seven of the 31 wells exceeded health-based drinking water guidelines. The parameters that exceeded health-based guidelines included: arsenic (at four wells), fluoride (one well), lead (one well), nitrate (one well) and uranium (one well). Elevated levels of arsenic, fluoride and uranium are known to occur in groundwater in certain areas of the province due to their naturally-occurring presence in soil and bedrock. The elevated nitrate levels were observed in a well located in an agricultural area and are expected to be caused by human activity.

Sixteen of the 31 wells exceeded aesthetic drinking water guidelines, including the following parameters: manganese (at 12 wells), iron (seven wells), chloride (one well), pH (three wells) and turbidity (seven wells). The majority of these parameters are naturally-occurring water quality problems that are routinely encountered in water wells in Nova Scotia and elsewhere. Chloride was detected above background levels at three wells. It is expected that two of these wells have been impacted by road salt and one has been impacted by sea water intrusion.

The water quality results show that none of the observation wells exceeded drinking water guidelines for VOCs or pesticides. However, the VOC toluene was detected at low levels at (1 ug/L) in one of the observation wells. This well is located beside a road and, therefore, the presence of toluene may be due to gasoline runoff from the road. No pesticides were detected in any of the observation wells.

Of the 17 observation wells that have been tested for tritium, 13 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 before1952). These results suggest that most of the wells draw water from aquifers are 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 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. In addition, staff from the Groundwater Resources Program at Nova Scotia Department of Natural Resources have made significant contributions to the planning and operation of the network, including siting of new observation wells, drilling supervision, groundwater sampling and performing pumping tests.

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 2008 the network included 27 observation wells. Four wells were added to the network during 2008, bringing the total number of active wells to 31 by the end of 2008. 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 2008.

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. In 2007, two new observation wells were drilled and one existing inactive observation well was added back into the network. For the two wells drilled in 2007, water level monitoring began in May of 2008. Therefore, the total number of observation wells being monitored by the end of 2007 was 25. In 2008, three new observation wells were drilled and a former provincial park water supply well was converted to an observation well, bringing the total number of active wells in the network to 31 by the end of 2008.

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.

Three reports have been previously published on the network:

- "Groundwater Hydrographs in Nova Scotia 1965-1981" (McIntosh, 1984);
- "Nova Scotia Groundwater Observation Well Network - 2007 Report" (NS Environment and Labour, 2007); and
- "Nova Scotia Groundwater Observation Well Network - 2008 Report" (NS Environment, 2008).

In 2006, a web page was launched to provides public access to the network's results. The website can be found at: http://www.gov.ns.ca/nse/groundwater/groundwaternetwork.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 2008

Four wells were added to the network in 2008, including: Fall River (076), West Northfield (077), Musquodoboit Harbour (078) and Lewis Lake (079). The first three of these are new observation wells that were drilled in 2008 by NSE and NSDNR. Lewis Lake (079) was a former water supply well located in Jerry Lawrence Provincial Park that was no longer in use.

Pumping tests were completed at the four wells referenced above. The pumping tests were short duration tests (< 4 hours), including steps tests and constant rate tests. Water quality sampling was carried out at 22 observation wells in 2008, including the four wells referenced above. Table C1 in Appendix C provides a complete list of the wells that were sampled in 2008.

1.3 Description of the Current Network

As of December 31st, 2008 the observation well network consisted of 31 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 1 year to 42 years and can be summarized as follows: wells with more than 40 years of data (3 wells); 30 years (5 wells); 20 years (9 wells); 10 years (7 wells); and less than 10 years (7 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.

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. The wells are sampled at approximately two to five year intervals to monitor for changes in water quality. Most of the wells in the network have been sampled at least once, however, some wells have not been sampled due to technical limitations (such as old floats associated with former Stevens chart recorders that have become lodged in the well casing).

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 when 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.

Table 1.1: Wells in the NS Groundwater Observation Well Network (as of Dec 2008)

No.	Well Name	Well ID#	County	Year Monitoring Started	Years Since Monitoring Began
1	Greenwood (003)	003	Kings	1966	42
2	Fraser Brook (004)	004	Colchester	1966	42
3	Wilmot (005)	005	Annapolis	1966	42
4	Wolfville (010)	010	Kings	1969	39
5	Truro (014)	014	Colchester	1971	37
6	Monastery (028)	028	Antigonish	1976	32
7	Point Aconi (030)	030	Cape Breton	1976	32
8	Lawrencetown (043)	043	Halifax	1978	30
9	Durham (045)	045	Pictou	1979	29
10	Kentville (048)	048	Kings	1980	28
11	Sydney (050)	050	Cape Breton	1984	24
12	North Grant (054)	054	Antigonish	1987	21
13	Stillwater (055)	055	Guysborough	1987	21
14	Sheet Harbour (056)	056	Halifax	1987	21
15	Charleston (058)	058	Queens	1988	20
16	Hayden Lake (059)	059	Shelburne	1988	20
17	Meteghan (060)	060	Digby	1987	21
18	Annapolis Royal (062)	062	Digby	1990	18
19	Hebron (063)	063	Yarmouth	1990	18
20	Margaree (064)	064	Inverness	1990	18
21	Ingonish (065)	065	Victoria	1990	12
22	Debert (068)	068	Colchester	1993	15
23	Dalem Lake (069)	069	Victoria	1992	16
24	Amherst (071)	071	Cumberland	1993	15
25	Kelley River (073)	073	Cumberland	2006	2
26	Atlanta (074)	074	Kings	2008	<1
27	Sheffield Mills (075)	075	Kings	2008	<1
28	Fall River (076)	076	Halifax	2008	<1
29	West Northfield (077)	077	Lunenburg	2008	<1
30	Musquodoboit Harbour (078)	078	Halifax	2008	<1
31	Lewis Lake (079)	079	Halifax	2008	<1

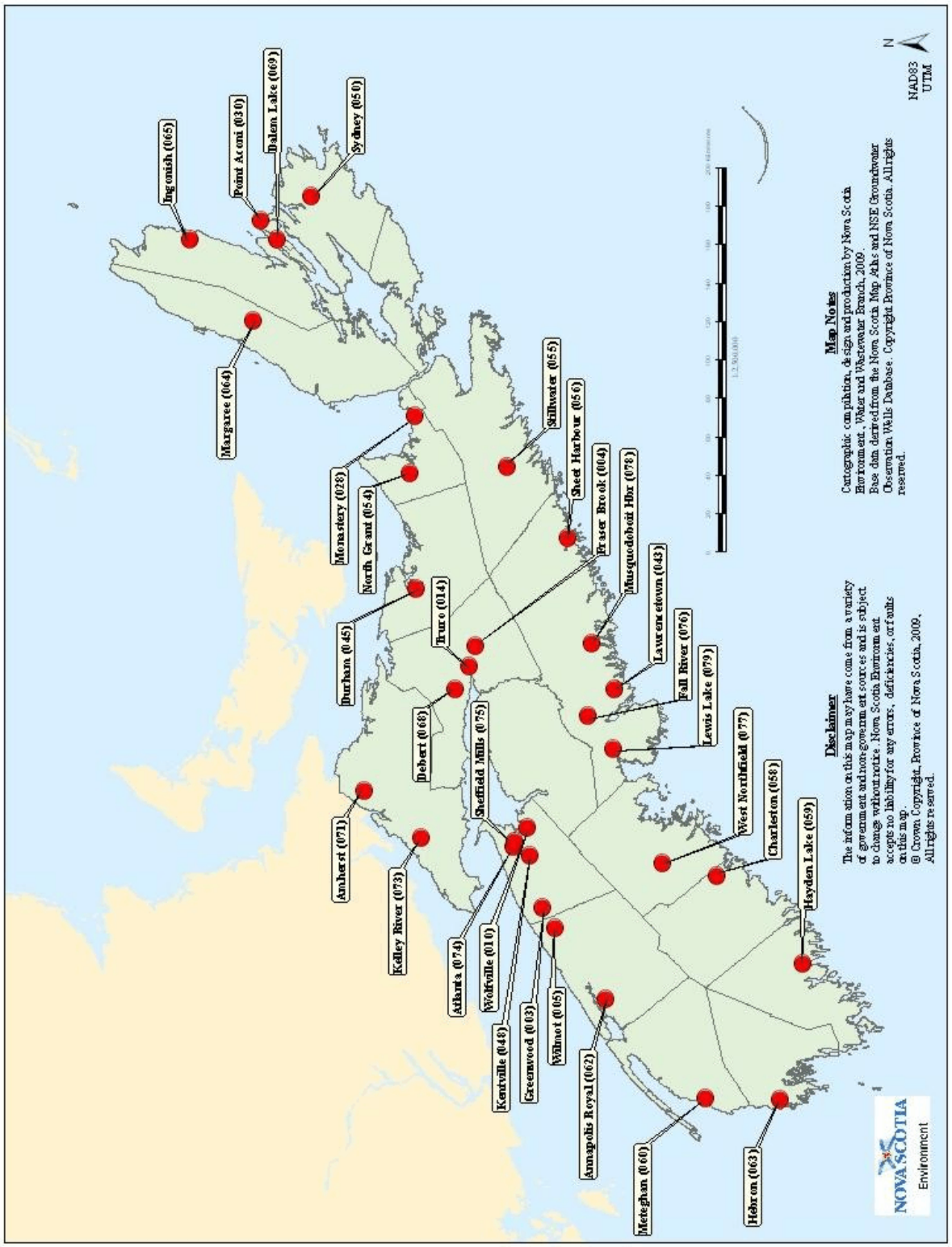

Figure 1.1: Map of Observation Well Locations (as of Dec. 2008)

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 2008. 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 E. 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 typically 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 NS 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 2004/2005 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. The perchlorate results are provided in Appendix C in this report and are discussed in further detail in previous annual reports on the Groundwater Observation Well Network (see NSEL, 2007).

In observation wells where elevated chloride levels were detected, 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 Br(mg/L)/Cl(mg/L) x 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 level graphs, groundwater chemistry tables, groundwater temperature graphs and 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 3.1a. 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 3.1b), 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 water level graphs for Greenwood (003) are shown in Figure B.1, Appendix B. This well has been monitored since 1966 and water levels have remained relatively consistent. 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 and the statistical trend analysis for this well (Appendix E) indicates that there is no statistically significant trend present.

The 2008 water levels were within the normal range for this well during the majority of the year; however, historical high water levels were recorded in February, March, September and December of 2008.

Monitoring Results - Water Chemistry and Temperature

The Greenwood (003) well was sampled in 2005 and 2008. Water chemistry results are presented in Appendix C. The results for both samples indicate that no health-based drinking water guidelines were exceeded; however, both samples exceeded aesthetic drinking water guidelines for pH, turbidity, iron and manganese. 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 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 was 7.96 ^{o}C, with annual fluctuations between 5.5 and 10 ^{o}C. A graph of the average daily temperature is presented in Appendix D.

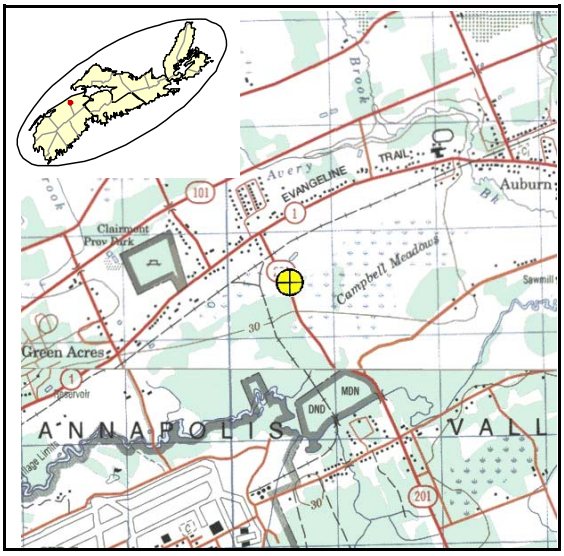

Figure 3.1a: Greenwood (003) Well Location

Figure 3.1b Greenwood (003) Site Photo

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 m^2/day and a safe yield of 42 m^3/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 3.2a. 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 3.2b), 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 water level graphs for Fraser Brook (004) are shown in Figure B.2, Appendix B. 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 E) 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 2008 water levels generally fluctuated within the typical range for this well; however, water levels exceeded historical highs in February, March, September and December.

Monitoring Results - Water Chemistry and Temperature

The Fraser Brook (004) well was sampled in 2004 and 2008. Water chemistry results are presented in Appendix C. The results indicate that arsenic exceeded the drinking water guideline in both water samples. 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 was 7.0 ^{o}C , with annual fluctuations between 5.5 and 8.7 ^{o}C. A graph of the average daily temperature for this well is presented in Appendix D.

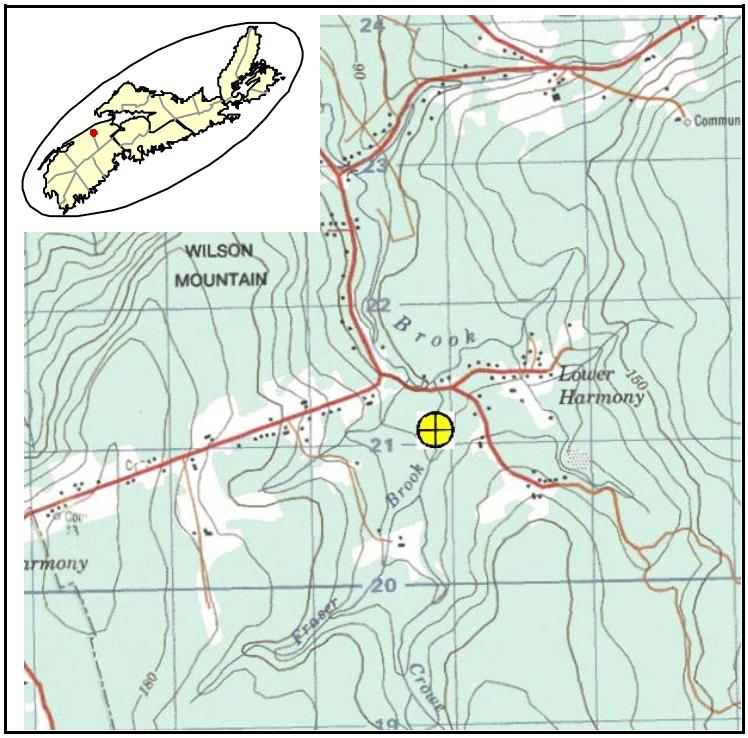

Figure 3.2a: Fraser Brook (004) Well Location

Figure 3.2b: Fraser Brook (004) Site Photograph

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 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 fine to coarse gravel.

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 m^2/day and storativity of 1.9 x 10^{-3} (McIntosh, 1984).

The location of the Wilmot (005) observation well is shown in Figure 3.3a. The well site, shown in

Figure 3.3b, is located south-west of Wilmot. It is situated in an actively farmed field, 100 m east of Baynard Road. South of the site, is a wooded area extending 75 m to the Annapolis River, where a hydrometric station measures surface water flow as part of the national hydrometric program. The nearest water well is a domestic well located approximately 150 m away.

Monitoring Results - Water Levels

The historical water level graphs for Wilmot (005) are shown in Figure B.3, Appendix B. 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 E) indicates that there is no statistically significant trend.

The average water level elevation at this well was approximately 6.7 m above sea level and the annual water level fluctuation was about 1.8 m. The depth to water in this well was approximately 2.0 m below ground surface.

The 2008 water levels generally fluctuated within the typical range for this well; however, water levels exceeded historical highs in February, March and December.

Monitoring Results - Water Chemistry and Temperature

The Wilmot (005) well was sampled in 2006. Water chemistry results are presented in Appendix C. The results indicate that health-based drinking water guidelines were exceeded for nitrate and aesthetic guidelines were exceeded for turbidity. VOCs were not detected. This well has not been tested for pesticides, perchlorate or tritium.

The average groundwater temperature at this well was 8.31 ^{o}C, with annual fluctuations between approximately 6.0 and 10.5 ^{o}C. A graph of the average daily temperature at this well is presented in Appendix D.

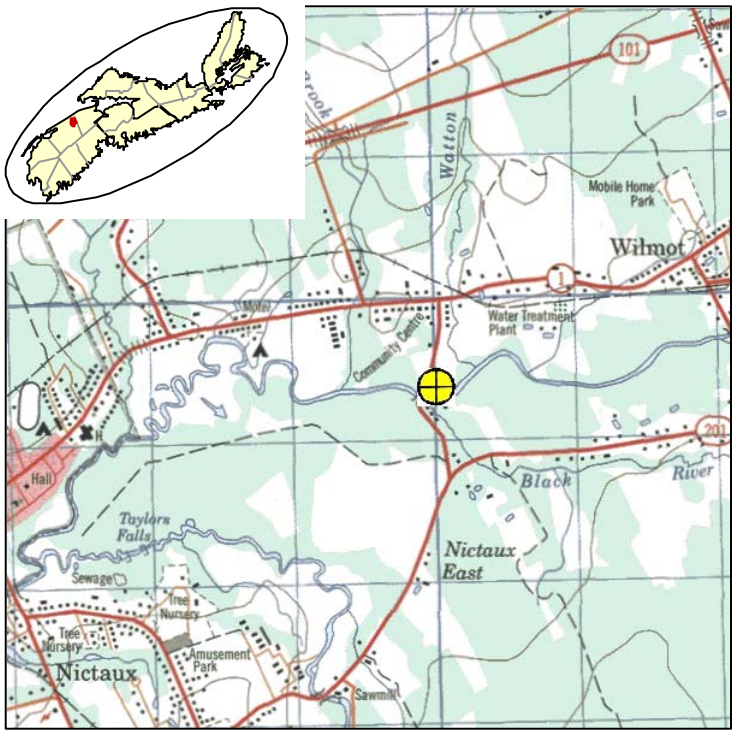

Figure 3.3a: Wilmot (005) Well Location

Figure 3.3b: Wilmot (005) Site Photograph

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 m^2/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 3.4a. The well is situated in a small park in the middle of a residential area (see Figure 3.4b). 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 water level graphs for Wolfville (010) are shown in Figure B.4, Appendix B. 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 1.1 m above sea level and the annual water level fluctuation was about 2 m. The average water level in 2008 was 0.4 m above sea level, with an annual fluctuation of 1 m. The depth to water in this well is approximately 4.6 m below ground surface.

The statistical trend analysis for this well (Appendix E) indicates that there is small downward trend in water levels, equivalent to approximately 2.5 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 2008 water levels generally fluctuated within the typical range for this well; however, water levels were at previously observed historical lows during late May and the first few weeks of June.

Monitoring Results - Water Chemistry and Temperature

The Wolfville (010) well was sampled in 2004 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, turbidity, iron and manganese were above aesthetic drinking water guidelines in the 2008 sample. The elevated turbidity levels are expected due to the high iron and manganese. The iron and manganese levels from the 2008 sample have increased by approximately two orders of magnitude compared to the 2004 sample results. The reason for this increase has not been determined. VOCs, pesticides and perchlorate were not detected in this well.

The chloride level in this well was 78 mg/L in 2004 and 87 mg/L in 2008. Although these levels do not exceed the aesthetic objective of 250 mg/L, they are elevated above the typical background level

for groundwater in coastal Nova Scotia (<50 mg/L). For the 2004 sample results, the bromide/chloride ratio for this well was <10 (i.e., 0.06 mg/L/ 78mg/L x 10,000 =7.7). For the 2008 sample results, the bromide/chloride ratio for this well was 9.2. Both of these results indicate 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 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 average groundwater temperature at the Wolfville (010) well was 9.15 ^{o}C, with annual fluctuations between 8.0 and 10.3 ^{o}C. A graph of the average daily temperature for this well is presented in Appendix D.

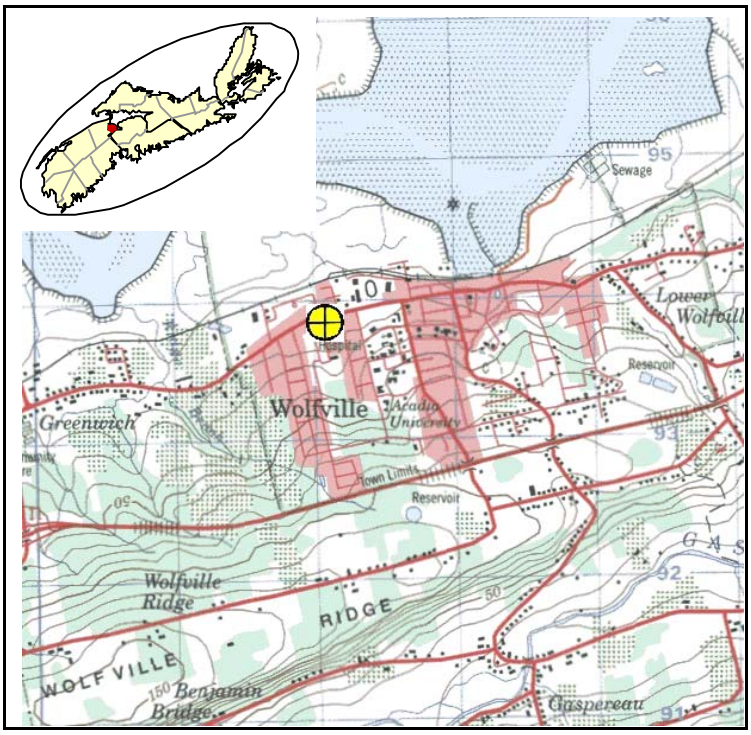

Figure 3.4a: Wolfville (010) Well Location

Figure 3.4b: Wolfville (010) Site Photograph

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 3.5a and a site photograph is shown in Figure 3.5b. 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 water level graphs for Truro (014) are shown in Figure B.5, Appendix B. This well has been monitored since 1971. The groundwater levels appear to have decreased slightly between 1971 and 1991. There is a data gap between 1991 and 2002 when no monitoring was carried out at this well; however, sometime after 1991 the groundwater levels in this well increased and have remained relatively consistent since 2003 when monitoring began again. The increased water level at this well 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 trend analysis for this well (Appendix E) indicates that there is no statistically significant trend present when the entire data record from 1991 to 2008 is considered.

The average water level elevation between 1971 and 1991 ranged from about 6.5 to 7.5 m above sea level and the annual water level fluctuation was about 1.5 m. From 2003 to present, the average water level elevation was 7.9 m above sea level, with an annual water level fluctuation of about 1.2 m. The depth to water in this well has varied from approximately 2.0 m to 3.5 m below ground surface.

The 2008 water levels generally fluctuated within the typical range that has been observed at this well since 2003; however, the 2008 water levels exceeded historical highs in February, March, September and December.

Monitoring Results - Water Chemistry and Temperature

The Truro (014) well has not been sampled due to a partial blockage of the casing, caused by an old float device from a Stevens chart recorder that is lodged in the well. Therefore, detailed chemistry data are not available.

The average groundwater temperature at this well was 8.76 ^{o}C, with annual fluctuations between approximately 4.0 and 13.2 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

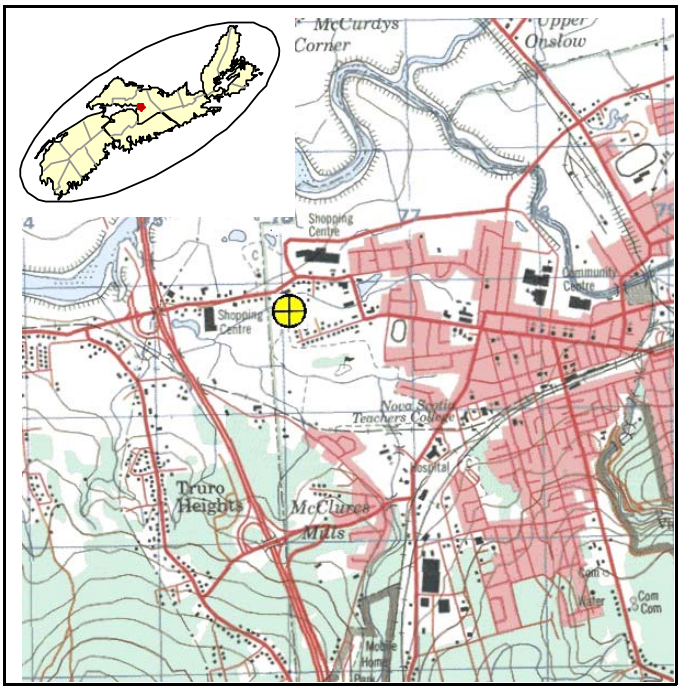

Figure 3.5a: Truro (014) Well Location

Figure 3.5b: Truro (014) Site Photograph

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 pumping test was conducted at this well in 1974, indicating a transmissivity of 9.8 m^2/day and a 20-year safe yield of 439 m^3/day (67 igpm) (McIntosh, 1984).

Table 3.6: Monastery (028) Well Construction Information

Well Name	Monastery (028)
Observation Well ID Number	028
NSE 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 3.6a. 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 3.6b), 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 water level graphs for Monastery (028) are shown in Figure B.6, Appendix B. This well has been monitored since 1979 and the average water level elevation has 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. The water level then slowly declined again until it rebounded once more during a sampling event in December 2008. It is suspected that the 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, perhaps caused by biofouling. The sampling process involves pumping water from the well, which may temporarily rehabilitate the well and allow water levels to rebound. The depth to water in this well has varied from approximately 7.8 m to 9.8 m below ground surface.

The statistical trend analysis for this well (Appendix E) indicates that there is small downward trend in water levels, equivalent to approximately 3.9 cm/year. This corresponds to a total water level drop of approximately 1.1 m. As discussed above, it is suspected that this decline is related to fouling of the well.

The 2008 water levels fluctuated within the typical range that has been observed at this well. Note that the water level rose by approximately 2 m on December 9th, 2008 when the well was sampled.

Monitoring Results - Water Chemistry and Temperature

The Monastery (028) well was sampled in 2006 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no drinking water guidelines were exceeded in either of the samples. 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 was 8.0 ^{o}C, with annual fluctuations between 7.8 and 8.3 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

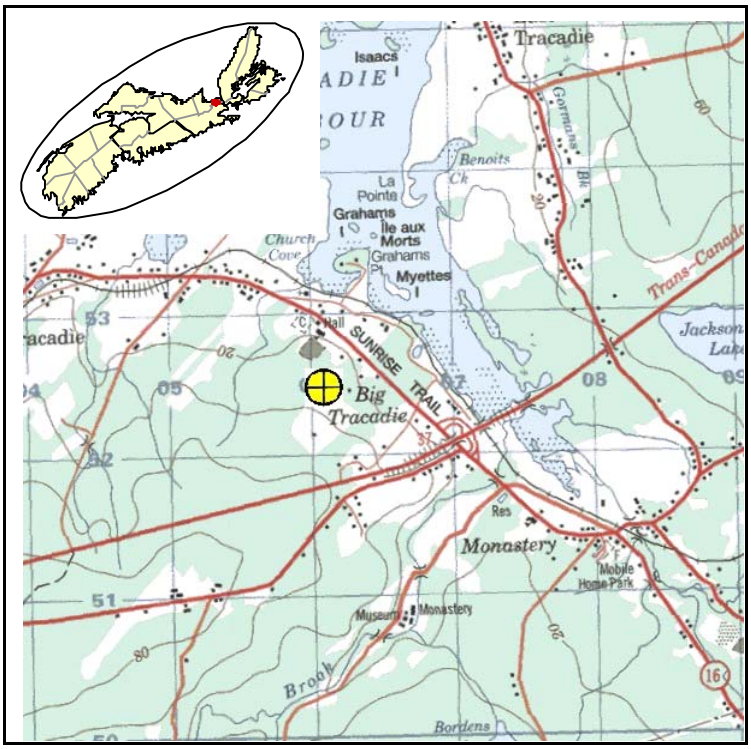

Figure 3.6a: Monastery (028) Well Location

Figure 3.6b: Monastery (028) Site Photograph

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 3.7a and a site photograph is shown in Figure 3.7b. 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. 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 water level graphs for Point Aconi (030) are shown in Figure B.7, Appendix B. This well has been monitored since 1976. The average water level elevation at the Point Aconi (030) well is approximately 28 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. There is no visually obvious long-term water level trend and the statistical trend analysis for this well (Appendix E) indicates that there is no statistically significant trend present.

The 2008 water levels fluctuated within the typical historical range for this well; however, water levels exceeded the historical high in August 2008 and dropped below the historical low in October 2008.

Monitoring Results - Water Chemistry and Temperature

The Point Aconi (030) well was sampled in 2005 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded. Manganese was above the aesthetic drinking water guideline in the 2005 sample but was below the guideline in the 2008 sample. 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) was 8.65 ^{o}C, with annual fluctuations between 4.0 and 14.0 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

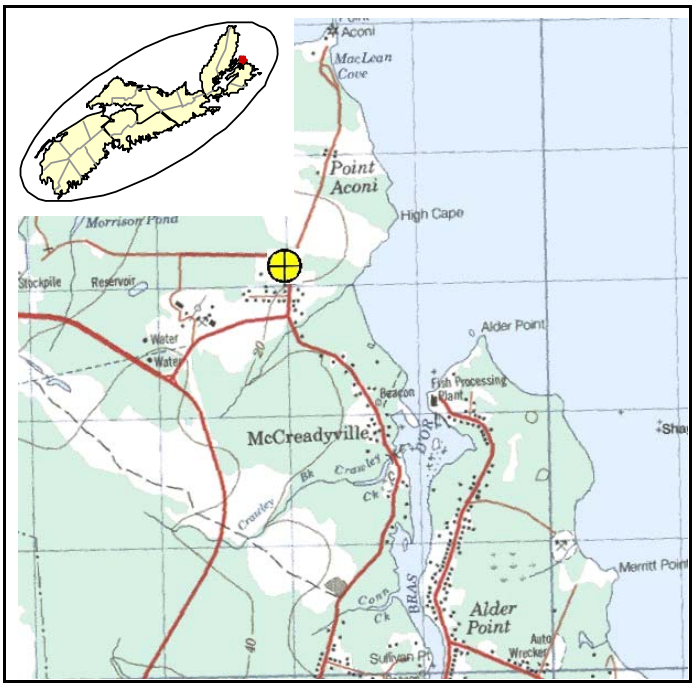

Figure 3.7a: Point Aconi (030) Well Location

Figure 3.7b: Point Aconi (030) Site Photograph

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 were drilled near this well (i.e., Lawrencetown L1, L2 and L4) but 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 m^2/day a safe yield rate of 95 m^3/day (14.5 igpm) (McIntosh, 1984).

The location of the Lawrencetown (043) observation well is shown in Figure 3.8a. 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 3.8b) and the there are two domestic wells nearby, both located approximately 50 m away.

Monitoring Results - Water Levels

The water level graphs for Lawrencetown (043) are shown in Figure B.8, Appendix B. This well has been monitored since 1978 and a visual inspection of the historical water level graph indicates that water levels has declined by approximately 1.0 m since monitoring began. The decline is expected to be caused by a nearby domestic well (located 50 m away). The statistical trend analysis for this well (Appendix E) indicates that there is small downward trend in water levels, equivalent to approximately 2.4 cm/year. This corresponds to a total water level drop of approximately 0.7 m since monitoring began.

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 2008, 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 2008 water levels fluctuated within the typical historical range for this well; however, water levels dropped below the historical lows in April, June and July, 2008.

Monitoring Results - Water Chemistry and Temperature

The Lawrencetown (043) well was sampled in 2004 and 2008. The water chemistry results are presented in Appendix C. The results indicate that arsenic concentrations exceeded the health-based drinking water guideline in both samples. VOCs and pesticides were not detected. 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 in 2004 and 180 mg/L in 2008) 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 seawater influence. The bromide/chloride ratio at this well also indicates a seawater influence. The bromide/chloride ratio at this well was 35 (i.e., 0.53 mg/L/150 mg/L x 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 was 8.48 ^{o}C, with annual fluctuations between approximately 6.0 and 11.0 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

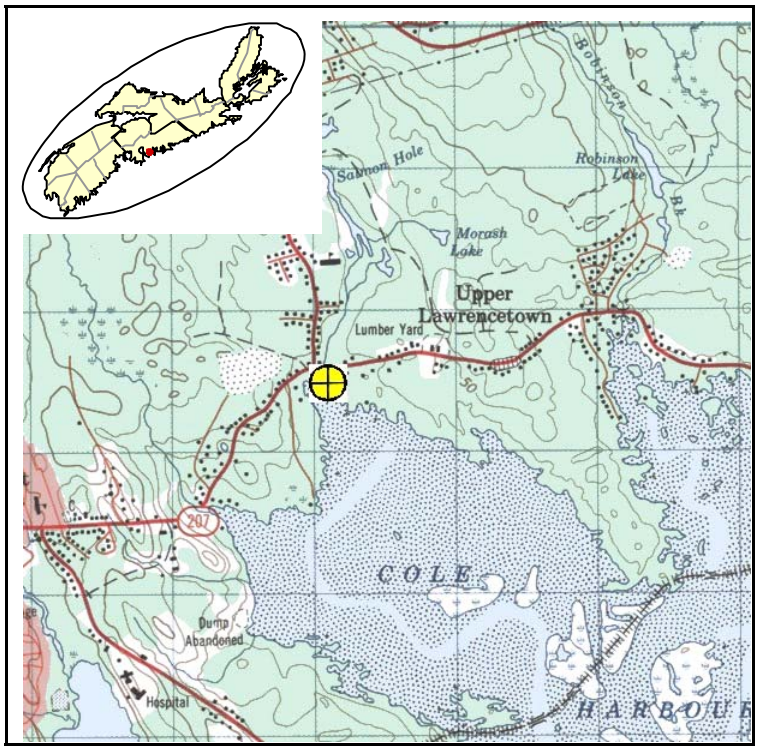

Figure 3.8a: Lawrencetown (043) Well Location

Figure 3.8b: Lawrencetown (043) Site Photograph

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 m^2/day and storativity of 3.2 x 10^{-4} (McIntosh, 1984).

The location of the Durham (045) observation well is shown in Figure 3.9a. 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 water level graphs for Durham (045) are shown in Figure B.9, Appendix B. This well has been monitored since 1979 . The water levels appear to have risen slightly since monitoring began and the amount of annual water level fluctuation has varied. The trend analysis for this well (Appendix E) indicates that there is a small upward trend, equivalent to about 2.4 cm/year. This is equivalent to a total rise of about 0.7 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 depth to water in this well is approximately 3.5 to 4.0 m below ground surface.

The 2008 water levels fluctuated within the typical historical range for this well; however, water levels exceeded the historical highs in September, 2008.

Monitoring Results - Water Chemistry and Temperature

The Durham (045) well was sampled in 2005 and 2009. Water chemistry results are presented in Appendix C. The results indicate that no 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 was 7.6 ^{o}C, with annual fluctuations between 6.2 and 9.2 ^{o}C. A graph of the hourly temperature in this well is presented in Appendix D.

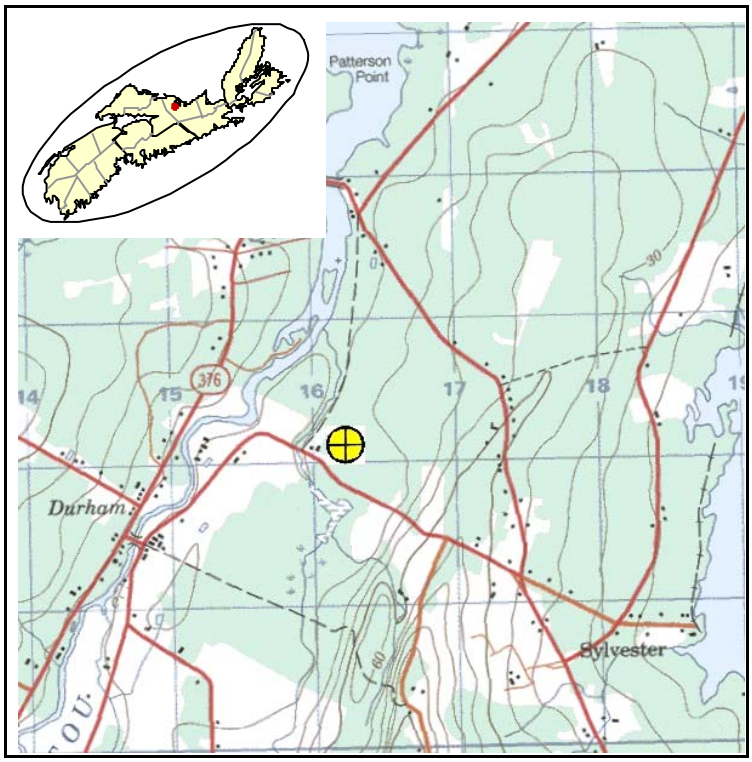

Figure 3.9a: Durham (045) Well Location

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 m^2/day and a storativity of 3 x 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 3.10a. It is situated in a wooded area (see Figure 3.10b) 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. The 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 water level graphs for Kentville (048) are shown in Figure B.10, Appendix B. 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 E) indicates that there is a small downward trend, equivalent to about 1 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 6.7 and 7.5 m above sea level and the annual water level fluctuation is approximately 0.8 m. The depth to water in this well is approximately 5.9 m below ground surface.

The 2008 water levels fluctuated within the typical historical range for this well; however, water levels were near the historical lows during January, February, July and November 2008.

Monitoring Results - Water Chemistry and Temperature

The Kentville (048) well was sampled in 2005 and 2007. Water chemistry results are presented in Appendix C. In 2005, no drinking water guidelines were exceeded. In 2007, lead exceeded the health-based drinking water guideline, and chloride and iron exceeded the aesthetic drinking water guidelines. No pesticides or VOC's were detected.

The chloride level in this well was at 230 mg/L in 2005, 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 likely to be road salt. The bromide/chloride ratio at this well was 7.4 (i.e., 0.2 mg/L/270 mg/L x 10,000 = 7.4). Please see Section 2.2.4 for a discussion of how this ratio is used to assess salt sources.

The perchlorate level in this well was 0.05 ug/L, which is 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).

The average groundwater temperature at the Kentville (048) well was 6.94 ^{o}C, with annual fluctuations between 2.0 and 11.0 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

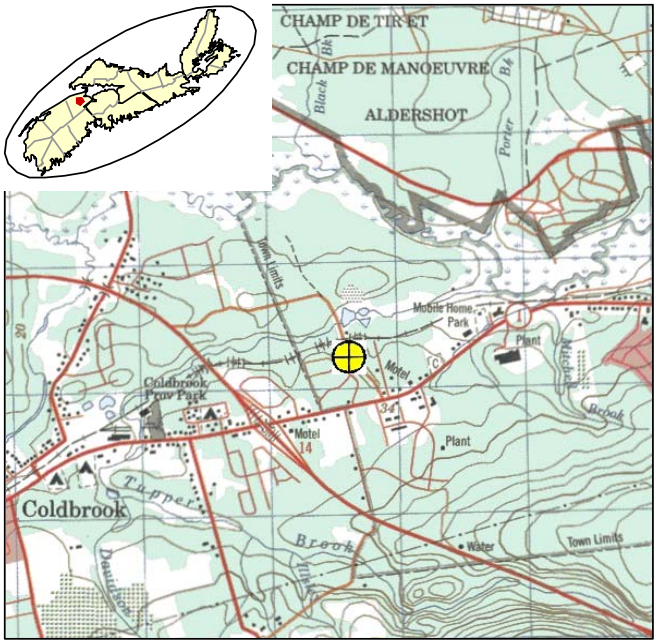

Figure 3.10a: Kentville (048) Well Location

Figure 3.10b: Kentville (048) Site Photograph

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 m^2/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 3.11. It is situated in a rural area where land use is primarily residential and undeveloped land. The well is located with in the Sydney wellfield, which consists of 11 production wells. The wellfield, which began operating in 1996, pumps an average of 16,000 m^3/day and is the largest municipal wellfield in Nova Scotia. The nearest production well is approximately 200 m from the Sydney (050) observation well.

Monitoring Results - Water Levels

The water level graphs for Sydney (050) are shown in Figure B.11, Appendix B. This well has been monitored since 1984. The water levels appear to have decreased when the Sydney wellfield began pumping in 1996 and then stabilized. The trend analysis for this well (Appendix E) indicates that there is a downward trend, equivalent to approximately 5.5 cm/year. The total drop in water level since monitoring began at this well is approximately 1.2 m.

The average water level elevation at this well from 1984 to 1994 (i.e., before the wellfield began pumping) was approximately 59.9 m above sea level and the annual water level fluctuation varied between 0.7 m and 1.0 m. Between 2004 and 2008 the average water level elevation was approximately 58.7 m above sea level, with an annual water level fluctuation of up to approximately 3 m. The depth to water in this well is between 4.5 and 5.0 m below ground surface.

The 2008 water levels were within the historically observed water level range for this well.

Monitoring Results - Water Chemistry and Temperature

The Sydney (050) well was sampled in 2005 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, manganese was above the aesthetic drinking water guideline in both samples. 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 was 7.30°C, with annual fluctuations between approximately 5.8 and 8.8 °C. A graph of the average daily temperature in this well is presented in Appendix D.

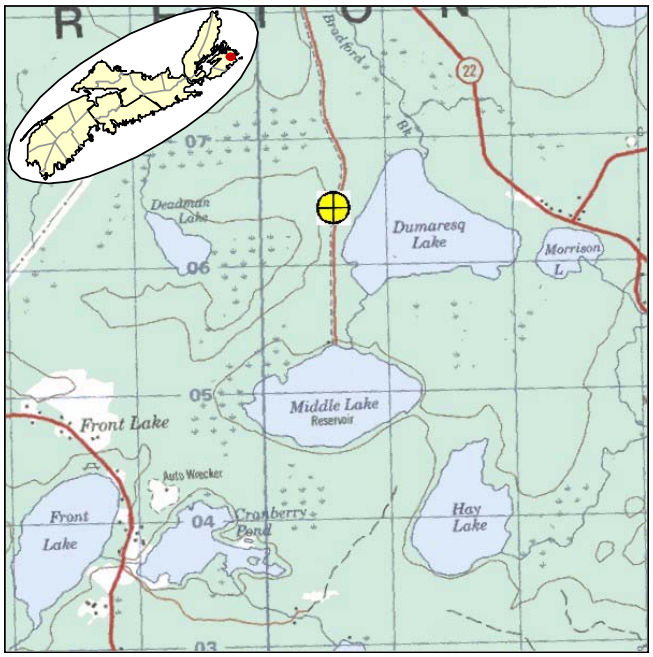

Figure 3.11: Sydney (050) Well Location

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 3.12a. 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 3.12b). 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
NSE 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)	39.0
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 water level graphs for North Grant (054) are shown in Figure B.12, Appendix B. This well has been monitored since 1987, however, there is a gap in the monitoring data between 1997 and 2006. Water levels at this well appear to have declined since 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 2008 was slightly lower, at 19.4 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 2008 water levels were within the typical historical range for this well for about half of the year, and close to the historical lows for about half of the year.

Monitoring Results - Water Chemistry and Temperature

The North Grant (054) well was sampled in 2006 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no drinking water guidelines were exceeded in 2006; however, the 2008 sample exceeded health-based guidelines for arsenic and aesthetic guidelines for turbidity and iron. 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 was 8.23 ^{o}C, with annual fluctuations between approximately 6.8 and 9.8 ^{o}C. A graph of the average daily temperature at this well is presented in Appendix D.

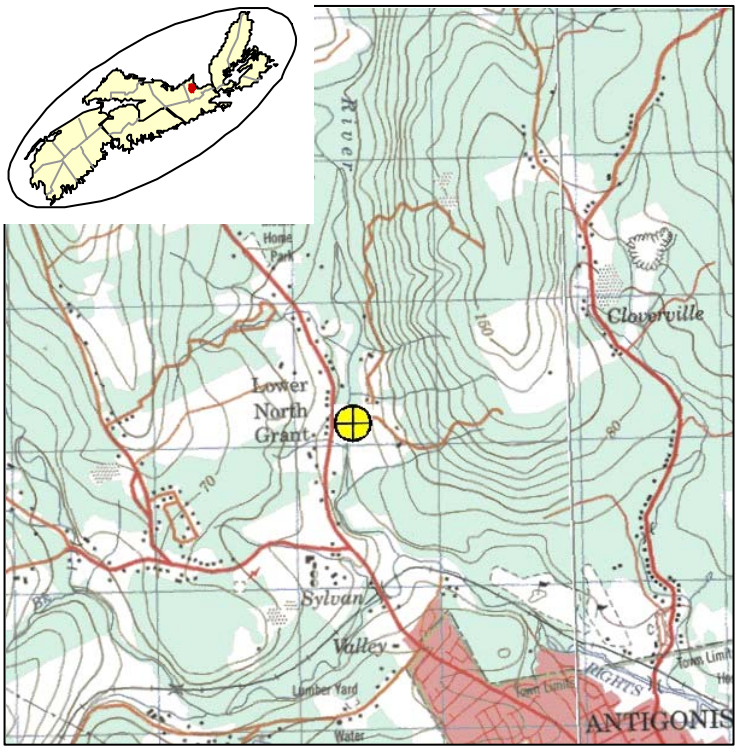

Figure 3.12a: North Grant (054) Well Location

Figure 3.12b: North Grant (054) Site Photograph

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 3.13. 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 St. Mary's 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)	36.0
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 water level graphs for Stillwater (055) are shown in Figure B.13, Appendix B. 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 relatively consistent 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 1987 to 1995, the average water level elevation at this well 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 2008 was slightly higher, at 25.1 m above sea level, and the annual water level fluctuation for this period was up to 1.4 m. The depth to water in this well is approximately 1.9 m below ground surface.

The 2008 water levels fluctuated within the typical historical range for this well; however, water levels exceeded historical highs during February, March and August 2008.

Monitoring Results - Water Chemistry and Temperature

The Stillwater (055) well was sampled in 2006 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no drinking water guidelines were exceeded in 2006, however, the aesthetic guideline for manganese was exceeded in 2008. One VOC (toluene) was measured at the detection limit of 1 ug/L in 2006 but it was not detected in 2008. No pesticides were detected at this well.

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 was 7.53^{o}C, with annual fluctuations between approximately 4.5 and 10.0 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

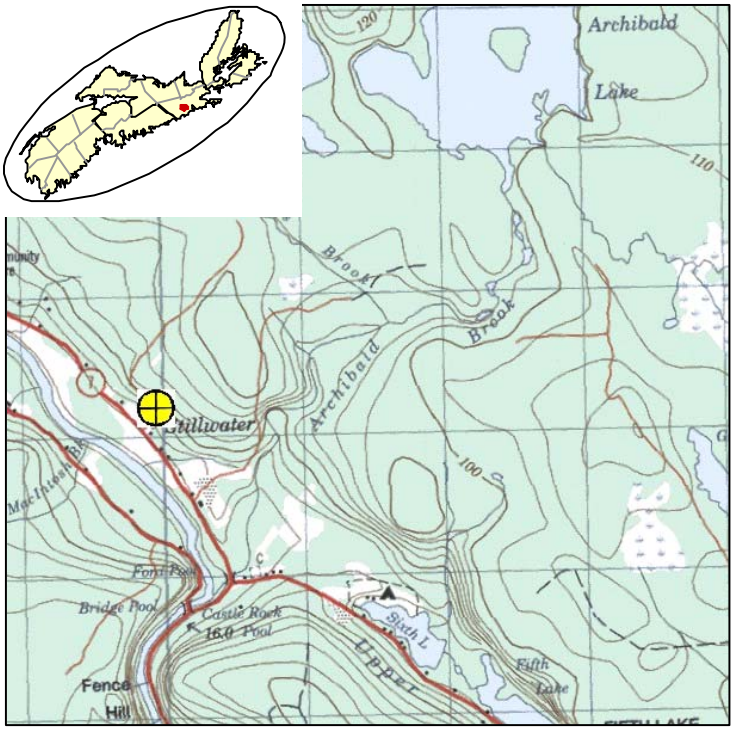

Figure 3.13: Stillwater (055) Well Location

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 and is 46.4 m deep with 7.01 m of casing. 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 3.14a. 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 3.14b). 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 water level graphs for Sheet Harbour (056) are shown in Figure B.14, Appendix B. Based on a visual inspection of the historical water level graph, the water level at this well appears to have increased over time by approximately 1 m. The average water level elevation at this well was as follows: 35.9 m (1987 to 1993); 36.2 m (1994 to 1999); and 36.9 m (2007 to 2008). The depth to water in this well is currently approximately 0.3 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 2008 water levels remained at, or close to, the historical highs for this well.

Monitoring Results - Water Chemistry and Temperature

The Sheet Harbour (056) well was sampled in 2008. Water chemistry results are presented in Appendix C. The results indicate that no drinking water guidelines were exceeded; however, arsenic was detected at 10 ug/L, which is equal to, but does not exceed the drinking water guideline fro arsenic. In addition, the aesthetic guideline for manganese was exceeded . No VOCs or pesticides were detected at this well.

The average groundwater temperature at this well was 8.18ºC, with annual fluctuations between approximately 6.0 and 9.3 ºC. A graph of the average daily temperature in this well is presented in Appendix D.

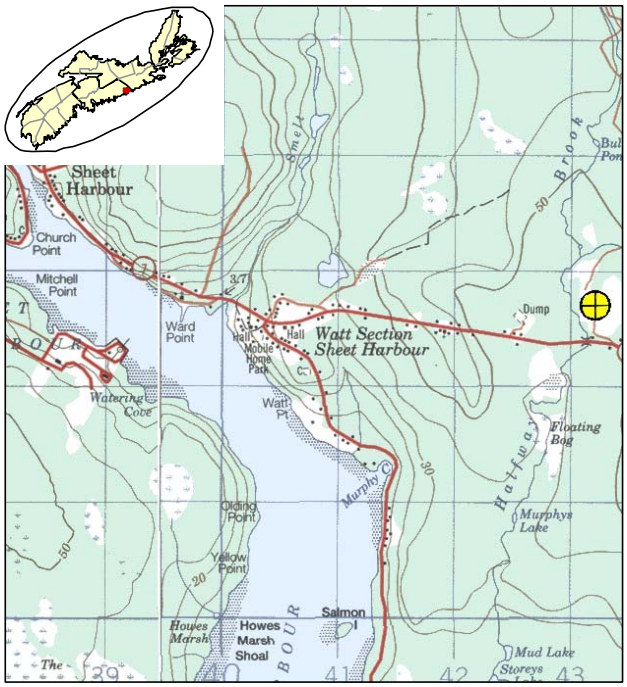

Figure 3.14a: Sheet Hbr (056) Well Location

Figure 3.14b: Sheet Hbr (056) Site Photo

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 3.15. 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 water level graphs for Charleston (058) are shown in Figure B.15, Appendix B. 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 2008 water levels were within the historically observed water level range for this well, however, historical highs were exceeded in January, February, March and April. Note that this well was vandalized in June 2008 and, therefore, the data after June are missing.

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 ^{o}C. The average groundwater temperature is approximately 9.2 ^{o}C. A graph of the temperature in this well is presented in Appendix D.

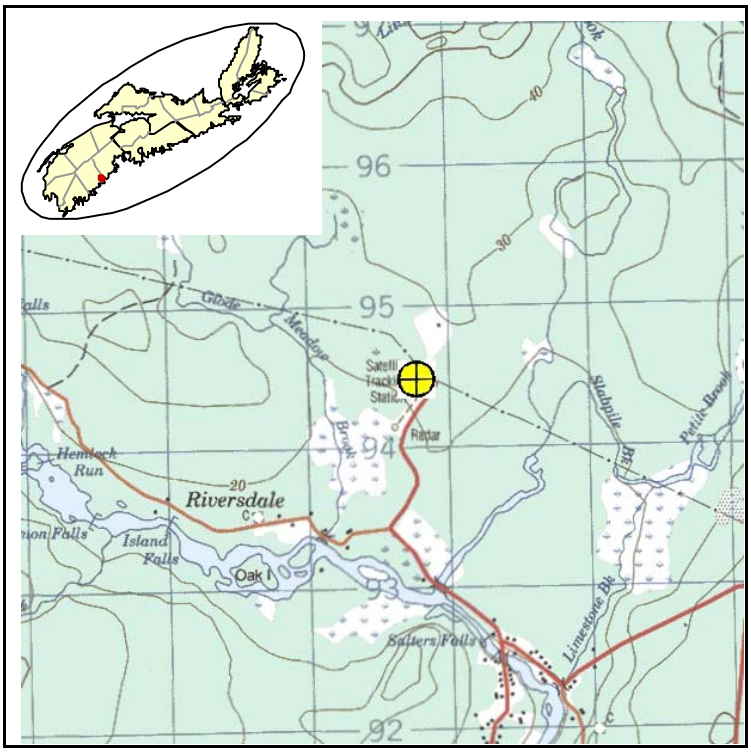

Figure 3.15: Charleston (058) Well Location

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 depth. 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 3.16. 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 water level graphs for Hayden Lake (059) are shown in Figure B.16, Appendix B. 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 1.2 cm/year. This corresponds to a total water level rise of approximately 0.2 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 2008 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 sampled in 2005 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, the pH level in the 2008 sample did not meet the aesthetic drinking water guideline.

Note that one VOC (chloroform) was detected below the drinking water guideline in 2005; however, it was not detected in the 2008 sample. Chloroform is produced when chlorine reacts with organic matter and may have been 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 at this well.

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 was 8.7 ^{o}C, with annual fluctuations between 6.8 and 10.8 ^{o}C. A graph of the average daily temperature is presented in Appendix D.

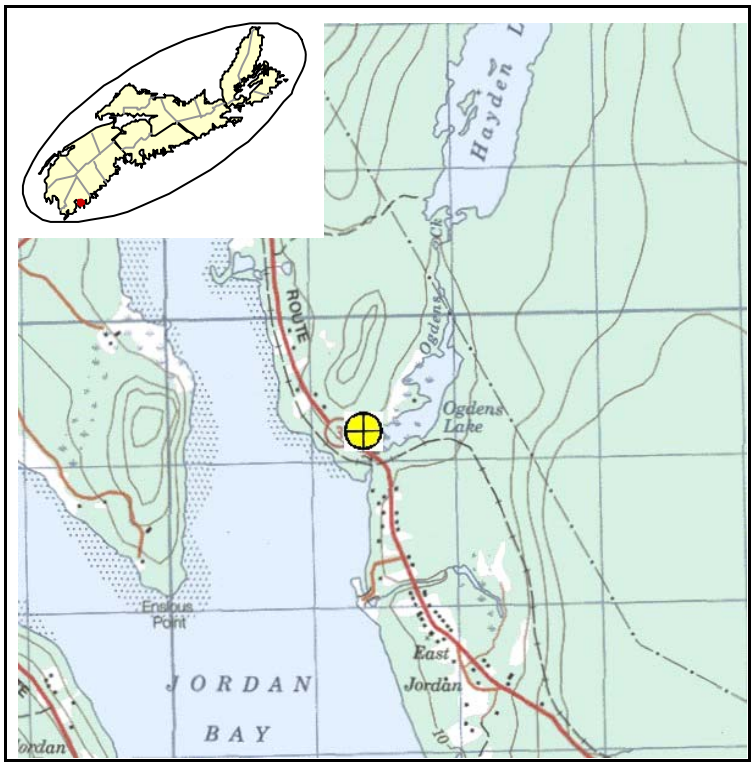

Figure 3.16: Hayden Lake (059) Well Location

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 and is 61.0 m deep with 12.19 m of casing. 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 3.17a. The well is situated on the lawn of a private property (see Figure 3.17b), 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)	61.0
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 water level graphs for Meteghan (060) are shown in Figure B.17, Appendix B. This well has been monitored since mid December 1987 and water levels appear to have decreased slightly over time (i.e., dropped by 0.3 m). 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 2008 was again lower, at 9.10 m. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well. The depth to water in this well is approximately 4.0 m below ground surface.

The 2008 water levels were within the historical range for this well.

Monitoring Results - Water Chemistry and Temperature

The Meteghan (060) well was sampled in 2006 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, aesthetic drinking water guidelines were exceeded for turbidity, iron and manganese in both the 2006 and 2008 samples. 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 was 8.96 ^{o}C, with annual fluctuations between approximately 8.0 and 9.8 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

Figure 3.17a: Meteghan (060) Well Location

Figure 3:17b: Meteghan(060) Site Photograph

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 and is 62.8 m deep with 24.3 m of casing. 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 3.18. 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 water level graphs for Annapolis Royal (062) are shown in Figure B.18, Appendix B. 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 were insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis.

The 2008 water levels were generally within the historically observed water level range for this well, however, historical highs were exceeded in February, March, September and December.

Monitoring Results - Water Chemistry and Temperature

The Annapolis Royal (062) well was sampled in 2005 and 2007. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, turbidity (2007) and manganese (2005 and 2007) exceeded the aesthetic drinking water guidelines. 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. Pesticides and perchlorate were not detected.

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 was 7.92 ^{o}C, with annual fluctuations between 7.8 and 8.1 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

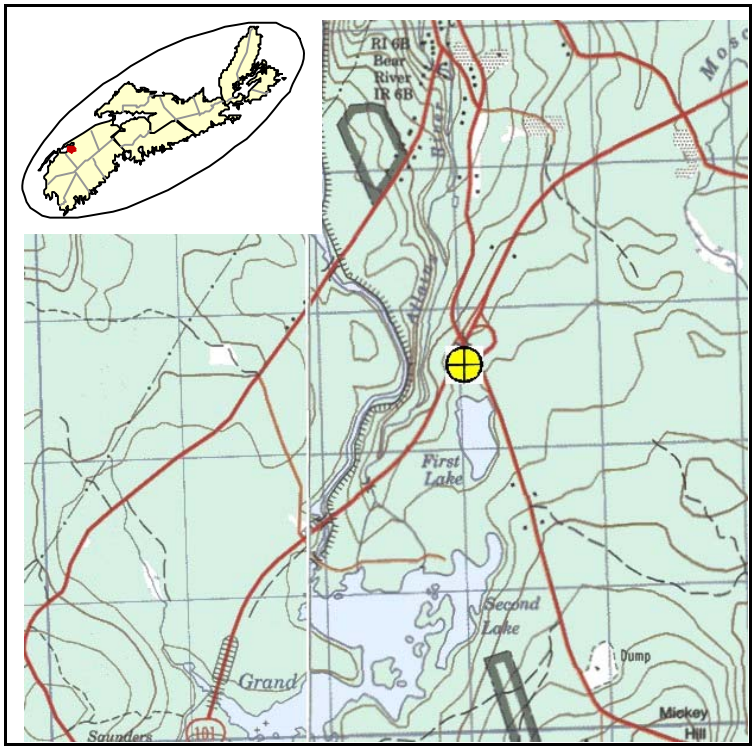

Figure 3.18: Annapolis Royal (062) Well Location

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 12.2 m of casing. 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 3.19. 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 water level graphs for Hebron (063) are shown in Figure B.19, Appendix B. 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 2008 water levels were generally within the historically observed water level range for this well, however, historical highs were exceeded in February, March and December.

Monitoring Results - Water Chemistry and Temperature

The Hebron (063) well was sampled in 2005 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, the aesthetic drinking water guidelines were exceeded for turbidity, iron and manganese. In addition, the low pH in this well did not meet the aesthetic guideline in the 2005 sample and was equal to the guideline in the 2008 sample. The elevated turbidity levels in this well are expected due to the high iron and manganese levels. Note that the ion balance error reported in the general chemistry analysis was 23% in 2005 and 13% in 2008, 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 this 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 was 8.8 ^{o}C, with annual fluctuations between 6.0 and 11.5 ^{o}C. A graph of the average daily temperature in this well is provided in Appendix D.

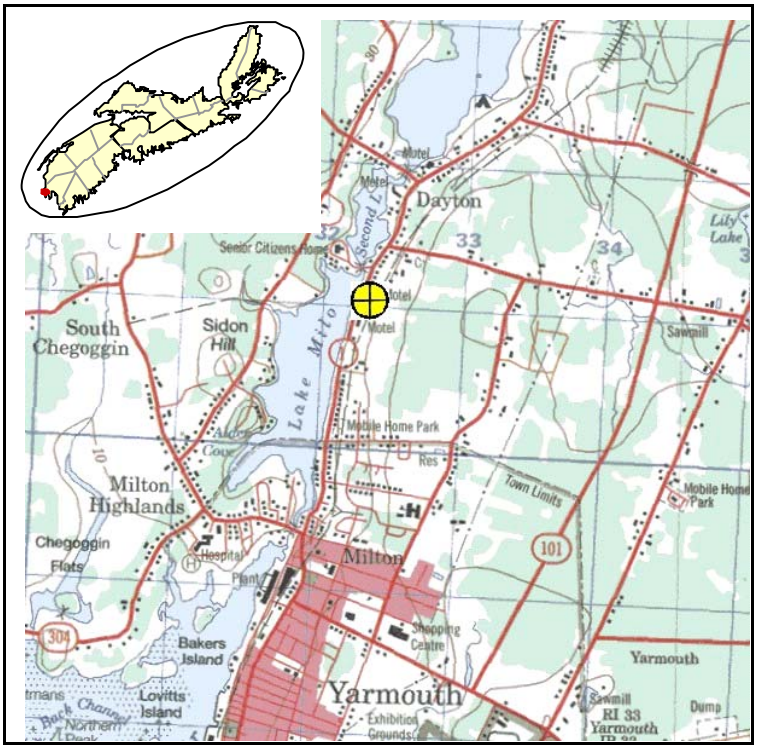

Figure 3.19: Hebron (063) Well Location

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 and is 45.7 m deep with 12.2 m of casing. 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 3.20a. 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 3.20b), 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 that measures 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)	12.2
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 water level graphs for Margaree (064) are shown in Figure B.20, Appendix B. This well has been monitored since 1990 and water levels appear to have remained relatively consistent 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 42.87 m above sea level. The average water level elevation for the period when monitoring resumed in 2006 to the end of 2008 was 42.71 m above sea level. The depth to water in this well is approximately 3.5 m below ground surface.

The 2008 water levels at this observation well were near historical lows for most of the year, however, historical highs were exceeded in February, March and September.

Monitoring Results - Water Chemistry and Temperature

The Margaree (064) well was sampled in 2006 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no 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 was 7.80 ^{o}C, with annual fluctuations between approximately 6.8 and 9.1 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

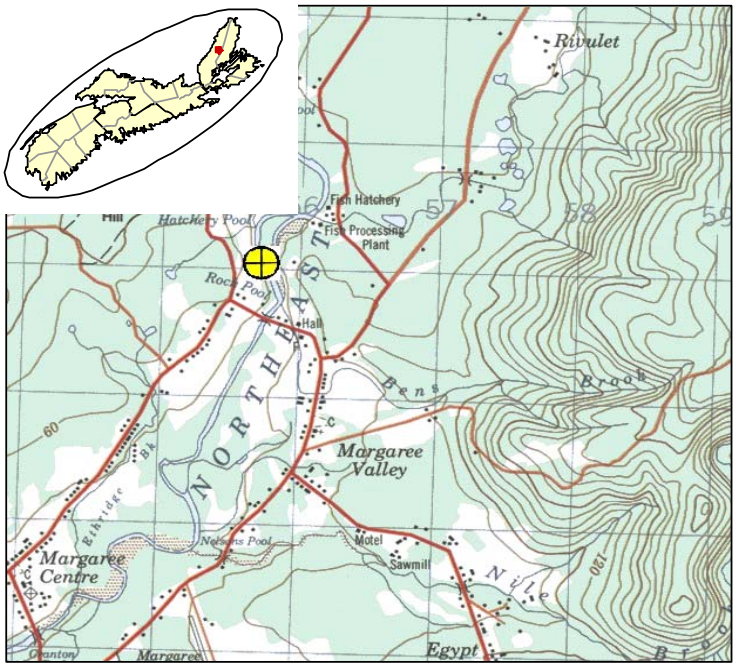

Figure 3.20a: Margaree (064) Well Location

Figure 3.20b: Margaree (064) Site Photograph

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 and is 45.7 m deep with 12.2 m of casing. 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 3.21a. 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 Centre and is approximately 30 m north west of Clyde Burn Brook. The well is in a forested area, adjacent to a small storage building (see site photograph in Figure 3.21b).

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 Devonion Granodiorite
Aquifer Material	Bedrock - granodiorite

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

Monitoring Results - Water Levels

The water level graphs for Ingonish (065) are shown in Figure B.21, Appendix B. This well has been monitored since November 1990 and water levels appear to have remained relatively consistent 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.

The average water level elevation at this well is approximately 2.2 m above sea level with annual fluctuations up to approximately 3 m. The depth to water in this well is approximately 4.4 m below ground surface.

The 2008 water levels were generally within the historically observed water level range for this well, although the historical highs were exceeded several times throughout the year.

Monitoring Results - Water Chemistry

The Ingonish (065) well has not been sampled and, therefore, water chemistry results are not available. The average groundwater temperature at this well is approximately 6.24 ^{o}C, with annual fluctuations between 5.94 and 6.65 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

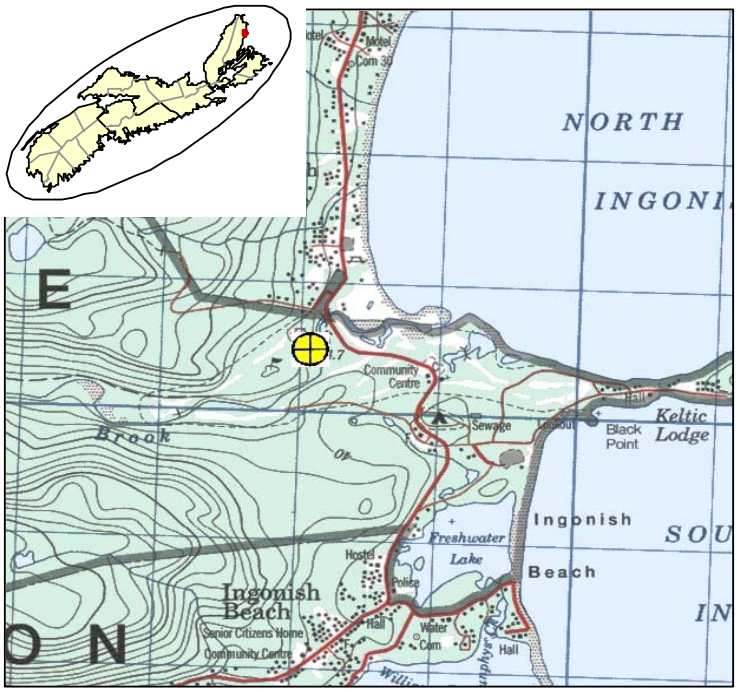

Figure 3.21a: Ingonish (065) Well Location

Figure 3.21b: Ingonish (065) Site Photograph

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 has 7.9 m of casing. 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 3.22. 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 water level graphs for Debert (068) are shown in Figure B.22, Appendix B. Monitoring began at this well in 1993; however, there is a gap in monitoring data between 1996 and 2006. The average water level in this well appears to have increased by approximately 1.5 m between 2006 and 2008. There was insufficient water level data (i.e., <10 years of useable data) to complete a water level trend analysis for this well.

From June 1993 until June 1995 the average water level elevation was approximately 24.0 m above sea level, with an annual variation of up to approximately 3.2 m. The average water level elevation in 2008 was 25.5 m above sea level. The depth to water in this well is approximately 4.0 m below ground surface.

The 2008 water levels at this well remained at the historical high level throughout the year.

Monitoring Results - Water Chemistry and Temperature

The Debert (068) well has not been sampled and, therefore, water chemistry results are not available. The average groundwater temperature at this well is approximately 8.54 ^{o}C, with annual fluctuations between approximately 6.5 and 10.0^{o}C. A graph of the daily average temperature in this well is presented in Appendix D.

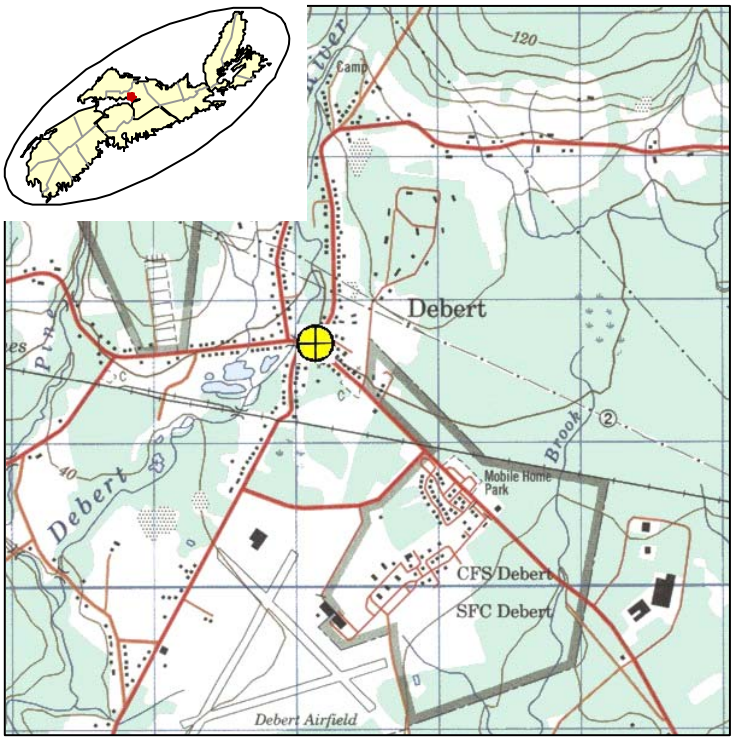

Figure 3.22: Debert (068) Well Location

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 1992 by NSE to expand the Groundwater Observation Well Network. The well is completed in a sandstone aquifer and is 61.0 m deep with 12.4 m of casing. Well location and construction information is provided in Table 3.23.

The location of the Dalem Lake (069) observation well is shown in Figure 3.23. 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)	61.0
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 water level graphs for Dalem Lake (069) are shown in Figure B.23, Appendix B. This well has been monitored since 1992 and water levels have remained relatively consistent. 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 this well up to the end of 2008 was 86.79 m above sea level, with approximately 1 m of annual water level fluctuation. The depth to water in this well during this period was approximately 5.5 m below ground surface.

The 2008 water levels were essentially within the historically observed range for this well.

Monitoring Results - Water Chemistry and Temperature

The Dalem Lake (069) well was sampled in 2006 and 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded; however, manganese was above the aesthetic guideline in both the 2006 and the 2008 samples. 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 was 6.83 ^{o}C, with annual fluctuations between approximately 6.4 and 7.3 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

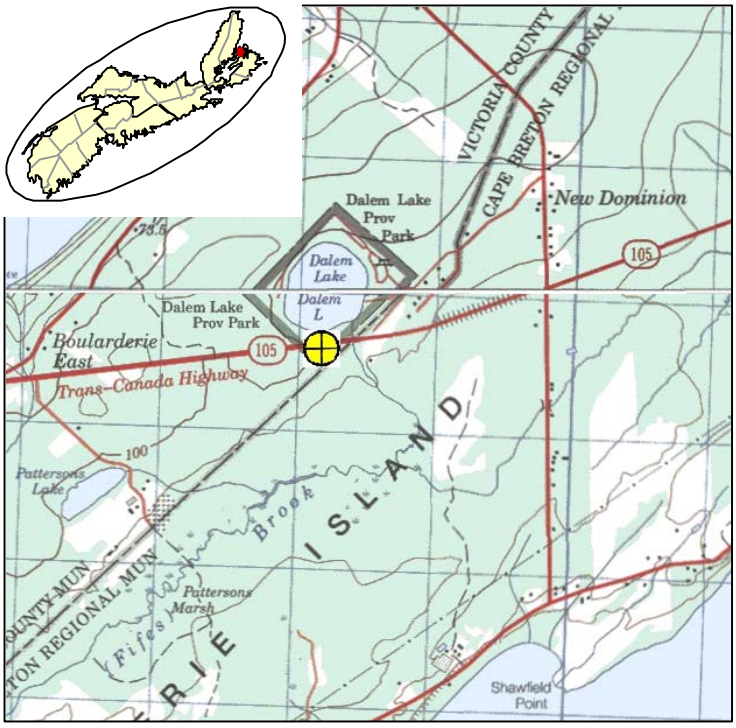

Figure 3.23: Dalem Lake (069) Well Location

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 a sandstone aquifer and is 116.5 m deep with 5.8 m of casing. 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 3.24. The well is situated in a field approximately 175 m northwest of Route 66 (Tyndal Road). 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)	5.8
Well Depth (m, bgs)	116.5
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 water level graphs for Amherst (071) are shown in Figure B.24, Appendix B. Monitoring began at this well in 1993 and water levels appear to have remained relatively consistent; however, there is no data for the period between 1996 and 2006 and, therefore, the variability of the water level at this well is somewhat uncertain. 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 this well between 1993 and 2008 was approximately 14.9 m above sea level, with an annual fluctuation of approximately 2 m. The depth to water in this well is approximately 2.5 m below ground surface.

The 2008 water levels were essentially within the historically observed range for this well.

Monitoring Results - Water Chemistry and Temperature

The Amherst (071) well was sampled in 2006 and 2009. Water chemistry results are presented in Appendix C. The results indicate that no 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 was 7.35^{o}C, with annual fluctuations between approximately 6.0 and 8.5 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

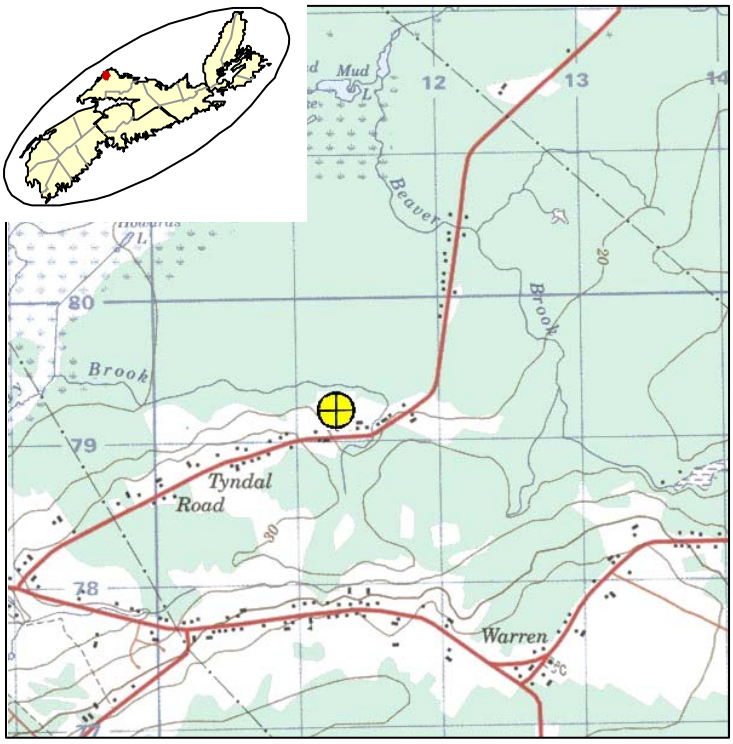

Figure 3.24: Amherst (071) Well Location

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). This well is referred to as "Observation well No.2" In the report entitled "Hydrogeology of the Kelley River IHD Benchmark Basin Cumberland County, NS" (Hennigar, 1974). The well is completed in a sandstone aquifer and is approximately 11.6 m deep with 4.2 m of casing. 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 3.25. The well is located within the Chignecto Game Sanctuary, 13 km from the Boars Back Ridge Road. It is in a wooded area and is located 18 m from Nova Scotia Environment's surface water quality station and Environment Canada's hydrometric station on Kelley River.

Monitoring Results - Water Levels

The water level graphs for Kelley River (073) are shown in Figure B.25, Appendix B. This well has been monitored since 2006 and water levels appear to have remained relatively consistent. 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 up to the end of 2008 was 31.6 m above sea level, with an annual fluctuation of approximately 1.2 m. The depth to water was approximately 1.5 m below ground surface.

The 2008 water levels were similar to historically observed water levels at this well.

Monitoring Results - Water Chemistry and Temperature

The Kelley River (073) well was sampled in 2007. Water chemistry results are presented in Appendix C. The results indicate that no 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 was 6.63 ^{o}C, with annual fluctuations between approximately 6.2 and 7.1 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

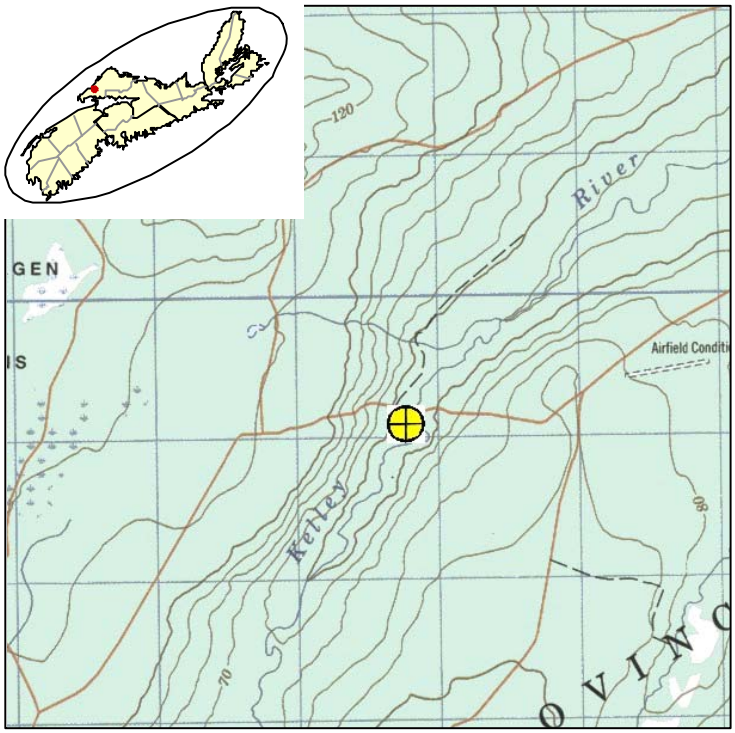

Figure 3.25: Kelley River (073) Well Location

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 2007 as part of a aquifer evaluation project completed by Nova Scotia Department of Environment and Labour. The well is completed in a sandstone aquifer and is 53.4 m deep with 36.0 m of casing. 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 m^2/day, hydraulic conductivity of 5.7 m/day and a safe yield of 1227 m^3/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	2008
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 3.26a. The well is located 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

The water level graphs for Atlanta (074) are shown in Figure B.26, Appendix B. This well has been monitored since May 2008. The average water level elevation up to the end of 2008 was 8.50 m above sea level, with an annual fluctuation of approximately 0.34 m. The depth to water was 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 sampled in 2007. Water chemistry results are presented in Appendix C. The results indicate that the health-based drinking water guideline was exceeded for uranium. VOCs and pesticides were not detected. The average groundwater temperature at this well from May 2008 until the end of 2008 was 7.0 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

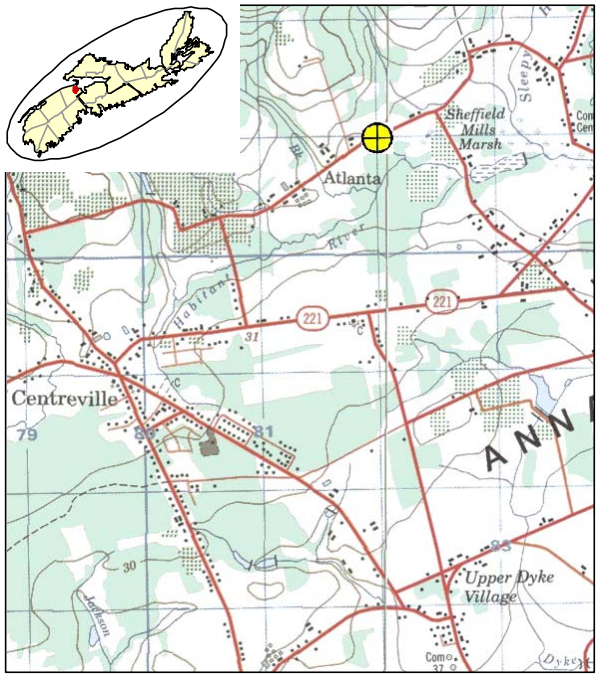

Figure 3.26a: Atlanta (074) Well Location

Figure 3.26b: Atlanta (074) Site Photo

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 2007 as part of a aquifer evaluation project completed by Nova Scotia Department of Environment and Labour. The well is completed in a sandstone aquifer and is 53.4 m deep with 19.2 m of casing. 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 m^2/day, hydraulic conductivity of 5.7 m/day and a safe yield of 371 m^3/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	2008
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 3.27a. The well is located south of Highway 221 in an active agricultural field which is used for growing vegetables (see Figure 3.27b). 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

The water level graphs for Sheffield Mills (075) are shown in Figure B.27, Appendix B. This well has been monitored since May 2008. The average water level elevation up to the end of 2008 was 8.01 m above sea level, with an annual fluctuation of approximately 0.57 m. The depth to water was 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 sampled in 2007. Water chemistry results are presented in Appendix C. The results indicate that no drinking water guidelines were exceeded. VOCs and pesticides were not detected. The average groundwater temperature at this well from April 2008 until the end of 2008 was 8.4 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

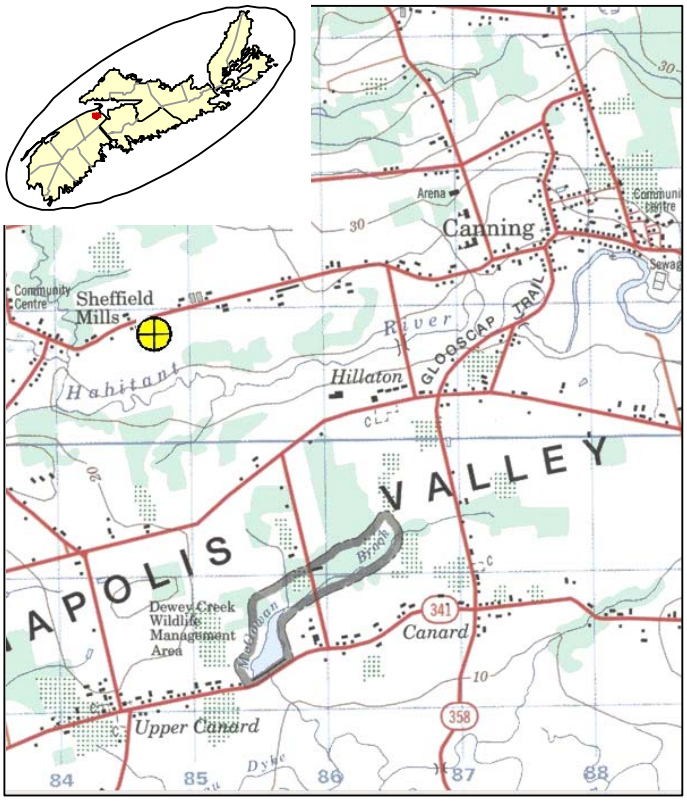

Figure 3.27a: Sheffield Mills (075) Well Location

Figure 3.27b: Sheffield Mills (075) Site Photograph

3.28 Fall River (076)

Well Description

The Fall River (076) observation well is located in the community of Fall River, Halifax County. The well was constructed in February 2008 by NSE and NSDNR to expand the Groundwater Observation Well Network. The well is completed in a slate aquifer and is 61.0 m deep with 13.1 m of casing. Well location and construction information is provided in Table 3.28 and the well log is provided in Appendix A. A 4-hour constant rate pumping test was conducted at this well in 2008 by NSDNR (Kennedy et al., 2009). The results indicated a transmissivity of 0.07 m^2/day, hydraulic conductivity of 1.21 X 10^{-3} m/day and an estimated safe yield of 2.13 m^3/day (0.3 igpm).

Table 3.28: Fall River (076) Well Construction Information

Well Name	Fall River (076)
Observation Well ID Number	076
NSE Well Log Number	080824
County	Halifax
Nearest Community	Fall River
UTM - Easting	450243
UTM - Northing	4962226
Year Monitoring Started	2008
Casing Depth (m, bgs)	13.1
Well Depth (m, bgs)	61.0
Elevation - top of casing (m, asl)	108.67
Geologic Unit	Halifax Formation
Aquifer Material	Bedrock - slate

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

The location of the Fall River(076) observation well is shown in Figure 3.28a and a photograph of the well is shown in Figure 3.28b. The well is located in a ball field in a subdivision development and is within 100 m of the nearest domestic well.

Monitoring Results - Water Levels

The water level graphs for Fall River (076) are shown in Figure B.28, Appendix B. This well has been monitored since March 2008. The average water level elevation since monitoring began was 104.3 m above sea level and the depth to water was approximately 3.4 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 Fall River (076) well was sampled in 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded, however, three aesthetic drinking water guidelines were exceeded, including pH, iron and manganese. VOCs and pesticides were not detected.

The average groundwater temperature at this well since monitoring began was 7.79 ^{o}C, with fluctuates between approximately 6.9 and 9.0 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

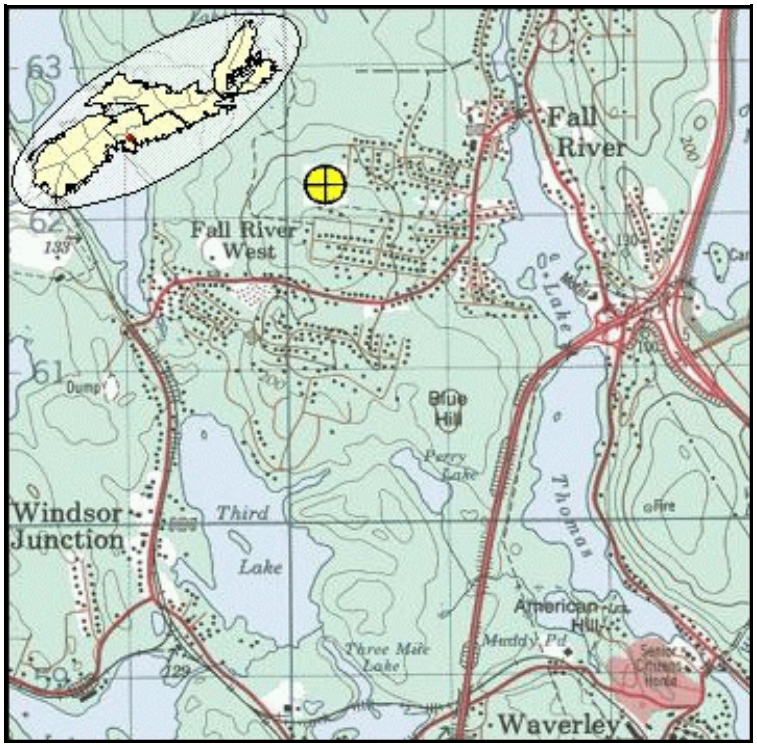

Figure 3.28a: Fall River (076) Well Location

Figure 3.28b: Fall River (076) Site Photograph

3.29 West Northfield (077)

Well Description

The West Northfield (077) observation well is located adjacent to the LaHave River in the community of West Northfield, Lunenburg County. The well was constructed in March 2008 by NSE to expand the Groundwater Observation Well Network. The well is completed in a slate aquifer and is 48.8 m deep with 12.8 m of casing. Well location and construction information is provided in Table 3.29 and the well log is provided in Appendix A. A 5-hour pumping test (i.e., step-test) was conducted at this well in 2008 by NSDNR (Kennedy et al., 2009). The results indicated a transmissivity of 0.44 m^2/day, hydraulic conductivity of 1.44 X 10^{-2} m/day and an estimated safe yield of 10.53 m^3/day (1.6 igpm).

Table 3.29: West Northfield (077) Well Construction Information

Well Name	West Northfield (077)
Observation Well ID Number	077
NSE Well Log Number	080132
County	Lunenburg
Nearest Community	West Northfield
UTM - Easting	373416
UTM - Northing	4922807
Year Monitoring Started	2008
Casing Depth (m, bgs)	12.8
Well Depth (m, bgs)	48.8
Elevation - top of casing (m, asl)	50.84
Geologic Unit	Halifax Formation
Aquifer Material	Bedrock - slate

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

The location of the West Northfield (077) observation well is shown in Figure 3.29a and a photograph of the well is shown in Figure 3.29b. The well is located adjacent to the LaHave River (within 50 m of the river) beside a bridge that crosses the LaHave. It is located within 100 m from the nearest domestic well. Note that surface water flow data is also collected at this location of the

LaHave River as part of the Canada/Nova Scotia Hydrometric Program.

Monitoring Results - Water Levels

The water level graphs for Fall River (077) are shown in Figure B.29, Appendix B. This well has been monitored since May 2008. The average water level elevation since monitoring began was 49.50 m above sea level and the depth to water was approximately 0.3 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 West Northfield (077) well was sampled in 2008. Water chemistry results are presented in Appendix C. The results indicate that no health-based drinking water guidelines were exceeded, however, the aesthetic drinking water guideline for manganese was exceeded. VOCs and pesticides were not detected.

The average groundwater temperature since monitoring began at this well was 8.31 ^{o}C, with fluctuations between approximately 7.4 and 9.0^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

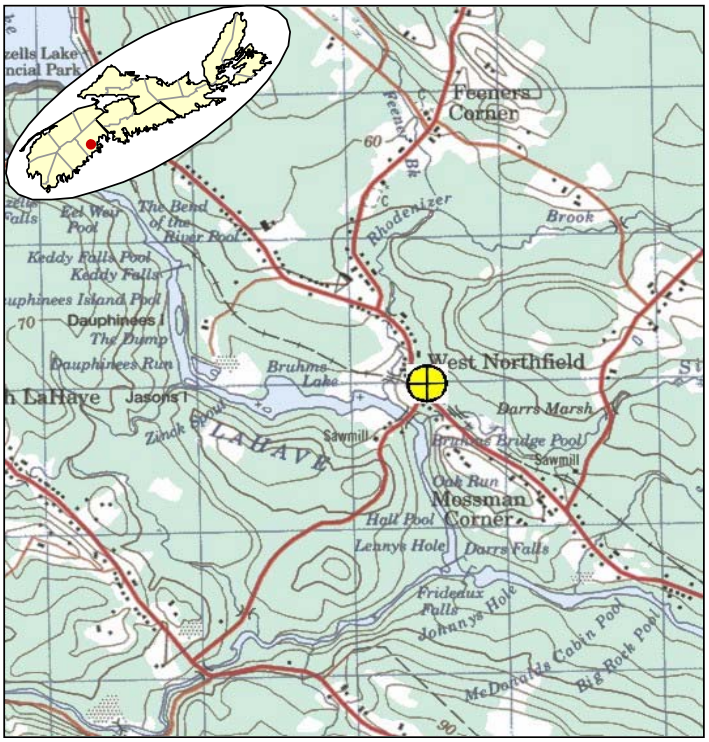

Figure 3.29a: West Northfield (077) Well Location

Figure 3.29b: West Northfield (077) Site Photo

3.30 Musquodoboit Harbour (078)

Well Description

The Musquodoboit Harbour (078) observation well is located adjacent to the Musquodoboit River in the community of Musquodoboit Harbour, Halifax County. The well was constructed in March 2008 by NSE and NSDNR to expand the Groundwater Observation Well Network. The well is completed in a slate aquifer and is 61.0 m deep with 27.1 m of casing.

Well location and construction information is provided in Table 3.30 and the well log is provided in Appendix A. A 1.5-hour constant rate pumping test was conducted at this well in 2008 by NSDNR (Kennedy et al., 2009). The results indicated a transmissivity of 0.010 m^2/day, hydraulic conductivity of 1.5 X 10^{-4} m/day and an estimated safe yield of 0.31 m^3/day (0.05 igpm). Note that this well is completed in bedrock, however, there is a sand and gravel layer that is approximately 25 m thick which overlies the bedrock at this location. During drilling, it was estimated that the yield of this overlying sand and gravel aquifer was approximately 1,300 m^3/day (200 igpm).

Table 3.30: Musquodoboit Harbour (078) Well Construction Information

Well Name	Musquodoboit Harbour (078)
Observation Well ID Number	078
NSE Well Log Number	080861
County	Halifax
Nearest Community	Musquodoboit Harbour
UTM - Easting	488125
UTM - Northing	4959880
Year Monitoring Started	2008
Casing Depth (m, bgs)	27.1
Well Depth (m, bgs)	61.0
Elevation - top of casing (m, asl)	7.71
Geologic Unit	Halifax Formation
Aquifer Material	Bedrock - slate

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

The location of the Musquodoboit Harbour (078) observation well is shown in Figure 3.30a and a photograph of the well is shown in Figure 3.30b. The well is located on the edge of a ball field near a wetland and the Musquodoboit River (within 200 m of the river). It is located within 300 m from the nearest domestic well.

Monitoring Results - Water Levels

The water level graphs for Musquodoboit Harbour (078) are shown in Figure B.30, Appendix B. This well has been monitored since May 2008. The average water level elevation since monitoring began was 4.94 m above sea level and the depth to water was approximately 1.8 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 Musquodoboit Harbour (078) well was sampled in 2008. Water chemistry results are presented in Appendix C. The results indicate that no drinking water guidelines were exceeded. VOCs and pesticides were not detected.

The average groundwater temperature at this well since monitoring began was 7.60 ^{o}C, with fluctuations between approximately 6.2 and 8.8^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

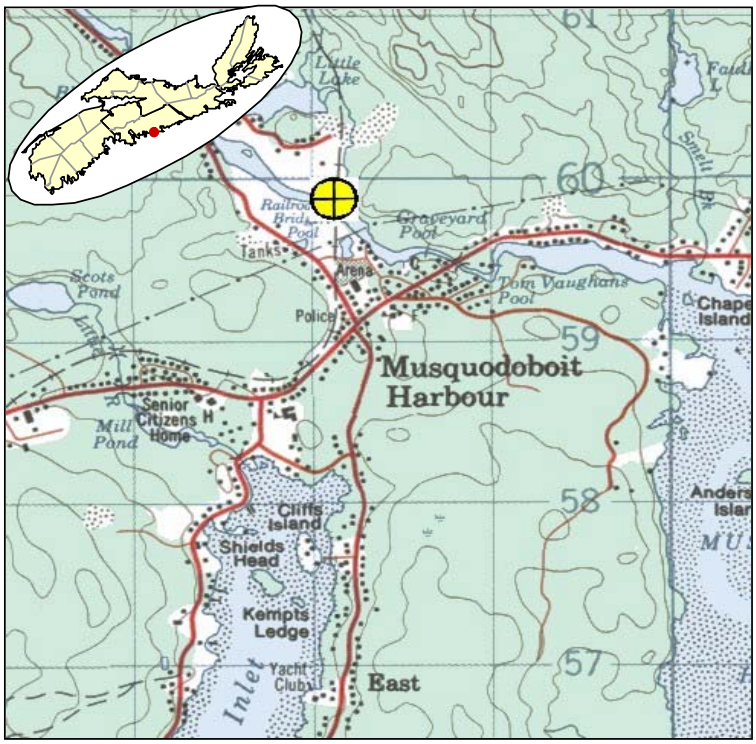

Figure 3.30a: Musquodoboit Harbour (078) Well Location

Figure 3.30b: Musquodoboit Hbr (078) Site Photograph

3.31 Lewis Lake (079)

Well Description

The Lewis Lake (079) observation well is located in the Jerry Lawrence Provincial Park near the community of Lewis Lake, Halifax County. The well was constructed in 1969 as a water supply for the park and was converted to an observation well in 2008 because it was no longer in use as a water supply well.

The well is completed in a granite aquifer and is 77.0 m deep with 7.6 m of casing. Well location and construction information is provided in Table 3.31 and the well log is provided in Appendix A. A 3 hour pumping test (i.e., step-test) was conducted at this well in 2008 by NSDNR (Kennedy et al., 2009). The results indicated a transmissivity of 1.53 m^2/day, hydraulic conductivity of 2.70 X 10^{-2} m/day and an estimated safe yield of 57.31 m^3/day (8.8 igpm).

Table 3.31: Lewis Lake (079) Well Construction Information

Well Name	Lewis Lake (079)
Observation Well ID Number	079
NSE Well Log Number	690090
County	Halifax
Nearest Community	Lewis Lake
UTM - Easting	433048
UTM - Northing	4948873
Year Monitoring Started	2008
Casing Depth (m, bgs)	7.6
Well Depth (m, bgs)	77.0
Elevation - top of casing (m, asl)	82
Geologic Unit	Late Devonian Granite
Aquifer Material	Bedrock - granite

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

The location of the Lewis Lake (079) observation well is shown in Figure 3.31a and a photograph of the well is shown in Figure 3.31b. The well is located in a forested area within 100 m of Lewis Lake. The nearest domestic well is approximately 1,000 m away.

Monitoring Results - Water Levels

The water level graphs for Lewis Lake (079) are shown in Figure B.31, Appendix B. This well has been monitored since November 2008. The average water level elevation since monitoring began was 79.80 m above sea level and the depth to water was approximately 2.7 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 Lewis Lake (079) well was sampled in 2008. Water chemistry results are presented in Appendix C. The results indicate that health-based drinking water guidelines were exceeded for arsenic and fluoride, and aesthetic drinking water guidelines were exceeded for manganese. VOCs and pesticides were not detected.

The average groundwater temperature at this well since monitoring began was 8.10 ^{o}C. A graph of the average daily temperature in this well is presented in Appendix D.

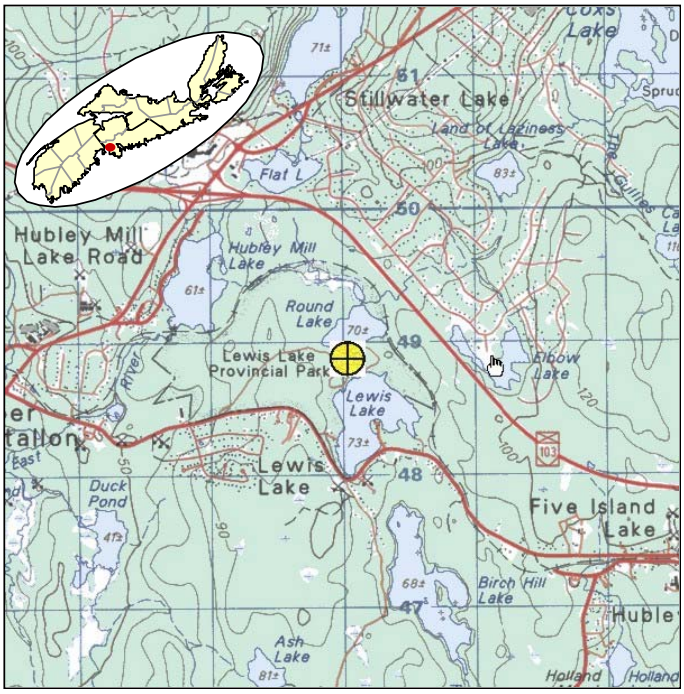

Figure 3.31a: Lewis Lake (079) Well Location

Figure 3.31b: Lewis Lake (079) Site Photograph

4.0 SUMMARY & CONCLUSIONS

4.1 Groundwater Levels

Table 4.1 presents a summary of groundwater level trends for each observation well and further details are provided in Appendix E. 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. Twelve of the observation wells had enough water level data available to complete trend analyses. The remaining 19 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 eight of the wells exhibit statistically significant groundwater level trends, with three having small upward trends and five having small downward trends. The downward trends are 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), Durham (045) and Hayden Lake (059). The largest upward trend was 2.4 cm/year at the Durham(045) observation well, which resulted in a total rise of approximately 0.7 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), Monastery (028), Lawrencetown (043), Kentville (048) and Sydney (050). The largest downward trend was 5.5 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 downward trends at these wells has not been confirmed, however, three of these observation wells are located in municipal wellfields and, therefore, groundwater levels in these areas are expected to have dropped due to wellfield pumping.

Table 4.1: Summary of Groundwater Level Trends

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]
Greenwood (003)	1966	20	NA	NA	No Trend
Fraser Brook (004)	1966	19	0.3	0.1	Up
Wilmot (005)	1969	18	NA	NA	No Trend
Wolfville (010)	1969	20	-2.5	-0.7	Down
Truro (014)	1971	16	NA	NA	No Trend
Monastery (028)	1976	10	-3.9	-1.1	Down
Point Aconi (030)	1976	16	NA	NA	No Trend
Lawrencetown (043)	1978	12	-2.4	-0.7	Down
Durham (045)	1979	23	2.4	0.7	Up
Kentville (048)	1980	15	-1	-0.6	Down
Sydney (050)	1984	14	-5.5	-1	Down
North Grant (054)	1987	7	NA	NA	Insufficient Data
Stillwater (055)	1987	6	NA	NA	Insufficient Data
Sheet Harbour (056)	1987	6	NA	NA	Insufficient Data
Charleston (058)	1988	5	NA	NA	Insufficient Data
Hayden Lake (059)	1988	14	1.2	0.2	Up
Meteghan (060)	1987	8	NA	NA	Insufficient Data
Annapolis Royal (062)	1990	7	NA	NA	Insufficient Data
Hebron (063)	1990	7	NA	NA	Insufficient Data
Margaree (064)	1990	7	NA	NA	Insufficient Data
Ingonish (065)	1990	6	NA	NA	Insufficient Data
Debert (068)	1993	<4	NA	NA	Insufficient Data
Dalem Lake (069)	1992	5	NA	NA	Insufficient Data
Amherst (071)	1993	<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)	2006	<4	NA	NA	Insufficient Data
Atlanta (074)	2008	<4	NA	NA	Insufficient Data
Sheffield Mills (075)	2008	<4	NA	NA	Insufficient Data
Fall River (076)	2008	<4	NA	NA	Insufficient Data
West Northfield (077)	2008	<4	NA	NA	Insufficient Data
Musquodoboit Hbr (078)	2008	<4	NA	NA	Insufficient Data
Lewis Lake (079)	2008	<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 C. The results indicate that seven of the 31 wells exceeded health-based drinking water guidelines. The parameters that exceeded health-based guidelines included: arsenic (at four wells), fluoride (one well), lead (one well), nitrate (one well) and uranium (one well). Most of these exceedances (including arsenic, fluoride and uranium) are associated with naturally-occurring contaminants that are known to occur in groundwater in certain areas of the province due to the presence of naturally-occurring minerals in the soil and bedrock. The nitrate exceedance that was observed at a well which is located in an agricultural area and is likely to be caused by human activity.

Sixteen of the 31 wells exceeded aesthetic drinking water guidelines. The parameters that exceeded aesthetic drinking water guidelines included: manganese (at 12 wells), iron (at seven wells), chloride (at one well), pH (at three wells) and turbidity (at seven wells). The majority of these parameters are

naturally-occurring water quality problems that are commonly encountered in water wells in Nova Scotia and elsewhere. Note that chloride was detected above background levels at three wells, including one well where the chloride level was above the aesthetic drinking water guideline. Based on the chemistry and location of these wells, it is expected that two of these wells have been impacted by road salt and one has been impacted by sea water intrusion.

The water quality results show that none of the observation wells exceeded drinking water guidelines for VOCs or pesticides. However, one VOC (toluene) was detected at one observation well at low levels (i.e., 1 ug/L). The source of the toluene at this well has not been determined; however, the well is located beside a road so it may be due to gasoline runoff from the road. No pesticides were detected in any of the observation wells.

The groundwater temperature data collected at each observation well (see Appendix D) shows that all of the observation wells experience seasonal temperature fluctuations. The peak groundwater temperatures usually occur between September and January and the lowest temperatures usually occur between March and June. The temperature range at each observation well is variable, however, the typical range is between 6^{o}C and 10^{o}C, with a typical average temperature of approximately 8^{o}C.

Of the 17 observation wells that have been tested for tritium, 13 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 before1952). These results suggest that most of the wells draw water from aquifers are 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 in the province to ensure that groundwater is kept clean.

Table 4.2: Summary of Groundwater Quality Results

Well Name	Parameters Exceeding Health-Based Drinking Water Guidelines	Parameters Exceeding Aesthetic Drinking Water Guidelines	Comments
Greenwood (003)	None	pH, Turbidity, Iron, Manganese	None
Fraser Brook (004)	Arsenic	None	None
Wilmot (005)	Nitrate	Turbidity	None
Wolfville (010)	None	Turbidity, Iron, Manganese	Chloride exceeds background
Truro (014)	Not sampled	Not sampled	Not sampled
Monastery (028)	None	None	None
Point Aconi (030)	None	None	None
Lawrencetown (043)	Arsenic	None	Chloride exceeds background
Durham (045)	None	None	None
Kentville (048)	Lead	Chloride, Iron	None
Sydney (050)	None	Manganese	None
North Grant (054)	Arsenic	Turbidity, Iron	None
Stillwater (055)	None	Manganese	None
Sheet Harbour (056)	None	Manganese	Arsenic was detected at a level equal to the guideline (10 ug/L)
Charleston (058)	Not sampled	Not sampled	Not sampled
Hayden Lake (059)	None	pH	None
Meteghan (060)	None	Turbidity, Iron, Manganese,	None
Annapolis Royal (062)	None	Turbidity, Manganese	Toluene detected below guidelines
Hebron (063)	None	Turbidity, Iron, Manganese	None
Margaree (064)	None	None	None

Well Name	Parameters Exceeding Health-Based Drinking Water Guidelines	Parameters Exceeding Aesthetic Drinking Water Guidelines	Comments
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 (075)	None	None	None
Fall River (076)	None	Iron, Manganese, pH	None
West Northfield (077)	None	Manganese	None
Musquodoboit Hbr (078)	None	None	None
Lewis Lake (079)	Arsenic, Fluoride	Manganese	None

Note: Some wells have been sampled multiple times. This table summarizes the most recent sample results.

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APPENDIX A
WELL LOGS

Table A-1: Summary of Observation Well Construction Information

Well#	Address	Community	County	Date	Well Depth (ft)	Casing Depth (ft)	Depth to Bedrock (ft)	Depth to Static Level (ft)	Water Yield (igpm)	Driller	Type of Well
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
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
782683	NS OBS WELL - DURHAM (045)	DURHAM	PICTOU	01-Jul-78	247		20		100	4	DRILLED
832002	NS OBS WELL - DEBERT (068)	DEBERT	COLCHESTER	13-Aug-83	153	26		112	10	6	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
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
870190	NS OBS WELL - CHARLESTON (058)	RIVERSDALE	QUEENS	01-Apr-87	40		20	6		210	DRILLED
891721	NS OBS WELL - HEBRON (063)	DAYTON	YARMOUTH	19-Dec-89	150	40	3		45	210	DRILLED
891722	NS OBS WELL - ANNAPOLIS ROYAL (062)	LAKE LA ROSE	ANNAPOLIS	20-Dec-89	205	80	71		0.5	210	DRILLED
892288	NS OBS WELL - INGONISH (065)	INGONISH	VICTORIA	12-Dec-89	150	40			100	45	DRILLED
902524	NS OBS WELL - MARGAREE (064)	MARGAREE VALLEY	INVERNESS	16-Jan-90	150	40			10	45	DRILLED
943326	NS OBS WELL - DALEM LAKE (069)	NEW DOMINION	VICTORIA	01-Jan-92	200	40.5					DRILLED
862667	NS OBS WELL - AMHERST (071)	AMHERST	CUMBERLAND	29-Jul-86	382	20	15			32	DRILLED
721858	NS OBS WELL - KELLEY RIVER (073)	RIVER HEBERT	CUMBERLAND	01-Dec-71	50	13.6					DRILLED
070613	NS OBS WELL - ATLANTA (074)	ATLANTA	KINGS	29-Aug-07	175	118	112		100	307	DRILLED
070618	NS OBS WELL - SHEFFIELD MILLS (075)	SHEFFIELD MILLS	KINGS	29-Aug-07	175	63	16		60	307	DRILLED
080824	NS OBS WELL - FALL RIVER (076)	FALL RIVER	HALIFAX	28-Feb-08	200	43	3.5	12	1.5	695	DRILLED
080132	NS OBS WELL - WEST NORTHFIELD (077)	WEST NORTHFIELD	LUNENBURG	06-Mar-08	160	42	24		7	307	DRILLED
080861	NS OBS WELL - MUSQUODOBOIT HBR (078)	MUSQUODOBOIT HARBOUR	HALIFAX	06-Mar-08	200	89	81		0.5	734	DRILLED
690090	NS OBS WELL - LEWIS LAKE (079)	LEWIS LAKE	HALIFAX	11-Jun-69	250	25	20		6	3	DRILLED

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 661225
Well Type DRILLED

Certified Well Contractor

Name: MINES
Certificate No.: 1
Company: N. S. DEPARTMENT OF MINES

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF MINES
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - GREENWOOD (003)
Lot Number: Subdivision:
County: KINGS Postal Code:
Nearest Community in Altlas/Map Book: ATLAS GREENWOOD

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 21H2
Reference Map: B
Tract No.: 7
Claim: M

GPS (WGS84 UTM) :
Northing (m): 4985498
Easting (m): 350680
Property (PID):
Well Location Sketch Available ☐

Depth in feet / Primary Lithology / Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	25		FINE GRAINED	SAND		COARSE GRAIN	SAND	☐

Well Construction Information

Total depth below surface (ft): 25
Depth to bedrock (ft):
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): 0 To (ft): 22
Diameter (in): 4.5
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 - GREENWOOD (003)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 20-Jun-66

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 661226
Well Type DRILLED

Certified Well Contractor

Name: MINES
Certificate No.: 1
Company: N. S. DEPARTMENT OF MINES

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF MINES
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - FRASER BROOK (004)
Lot Number: Subdivision:
County: COLCHESTER Postal Code:
Nearest Community in Altlas/Map Book: ATLAS LOWER HARMONY

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 11E6
Reference Map: A
Tract No.: 81
Claim: J

GPS (WGS84 UTM) :
Northing (m): 5021100
Easting (m): 486889
Property (PID):
Well Location Sketch Available ☐

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

Total depth below surface (ft): 60
Depth to bedrock (ft): 2
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): To (ft):
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): 6.5
Method: PUMP TEST
Rate (igpm): 5
Duration (hrs): 24
Depth to water at end of test (ft):
Total drawdown (ft): 29.5
Water level recovered to (ft):
Recovery time (hrs):
Depth to static level (ft):
Overflow ☐

Comments: NS OBSERVATION WELL - FRASER BROOK (004)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 11-Jul-66

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 661267
Well Type DRILLED

Certified Well Contractor

Name: MINES
Certificate No.: 1
Company: N. S. DEPARTMENT OF MINES

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF MINES
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - WILMOT (005)
Lot Number: Subdivision:
County: ANNAPOLIS Postal Code:
Nearest Community in Atlas/Map Book: ATLAS WILMOT

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 21A14
Reference Map: D
Tract No.: 71
Claim: G

GPS (WGS84 UTM) :
Northing (m): 4979368
Easting (m): 340015
Property (PID):
Well Location Sketch Available ☐

Depth in feet	Primary Lithology	Secondary Lithology

Well Construction Information

Total depth below surface (ft): 60
Depth to bedrock (ft):
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): 0 To (ft): 21
Diameter (in): 4.5
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 - 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

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 681252
Well Type DRILLED

Certified Well Contractor

Name: MINES
Certificate No.: 1
Company: N. S. DEPARTMENT OF MINES

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF MINES
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - WOLFVILLE (010)
Lot Number: Subdivision:
County: KINGS Postal Code:
Nearest Community in Altlas/Map Book: ATLAS WOLFVILLE

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 21H1
Reference Map: B
Tract No.: 78
Claim: K

GPS (WGS84 UTM) :
Northing (m): 4993828
Easting (m): 392086
Property (PID):
Well Location Sketch Available ☐

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

Total depth below surface (ft): 79
Depth to bedrock (ft): 35
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): To (ft): 75
Diameter (in): 4.5
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 - WOLFVILLE (010)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 17-Dec-68

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 701431
Well Type DRILLED

Certified Well Contractor

Name: MINES
Certificate No.: 1
Company: N. S. DEPARTMENT OF MINES

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF MINES
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - TRURO (014)
Lot Number: Subdivision:
County: COLCHESTER Postal Code:
Nearest Community in Altlas/Map Book: ATLAS TRURO

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 11E6
Reference Map: B
Tract No.: 99
Claim: F

GPS (WGS84 UTM) :
Northing (m): 5023778
Easting (m): 476052
Property (PID):
Well Location Sketch Available ☐

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				☐
20	35			GLACIAL TILL				☐
35	300			SHALE		SEAM	SANSTONE	☐

Well Construction Information

Total depth below surface (ft): 300
Depth to bedrock (ft): 35
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): 0 To (ft): 60
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 - TRURO (014)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 16-Nov-70

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 742420
Well Type DRILLED

Certified Well Contractor

Name: MINES
Certificate No.: 1
Company: N. S. DEPARTMENT OF MINES

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF MINES
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - MONASTERY (028)
Lot Number: Subdivision:
County: ANTIGONISH Postal Code:
Nearest Community in Altlas/Map Book: ATLAS MONASTERY

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 11F12
Reference Map: A
Tract No.: 91
Claim:

GPS (WGS84 UTM) :
Northing (m): 5052489
Easting (m): 606083
Property (PID):
Well Location Sketch Available ☐

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				☐
1	520			SANDSTONE			SHALE & CONGLOM	☐

Well Construction Information

Total depth below surface (ft): 520
Depth to bedrock (ft):
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): To (ft):
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): 67
Method:
Rate (igpm): 40
Duration (hrs): 50
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 - MONASTERY (028)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 01-Jan-74

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 761408

Well Type DRILLED

Certified Well Contractor

Name: MCDONALD, IAN

Certificate No.: 45

Company: ISLAND WELL DRILLERS

Well Owner/Contractor Information

Well Drilled For: Owner: CAPE BRETON DEVELOPMEN

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - POINT ACONI (030)

Lot Number: Subdivision:

County: CAPE BRETON Postal Code:

Nearest Community in Altlas/Map Book: ATLAS POINT ACONI

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: MAP

Map Page No.: 43

Reference Letter: A

Reference Number: 1

Roamer Letter: O

Roamer Number: 13

NTS Map Reference :

Map Sheet: 11K8

Reference Map: B

Tract No.: 70

Claim:

GPS (WGS84 UTM) :

Northing (m): 5133152

Easting (m): 707986

Property (PID):

Well Location Sketch Available ☐

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				☐
14	100			SANDSTONE				☐

Well Construction Information

Total depth below surface (ft): 100

Depth to bedrock (ft): 14

Water bearing fractures encountered at (ft): 70

Outer Well Casing:

From (ft): 6 To (ft): 42

Diameter (in): 6

Length of casing above ground :

(ft): (in):

Driveshoe make: UNKNOWN

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): 10

Method: PUMPED

Rate (igpm): 10

Duration (hrs): 1

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 - POINT ACONI (030)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling: ROTARY

Date well completed: 11-Aug-76

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 771538

Well Type DRILLED

Certified Well Contractor

Name: EDWARDS, HARRY A.

Certificate No.: 83

Company: H. J. EDWARDS WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - LAWRENCETOWN (043)

Lot Number: Subdivision:

County: HALIFAX Postal Code:

Nearest Community in Altlas/Map Book: ATLAS UPPER LAWRENCETOWN

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: MAP

Map Page No.: 24

Reference Letter: D

Reference Number: 3

Roamer Letter: N

Roamer Number: 11

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

GPS (WGS84 UTM) :

Northing (m): 4947712

Easting (m): 464172

Property (PID):

Well Location Sketch Available ☐

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				☐
5	12			BOULDER & ROCK				☐
12	152	GRAY		QUARTZITE			SLATE	☐
152	165	DARK GRA		SLATE		QUARTZ VEINS		☑
165	174	GREENISH		QUARTZITE			SLATE	☐

Well Construction Information

Total depth below surface (ft): 175

Depth to bedrock (ft): 10

Water bearing fractures encountered at (ft): 152, 155

Outer Well Casing:

From (ft): 0 To (ft): 145

Diameter (in): 6

Length of casing above ground :

(ft): (in):

Driveshoe make: UNKNOWN

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): 14.5

Method:

Rate (igpm): 8

Duration (hrs): 1.5

Depth to water at end of test (ft):

Total drawdown (ft):

Water level recovered to (ft):

Recovery time (hrs):

Depth to static level (ft): 4

Overflow ☐

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

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 782683
Well Type DRILLED

Certified Well Contractor

Name: STEWART, EDMUND
Certificate No.: 4
Company: E. D. STEWART LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - DURHAM (045)
Lot Number: Subdivision:
County: PICTOU Postal Code:
Nearest Community in Altlas/Map Book: ATLAS DURHAM

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 11E10
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 5052105
Easting (m): 516224
Property (PID):
Well Location Sketch Available ☐

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				☐
20	247	RED		SANDSTONE & SHALE	GRAY		SANDSTONE & SHA	☐

Well Construction Information

Total depth below surface (ft): 247
Depth to bedrock (ft): 20
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): To (ft):
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): 100
Method: PUMPED
Rate (igpm): 100
Duration (hrs): 72
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 - DURHAM (045)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 01-Jul-78

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 772021
Well Type DRILLED

Certified Well Contractor

Name: HOPPER, RUSSELL
Certificate No.: 20
Company: HOPPER BROS. LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF DEVELOPMENT
or Contractor/Builder/Consultant, etc.: CBCL
Civic Address of Well: NS OBS WELL - KENTVILLE (048)
Lot Number: Subdivision:
County: KINGS Postal Code:
Nearest Community in Altlas/Map Book: ATLAS KENTVILLE

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.:
Reference Letter:
Reference Number:
Roamer Letter:
Roamer Number:

NTS Map Reference :
Map Sheet: 21A2
Reference Map: A
Tract No.: 71
Claim:

GPS (WGS84 UTM) :
Northing (m): 4992245
Easting (m): 377628
Property (PID):
Well Location Sketch Available ☐

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	55		FINE GRAINED	SAND		MEDIUM GRAINE	SAND	☐
55	60		MEDIUM GRAIN	SAND		COARSE GRAIN	SAND	☐
60	95			GRAVEL				☑
95	380	GRAY		SANDSTONE		INTERBEDDED	SHALE	☑
380	400	BROWN	ARGILLACEOU	METASEDIMENT	PURPLE			☐

Well Construction Information

Total depth below surface (ft): 400
Depth to bedrock (ft): 95
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): 0 To (ft): 100
Diameter (in): 8
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): 150
Method: PUMPED
Rate (igpm): 150
Duration (hrs): 72
Depth to water at end of test (ft): 122
Total drawdown (ft): 140
Water level recovered to (ft):
Recovery time (hrs):
Depth to static level (ft):
Overflow ☐

Comments: NS OBSERVATION WELL - KENTVILLE (048)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 20-May-77

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 771077

Well Type DRILLED

Certified Well Contractor

Name: MCDONALD, IAN

Certificate No.: 45

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 - SYDNEY (050)

Lot Number: Subdivision:

County: CAPE BRETON Postal Code:

Nearest Community in Altlas/Map Book: ATLAS SYDNEY

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: MAP

Map Page No.: 24

Reference Letter: A

Reference Number: 5

Roamer Letter: J

Roamer Number: 13

NTS Map Reference :

Map Sheet: 11K1

Reference Map: A

Tract No.: 66

Claim:

GPS (WGS84 UTM) :

Northing (m): 5106450

Easting (m): 720589

Property (PID):

Well Location Sketch Available ☐

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	13			BOULDER & GRAVEL				☐
13	330			COAL &SHALE & SANDS				☐

Well Construction Information

Total depth below surface (ft): 330

Depth to bedrock (ft): 13

Water bearing fractures encountered at (ft):

63

Outer Well Casing:

From (ft): 6 To (ft): 22

Diameter (in): 6

Length of casing above ground :

(ft): (in):

Driveshoe make: UNKNOWN

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): 250

Method: PUMPED

Rate (igpm): 250

Duration (hrs): 1

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 - SYDNEY (050)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling: ROTARY

Date well completed: 09-Mar-77

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 871262

Well Type DRILLED

Certified Well Contractor

Name: CHISHOLM, WAYNE

Certificate No.: 2

Company: G. W. REID WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - NORTH GRANT (054)

Lot Number: Subdivision:

County: ANTIGONISH Postal Code:

Nearest Community in Altlas/Map Book: LOWER NORTH GRANT

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book:

Map Page No.: 29

Reference Letter: C

Reference Number: 4

Roamer Letter: M

Roamer Number: 12

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

GPS (WGS84 UTM) :

Northing (m): 5055139

Easting (m): 576403

Property (PID):

Well Location Sketch Available ☐

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				☐
34	150			SHALE			SLATE	☐

Well Construction Information

Total depth below surface (ft): 150

Depth to bedrock (ft):

Water bearing fractures encountered at (ft):

Outer Well Casing:

From (ft): To (ft): 43

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: AIR LIFT

Rate (igpm): 20

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): 14

Overflow ☐

Comments: NS OBSERVATION WELL NORTH GRANT (054)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: OTHER

Method of drilling:

Date well completed: 30-Mar-87

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 871263

Well Type DRILLED

Certified Well Contractor

Name: CHISHOLM, WAYNE

Certificate No.: 2

Company: G. W. REID WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - STILLWATER (055)

Lot Number: Subdivision:

County: GUYSBOROUGH Postal Code:

Nearest Community in Altlas/Map Book: STILLWATER

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book:

Map Page No.: 30

Reference Letter: C

Reference Number: 4

Roamer Letter: P

Roamer Number: 12

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

GPS (WGS84 UTM) :

Northing (m): 5004212

Easting (m): 579938

Property (PID):

Well Location Sketch Available ☐

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	☐
24	38			ROCK				☐
38	118			BEDROCK				☐

Well Construction Information

Total depth below surface (ft): 118

Depth to bedrock (ft):

Water bearing fractures encountered at (ft):

Outer Well Casing:

From (ft): To (ft): 44

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: AIR LIFT

Rate (igpm): 4.5

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): 30

Overflow ☐

Comments: NS OBSERVATION WELL STILLWATER (055)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling:

Date well completed: 01-Apr-87

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 871264

Well Type DRILLED

Certified Well Contractor

Name: CHISHOLM, WAYNE

Certificate No.: 2

Company: G. W. REID WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - SHEET HARBOUR (056)

Lot Number: Subdivision:

County: HALIFAX Postal Code:

Nearest Community in Altlas/Map Book: BEAVER HARBOUR

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book:

Map Page No.: 28

Reference Letter: E

Reference Number: 2

Roamer Letter: H

Roamer Number: 14

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

GPS (WGS84 UTM) :

Northing (m): 4972468

Easting (m): 543176

Property (PID):

Well Location Sketch Available ☐

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

Total depth below surface (ft): 150

Depth to bedrock (ft):

Water bearing fractures encountered at (ft):

Outer Well Casing:

From (ft): To (ft): 23

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: AIR LIFT

Rate (igpm): 0.7

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): 10

Overflow ☐

Comments: NS OBSERVATION WELL SHEET HARBOUR (056)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: OTHER

Method of drilling:

Date well completed: 06-Apr-87

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 870190
Well Type DRILLED

Certified Well Contractor

Name: MOWAT, DONALD
Certificate No.: 210
Company: MOWAT'S WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - CHARLESTON (058)
Lot Number: Subdivision:
County: QUEENS Postal Code:
Nearest Community in Altlas/Map Book: ATLAS RIVERSDALE

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book: MAP
Map Page No.: 15
Reference Letter: B
Reference Number: 5
Roamer Letter: M
Roamer Number: 12

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 4894476
Easting (m): 366778
Property (PID):
Well Location Sketch Available ☐

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	☐
20	40			SLATE			GRANITE	☐

Well Construction Information

Total depth below surface (ft): 40
Depth to bedrock (ft): 20
Water bearing fractures encountered at (ft): 19, 35
Outer Well Casing:
From (ft): To (ft):
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: AIR LIFT
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): 6
Overflow ☐

Comments: NS OBSERVATION WELL - CHARLESTON (058)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 01-Apr-87

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 870189

Well Type DRILLED

Certified Well Contractor

Name: MOWAT, DONALD

Certificate No.: 210

Company: MOWAT'S WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - HAYDEN LAKE (059)

Lot Number: Subdivision:

County: SHELBURNE Postal Code:

Nearest Community in Altlas/Map Book: ATLAS EAST JORDAN

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: MAP

Map Page No.: 10

Reference Letter: C

Reference Number: 5

Roamer Letter: G

Roamer Number: 7

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

GPS (WGS84 UTM) :

Northing (m): 4849195

Easting (m): 321365

Property (PID):

Well Location Sketch Available ☐

Depth in feet / Primary Lithology / Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	10			CLAY			BOULDER	☐
10	160			GREYWACKE				☐

Well Construction Information

Total depth below surface (ft): 160

Depth to bedrock (ft): 10

Water bearing fractures encountered at (ft): 30

Outer Well Casing:

From (ft): 0 To (ft): 20

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): 3.7

Method: AIR LIFT

Rate (igpm): 3.7

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 - HAYDEN LAKE (059)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling:

Date well completed: 31-Mar-87

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 870188
Well Type DRILLED

Certified Well Contractor

Name: MOWAT, DONALD
Certificate No.: 210
Company: MOWAT'S WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - METEGHAN (060)
Lot Number: Subdivision:
County: DIGBY Postal Code:
Nearest Community in Atlas/Map Book: METEGHAN RIVER

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.: 4
Reference Letter: A
Reference Number: 4
Roamer Letter: F
Roamer Number: 16

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 4900628
Easting (m): 250890
Property (PID):
Well Location Sketch Available ☐

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	4			GRAVEL				☐
4	200			SLATE				☐

Well Construction Information

Total depth below surface (ft): 200
Depth to bedrock (ft):
Water bearing fractures encountered at (ft): 90, 180
Outer Well Casing:
From (ft): To (ft): 40
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: AIR LIFT
Rate (igpm): 0.7
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 METEGHAN (060)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 31-Mar-87

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 891722
Well Type DRILLED

Certified Well Contractor

Name: MOWAT, DONALD
Certificate No.: 210
Company: MOWAT'S WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - ANNAPOLIS ROYAL (062)
Lot Number: Subdivision:
County: ANNAPOLIS Postal Code:
Nearest Community in Altlas/Map Book: ATLAS LAKE LA ROSE

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book: MAP
Map Page No.: 8
Reference Letter: A
Reference Number: 4
Roamer Letter: H
Roamer Number: 14

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 4952588
Easting (m): 303029
Property (PID):
Well Location Sketch Available ☐

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	71			CLAY			BOULDER	☐
71	205			GRANITE				☐

Well Construction Information

Total depth below surface (ft): 205
Depth to bedrock (ft): 71
Water bearing fractures encountered at (ft): 120
Outer Well Casing:
From (ft): 0 To (ft): 80
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): 0.5
Method: AIR LIFT
Rate (igpm): 0.5
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 - ANNAPOLIS ROYAL (062)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 20-Dec-89

NOVA SCOTIA
Environment and Labour

Well Report

(Summary Log)

NSEL Well No. 891721
Well Type DRILLED

Certified Well Contractor

Name: MOWAT, DONALD
Certificate No.: 210
Company: MOWAT'S WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - HEBRON (063)
Lot Number: Subdivision:
County: YARMOUTH Postal Code:
Nearest Community in Altlas/Map Book: ATLAS DAYTON

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book: MAP
Map Page No.: 5
Reference Letter: A
Reference Number: 3
Roamer Letter: F
Roamer Number: 14

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 4862322
Easting (m): 250697
Property (PID):
Well Location Sketch Available ☐

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				☐
3	140			SLATE				☐
140	144			QUARTZITE				☐
144	150			SHALE				☐

Well Construction Information

Total depth below surface (ft): 150
Depth to bedrock (ft): 3
Water bearing fractures encountered at (ft): 57, 150
Outer Well Casing:
From (ft): 0 To (ft): 40
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): 45
Method: AIR LIFT
Rate (igpm): 45
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 - HEBRON (063)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use: MONITORING
Method of drilling:
Date well completed: 19-Dec-89

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 902524
Well Type DRILLED

Certified Well Contractor

Name: MCDONALD, IAN
Certificate No.: 45
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 - MARGAREE (064)
Lot Number: Subdivision:
County: INVERNESS Postal Code:
Nearest Community in Atlas/Map Book: MARGAREE VALLEY

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.: 38
Reference Letter: A
Reference Number: 1
Roamer Letter: L
Roamer Number: 12

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 5137031
Easting (m): 655717
Property (PID):
Well Location Sketch Available ☐

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	9			GRAVEL			TILL	☐
9	150			CONGLOMERATE				☐

Well Construction Information

Total depth below surface (ft): 150
Depth to bedrock (ft):
Water bearing fractures encountered at (ft):
Outer Well Casing:
From (ft): To (ft): 40
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: AIR LIFT
Rate (igpm): 10
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: NOFRACTUREINCREASEDFR80'- NS OBSERVATION WELL MARGAREE (064)

Well Status/Water Use/Date Completed

Final status of well:
Water use:
Method of drilling:
Date well completed: 16-Jan-90

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 892288
Well Type DRILLED

Certified Well Contractor

Name: MCDONALD, IAN
Certificate No.: 45
Company: ISLAND WELL DRILLERS

Well Owner/Contractor Information

Well Drilled For: Owner: DEPT. OF ENVIRONMENT
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - INGONISH (065)
Lot Number: Subdivision:
County: VICTORIA Postal Code:
Nearest Community in Altlas/Map Book: INGONISH

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book:
Map Page No.: 42
Reference Letter: A
Reference Number: 2
Roamer Letter: F
Roamer Number: 10

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 5170473
Easting (m): 698083
Property (PID):
Well Location Sketch Available ☐

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	☐
30	33			GRANITE				☐
33	150			GRANITE				☐

Well Construction Information

Total depth below surface (ft): 150
Depth to bedrock (ft):
Water bearing fractures encountered at (ft): 44, 149
Outer Well Casing:
From (ft): To (ft): 40
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: AIR LIFT
Rate (igpm): 100
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 INGONISH (065)

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL
Water use:
Method of drilling:
Date well completed: 12-Dec-89

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 832002

Well Type DRILLED

Certified Well Contractor

Name: JOHNSON, GREGORY I.

Certificate No.: 6

Company: HUB WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: PHILLIP BARLEY

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - DEBERT (068)

Lot Number: Subdivision:

County: COLCHESTER Postal Code:

Nearest Community in Altlas/Map Book: DEBERT

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book:

Map Page No.:

Reference Letter:

Reference Number:

Roamer Letter:

Roamer Number:

NTS Map Reference :

Map Sheet: 11E6

Reference Map: C

Tract No.: 60

Claim:

GPS (WGS84 UTM) :

Northing (m): 5028483

Easting (m): 466921

Property (PID):

Well Location Sketch Available ☐

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	☐
18	153			CONGLOMERATE				☐

Well Construction Information

Total depth below surface (ft): 153

Depth to bedrock (ft):

Water bearing fractures encountered at (ft): 112

Outer Well Casing:

From (ft): To (ft): 26

Diameter (in): 4

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): 10

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): 112

Overflow ☐

Comments: NS OBSERVATION WELL DEBERT (068)

Well Status/Water Use/Date Completed

Final status of well: WATER SUPPLY WELL

Water use: DOMESTIC

Method of drilling:

Date well completed: 13-Aug-83

NOVA SCOTIA
Environment

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

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 862667

Well Type DRILLED

Certified Well Contractor		Well Owner/Contractor Information	
Name	CHAPPELL, WALTER	Well Drilled For: Owner	TOWN OF AMHERST
Certificate No.	32	or Contractor/Builder/Consultant, etc.	
Company	WALTER CHAPPELL WELL DRILLING LTD.	Civic Address of Well	NS OBS WELL - AMHERST (071)
		Lot Number / Subdivision	/
		County / Postal Code	CUMBERLAND /
		Nearest Community in Altlas/Map Book	ATLAS / AMHERST

Well Location

NS Atlas or Map Book Reference :		NTS Map Reference :		GPS (WGS84 UTM) :	
Atlas or Map Book	MAP	Map Sheet		Northing (m)	5079213
Map Page No.	18	Reference Map		Easting (m)	411279
Reference Letter	B	Tract No.		Property (PID)	
Reference Number	2	Claim		Well Location Sketch Available	☐
Roamer Letter	G				
Roamer Number	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				☐
15	45			SANDSTONE				☐
45	101	REDDISH		SHALE	BROWN			☐
101	109	BROWN	FINE GRAINED	SANDSTONE				☐
109	114	REDDISH	FINE GRAINED					☐
114	124	REDDISH	FINE GRAINED	SANDSTONE		MEDIUM GRAINE		☐
124	127	BROWN	FINE GRAINED	SHALE				☐
127	130			SHALE			SANDSTONE	☐
130	157	REDDISH	MEDIUM GRAIN	SANDSTONE	RED	COARSE GRAINE		☐
157	161	GRAYISH	MEDIUM GRAIN	SANDSTONE		COARSE GRAINE		☐
161	165	REDDISH		SHALE	BROWN			☐
165	166	BROWN		MUDSTONE				☐
166	196	GRAYISH	MEDIUM GRAIN	SANDSTONE				☐
196	198	REDDISH		SHALE			SANDSTONE	☐
198	202	REDDISH		SILTSTONE				☐
202	206	BROWN		SHALE				☐
206	211	BROWN		SILTSTONE				☐
211	227	BROWN		SILTSTONE			SHALE	☐
227	235	REDDISH		SHALE				☐
235	258	BROWN		SILTSTONE	GREENIS			☐
258	262	REDDISH	MEDIUM GRAIN	SANDSTONE				☐
262	263	REDDISH		SHALE				☐
263	277	REDDISH	MEDIUM GRAIN	SANDSTONE				☐
277	281	REDDISH		SHALE				☐
281	294	BROWN		SILTSTONE				☐
294	296	BROWN		SHALE				☐
296	358	BROWN	FINE GRAINED	SILTSTONE			SHALE	☐
358	370	REDDISH		SANDSTONE				☐
370	378	GRAYISH		SANDSTONE				☐
378	382	BROWN		SILTSTONE				☐

Well Construction Information

Total depth below surface (ft): 382

Depth to bedrock (ft): 15

Water bearing fractures encountered at (ft):

140

Outer Well Casing:

From (ft): 0 To (ft): 20

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 - AMHERST (071)

Well Status/Water Use/Date Completed

Final status of well: TEST HOLE

Water use: MONITORING

Method of drilling

Date well completed: 29-Jul-86

NOVA SCOTIA
Environment

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 Altlas/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

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 070613
Well Type DRILLED

Certified Well Contractor

Name: ROGERS, KIRK
Certificate No.: 307
Company: K. D. ROGERS WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT &
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - ATLANTA (074)
Lot Number: Subdivision:
County: KINGS Postal Code: B0P 1H0
Nearest Community in Altlas/Map Book: ATLAS ATLANTA

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book: ATLAS
Map Page No.: 46
Reference Letter: Z
Reference Number: 2
Roamer Letter: H
Roamer Number: 6

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 5000758
Easting (m): 381956
Property (PID): 55045942
Well Location Sketch Available: ☑

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				☑
112	175			SANDSTONE				☑

Well Construction Information

Total depth below surface (ft): 175
Depth to bedrock (ft): 112
Water bearing fractures encountered at (ft): 115 175
Outer Well Casing:
From (ft): 0 To (ft): 118
Diameter (in): 6
Length of casing above ground :
(ft): 4 (in):
Driveshoe make: MEDIUM

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: AIR LIFT
Rate (igpm): 100
Duration (hrs): 1
Depth to water at end of test (ft):
Total drawdown (ft):
Water level recovered to (ft): 10
Recovery time (hrs): 24
Depth to static level (ft):
Overflow: ☐

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

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 070618
Well Type DRILLED

Certified Well Contractor

Name: ROGERS, KIRK
Certificate No.: 307
Company: K. D. ROGERS WELL DRILLING LTD.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT &
or Contractor/Builder/Consultant, etc.:
Civic Address of Well: NS OBS WELL - SHEFFIELD MILLS (075)
Lot Number: Subdivision:
County: KINGS Postal Code: B0P 1H0
Nearest Community in Altlas/Map Book: ATLAS SHEFFIELD MILLS

Well Location

NS Atlas or Map Book Reference :
Atlas or Map Book: ATLAS
Map Page No.: 47
Reference Letter: V
Reference Number: 2
Roamer Letter: D
Roamer Number: 6

NTS Map Reference :
Map Sheet:
Reference Map:
Tract No.:
Claim:

GPS (WGS84 UTM) :
Northing (m): 5000590
Easting (m): 384693
Property (PID): 55301667
Well Location Sketch Available: ☑

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				☐
16	175			SANDSTONE				☑

Well Construction Information

Total depth below surface (ft): 175
Depth to bedrock (ft): 16
Water bearing fractures encountered at (ft): 60, 175
Outer Well Casing:
From (ft): 0 To (ft): 63
Diameter (in): 6
Length of casing above ground :
(ft): 4 (in):
Driveshoe make: MEDIUM

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: AIR LIFT
Rate (igpm): 60
Duration (hrs): 1
Depth to water at end of test (ft):
Total drawdown (ft):
Water level recovered to (ft): 20
Recovery time (hrs): 24
Depth to static level (ft):
Overflow: ☐

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

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 080824

Well Type DRILLED

Certified Well Contractor

Name: JACOBS, BYRON

Certificate No.: 695

Company: BLUENOSE WELL DRILLING

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT &

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - FALL RIVER (076); TAMARACK DRIVE

Lot Number: 65 Subdivision:

County: HALIFAX Postal Code:

Nearest Community in Altlas/Map Book: ATLAS FALL RIVER

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: ATLAS

Map Page No.: 58

Reference Letter: Y

Reference Number: 4

Roamer Letter: F

Roamer Number: 5

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

Well Construction Sketch Available: ☑

GPS (WGS84 UTM) :

Northing (m): 4962226

Easting (m): 450243

Estimated GPS Accuracy (m, +/-): 50

Property (PID): 40372922

Well Location Sketch Available: ☑

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	4							☐
4	200			SLATE				☐

Well Construction Information

Total depth below surface (ft): 200

Depth to bedrock (ft): 3.5

Water bearing fractures encountered at (ft): 18, 41, 102

Outer Well Casing:

From (ft): 0 To (ft): 43

Diameter (in): 6

Length of casing above ground :

(ft): 1 (in):

Driveshoe make: HEAVY WALL

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: AIR LIFT

Rate (igpm): 1.5

Duration (hrs): 1

Depth to water at end of test (ft): 195

Total drawdown (ft):

Water level recovered to (ft):

Recovery time (hrs):

Depth to static level (ft): 12

Overflow: ☐

Comments : NS OBS WELL - FALL RIVER (076); WB FRACT 18' 5 GPM, 41' 0.5 GPM, 102' 1 GPM. WELL LOC SKETCH: NEAR BALLFIELD OFF TALISMAN DR. WELL SKETCH SHOWS 8.75" HOLE FOR CASING, 6" BOREHOLE, BENTONITE SEAL ABOVE DRIVE SHOE. LOT FROM POL.

ADDRESS TAMARACK DRIVE (POL), TALISMAN DRIVE (LOG).

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling: ROTARY

Date well completed: 28-Feb-08

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 080132

Well Type DRILLED

Certified Well Contractor

Name: ROGERS, KIRK

Certificate No.: 307

Company: K. D. ROGERS WELL DRILLING

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT &

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - WEST NORTHFIELD (077); BRUHM ROAD

Lot Number: Subdivision:

County: LUNENBURG Postal Code: B4V 2W1

Nearest Community in Altlas/Map Book: ATLAS WEST NORTHFIELD

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: ATLAS

Map Page No.: 73

Reference Letter: Z

Reference Number: 2

Roamer Letter: A

Roamer Number: 1

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

Well Construction Sketch Available ☐

GPS (WGS84 UTM) :

Northing (m): 4922807

Easting (m): 373416

Estimated GPS Accuracy (m, +/-): 50

Property (PID): 60200029

Well Location Sketch Available ☐

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	10							☐
10	24			SAND & SILT				☑
24	160			SLATE				☑

Well Construction Information

Total depth below surface (ft): 160

Depth to bedrock (ft): 24

Water bearing fractures encountered at (ft): 124

Outer Well Casing:

From (ft): 0 To (ft): 42

Diameter (in): 6

Length of casing above ground :

(ft): 3 (in):

Driveshoe make: MEDIUM

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: AIR LIFT

Rate (igpm): 7

Duration (hrs): 1

Depth to water at end of test (ft):

Total drawdown (ft):

Water level recovered to (ft): 32

Recovery time (hrs): 1

Depth to static level (ft):

Overflow ☐

Comments : NS OBS WELL - WEST NORTHFIELD (077); DIST TO OFF-SITE SEPTIC: 100+ FT. ADDRESS HWY #10 (POL), BRUHM RD (LOG).

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling: ROTARY

Date well completed: 06-Mar-08

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 080861

Well Type DRILLED

Certified Well Contractor

Name: JACOBS, LARRY

Certificate No.: 734

Company: BLUENOSE WELL DRILLING

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF ENVIRONMENT &

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - MUSQUODOBOIT HBR (078); 104 PARK RD

Lot Number: Subdivision: DALE BENNETT PARK

County: HALIFAX Postal Code:

Nearest Community in Altlas/Map Book: ATLAS MUSQUODOBOIT HARBOUR

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: ATLAS

Map Page No.: 59

Reference Letter: Y

Reference Number: 5

Roamer Letter: D

Roamer Number: 1

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

Well Construction Sketch Available: ☑

GPS (WGS84 UTM) :

Northing (m): 4959880

Easting (m): 488125

Estimated GPS Accuracy (m, +/-): 50

Property (PID): 40591471

Well Location Sketch Available: ☑

Depth in feet | Primary Lithology | Secondary Lithology

From	To	Colour 1	Description 1	Lithology 1	Colour 2	Description 2	Lithology 2	Water Found
0	66							☐
66	81		COARSE GRAIN	SAND				☑
81	200			SEE COMMENTS				☐

Well Construction Information

Total depth below surface (ft): 200

Depth to bedrock (ft): 81

Water bearing fractures encountered at (ft): 66, 81, 95

Outer Well Casing:

From (ft): 0 To (ft): 89

Diameter (in): 6

Length of casing above ground :

(ft): 1 (in):

Driveshoe make: HEAVY WALL

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: AIR LIFT

Rate (igpm): 0.5

Duration (hrs): 1

Depth to water at end of test (ft): 195

Total drawdown (ft):

Water level recovered to (ft):

Recovery time (hrs):

Depth to static level (ft):

Overflow: ☐

Comments : NS OBS WELL - MUSQUODOBOIT HBR (078); WB FRACT 66-81, 95 FT. WELL SKETCH: CASED OFF SAND WITH COBBLES WITH 200 GPM; BENTONITE SEAL ABOVE DRIVE SHOE; 6" BOREHOLE BELOW CASING. WELL LOC SKETCH: WELL NEAR PARKING LOT. STRAT: 81-200 FT NOT GIVEN.

CIVIC & ADDRESS FROM POL.

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling: ROTARY

Date well completed: 06-Mar-08

NOVA SCOTIA
Environment

Well Report

(Summary Log)

NSE Well No. 690090

Well Type DRILLED

Certified Well Contractor

Name: BOWMASTER

Certificate No.: 3

Company: WILLIAM BOWMASTER, SR.

Well Owner/Contractor Information

Well Drilled For: Owner: NS DEPT. OF LANDS & FORES

or Contractor/Builder/Consultant, etc.:

Civic Address of Well: NS OBS WELL - LEWIS LAKE (079)

Lot Number: Subdivision:

County: HALIFAX Postal Code:

Nearest Community in Altlas/Map Book: LEWIS LAKE

Well Location

NS Atlas or Map Book Reference :

Atlas or Map Book: MAP

Map Page No.: 20

Reference Letter: D

Reference Number: 5

Roamer Letter: H

Roamer Number: 8

NTS Map Reference :

Map Sheet:

Reference Map:

Tract No.:

Claim:

Well Construction Sketch Available ☐

GPS (WGS84 UTM) :

Northing (m): 4948873

Easting (m): 433048

Estimated GPS Accuracy (m, +/-): 50

Property (PID):

Well Location Sketch Available ☐

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							☐
20	250			GRANITE				☐

Well Construction Information

Total depth below surface (ft): 250

Depth to bedrock (ft): 20

Water bearing fractures encountered at (ft): 240, 250

Outer Well Casing:

From (ft): 6 To (ft): 25

Diameter (in): 6

Length of casing above ground :

(ft): (in):

Driveshoe make: UNKNOWN

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): 6

Duration (hrs): 1.5

Depth to water at end of test (ft): 27

Total drawdown (ft):

Water level recovered to (ft):

Recovery time (hrs):

Depth to static level (ft):

Overflow ☐

Comments : NS OBS WELL - LEWIS LAKE (079) FORMER PARK WATER SUPPLY WELL; CONVERTED TO OBSERVATION WELL IN 2008.

Well Status/Water Use/Date Completed

Final status of well: OBSERVATION WELL

Water use: MONITORING

Method of drilling: ROTARY

Date well completed: 11-Jun-69

APPENDIX B
GROUNDWATER LEVEL GRAPHS

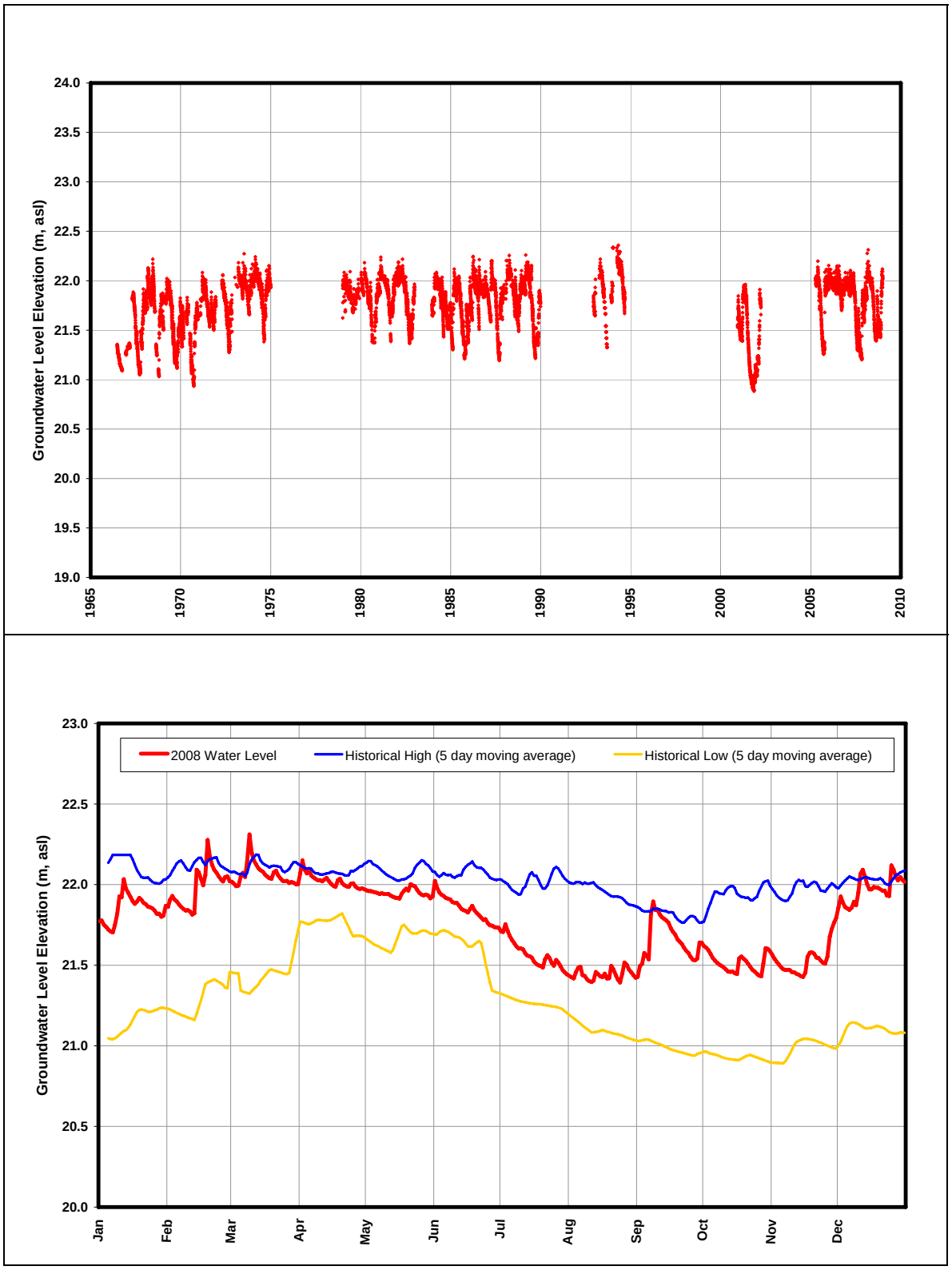

Figure B.1: Greenwood (003) Historical and 2008 Groundwater Level Elevations

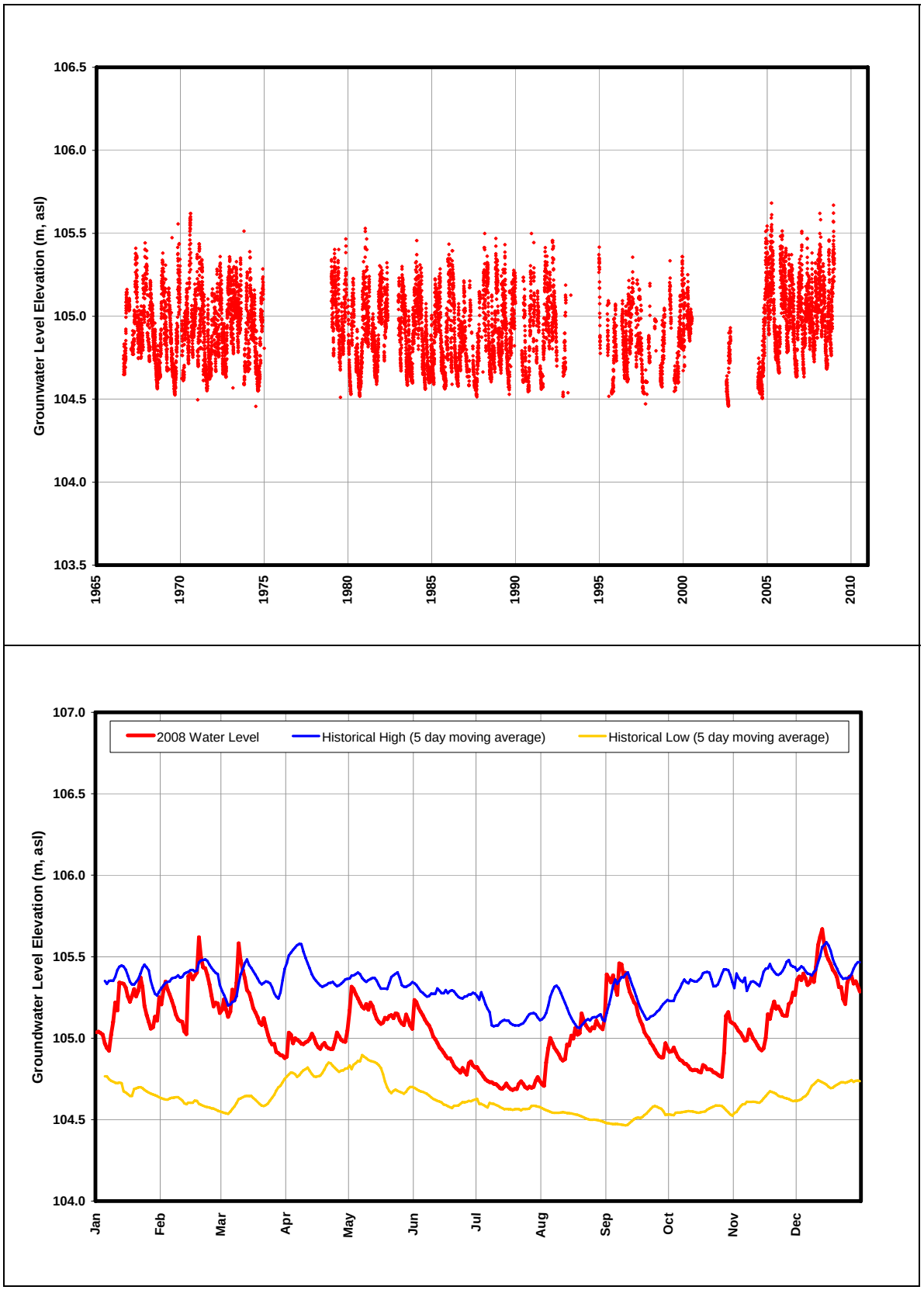

Figure B.2: Fraser Brook (004) Historical and 2008 Groundwater Level Elevations

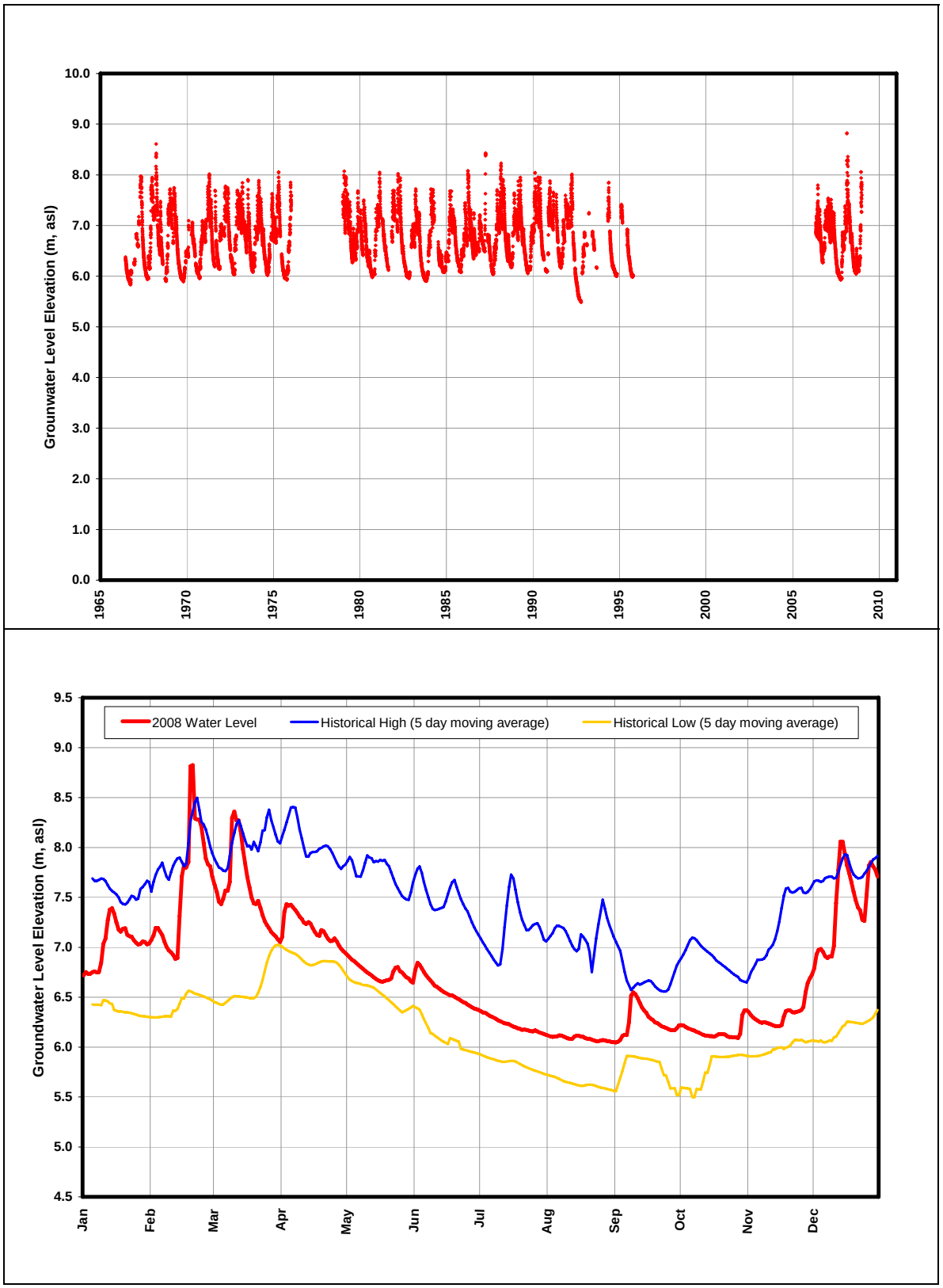

Figure B.3: Wilmot (005) Historical and 2008 Groundwater Level Elevations

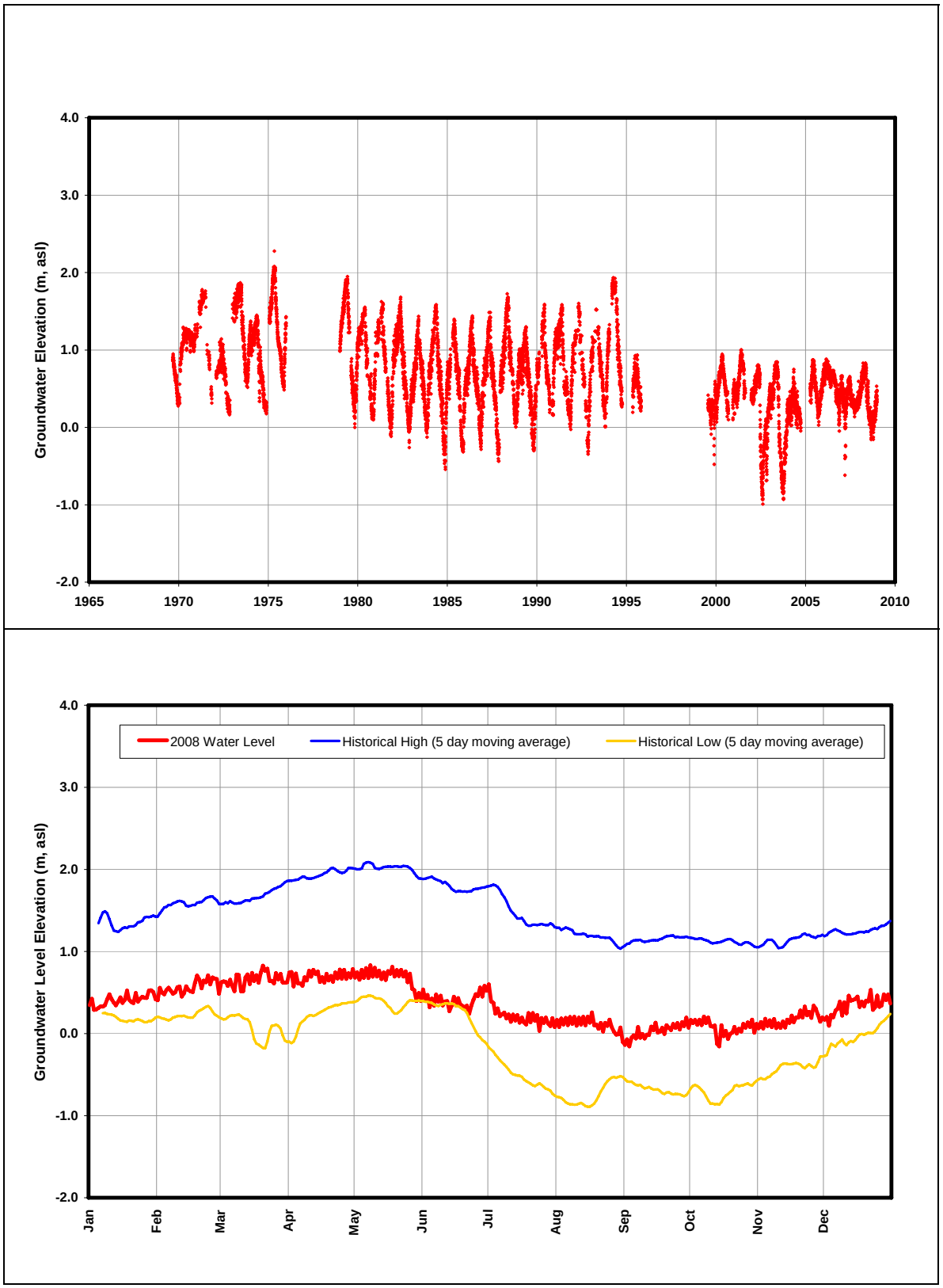

Figure B.4: Wolfville (010) Historical and 2008 Groundwater Level Elevations

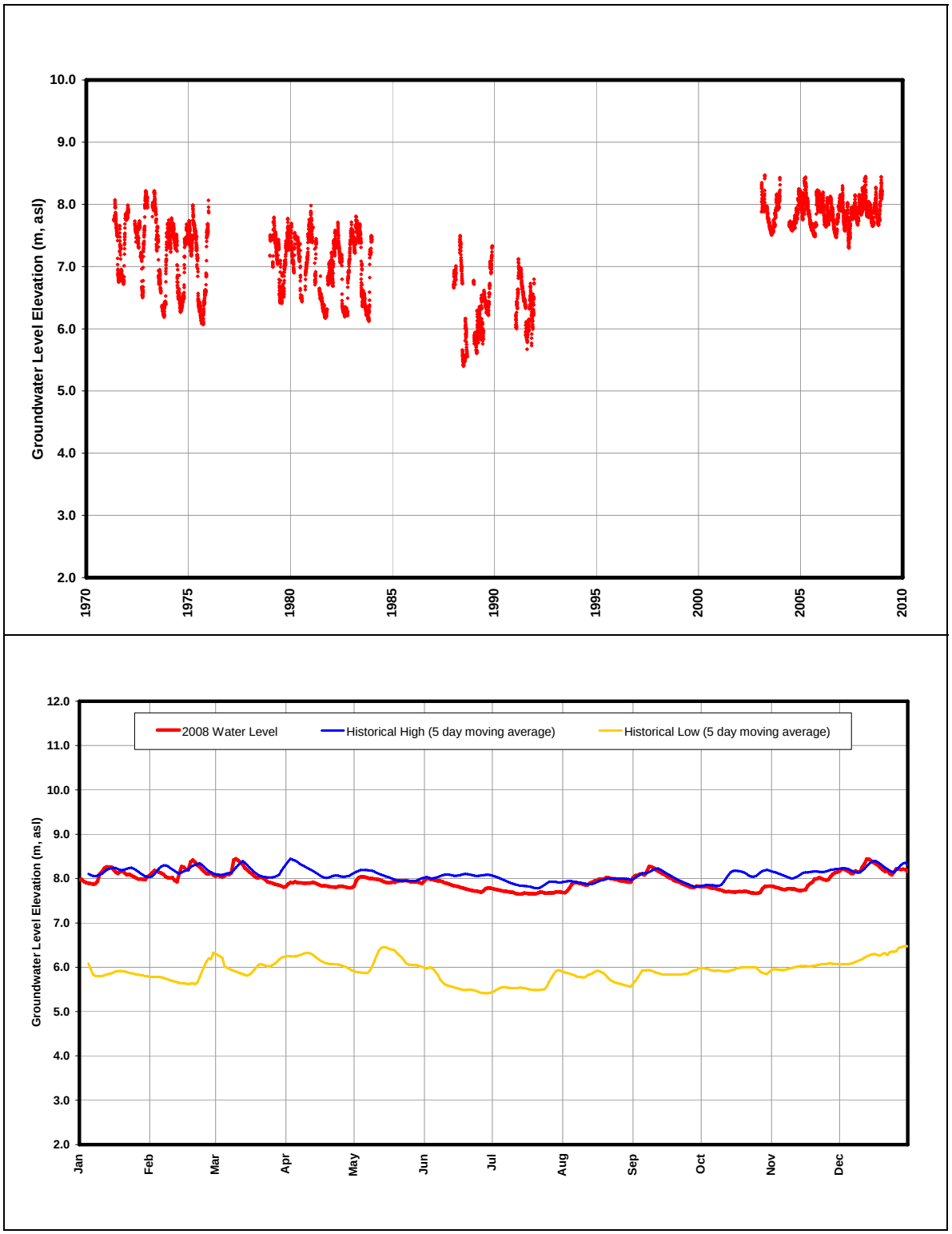

Figure B.5: Truro (014) Historical and 2008 Groundwater Level Elevations

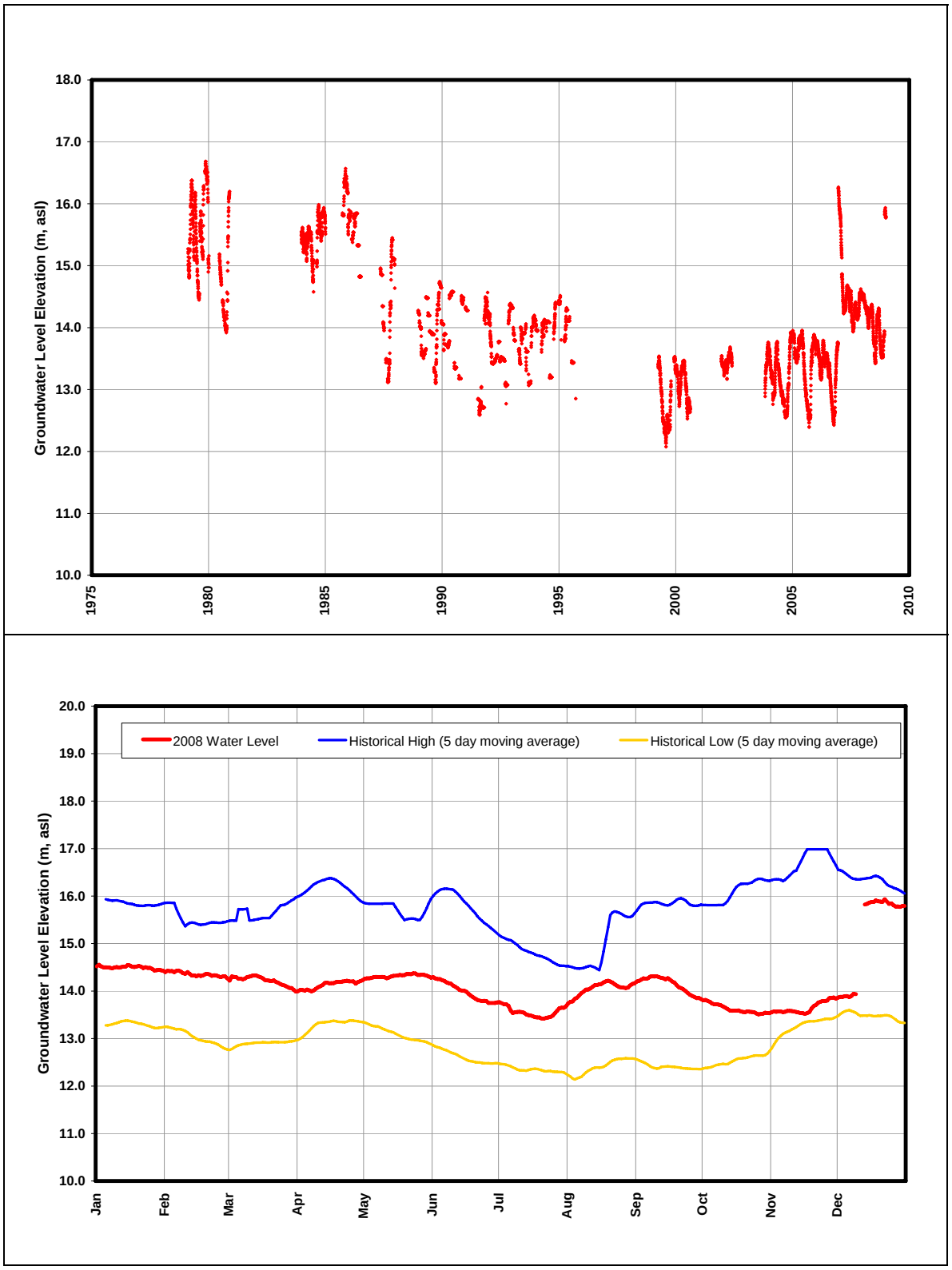

Figure B.6: Monastery (028) Historical and 2008 Groundwater Level Elevations

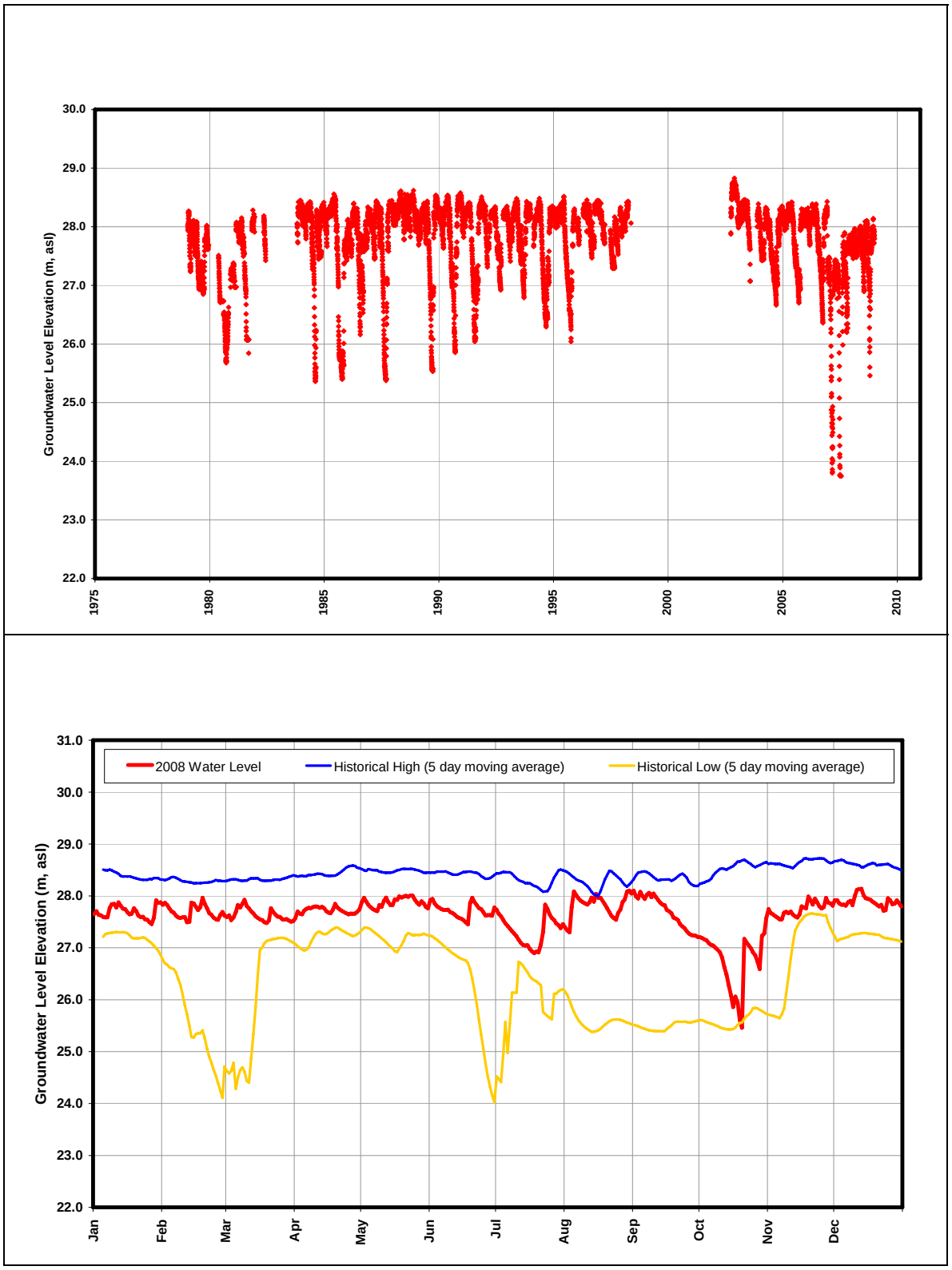

Figure B.7: Point Aconi (030) Historical and 2008 Groundwater Level Elevations

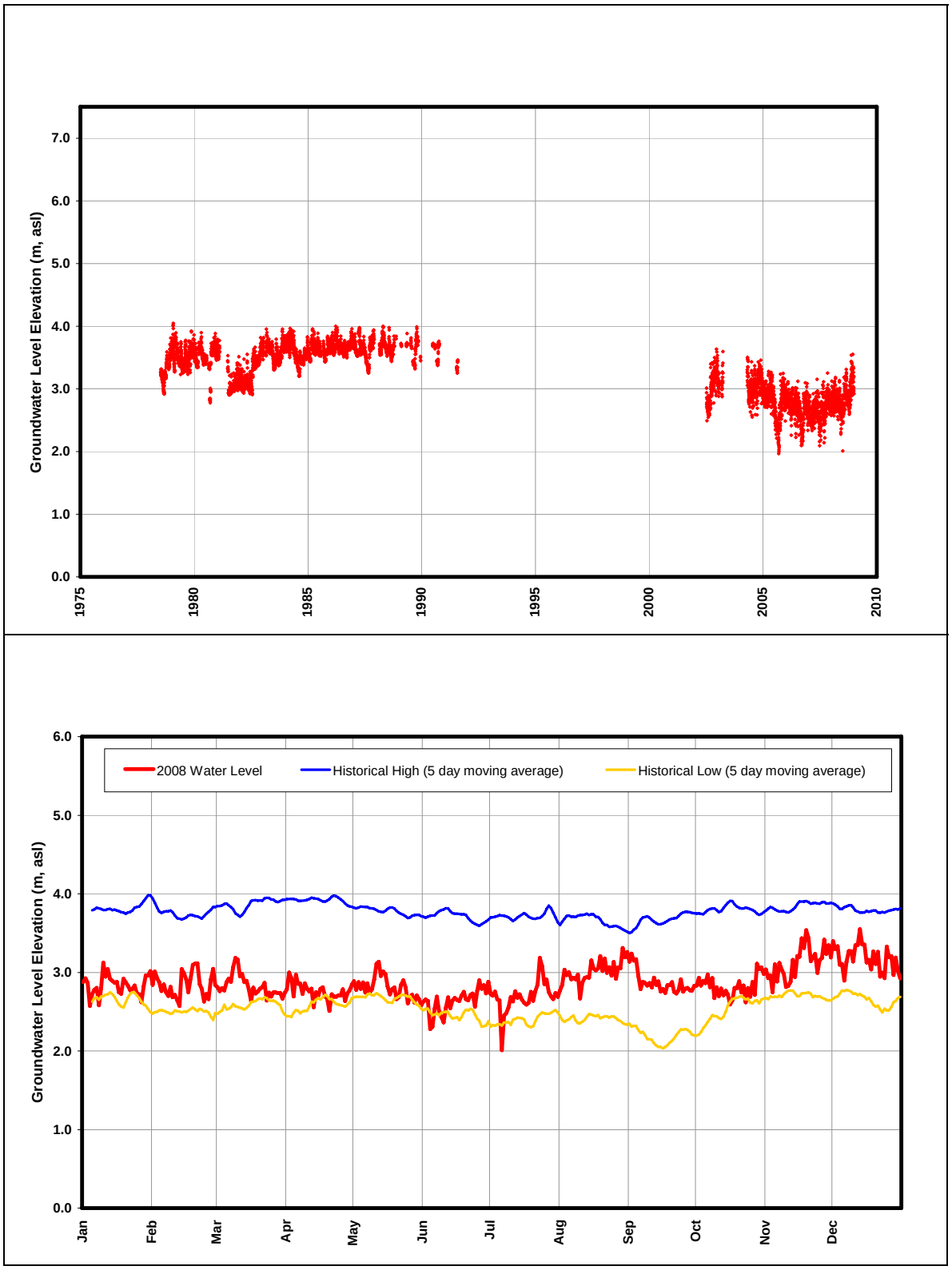

Figure B.8: Lawrencetown (043) Historical and 2008 Groundwater Level Elevations

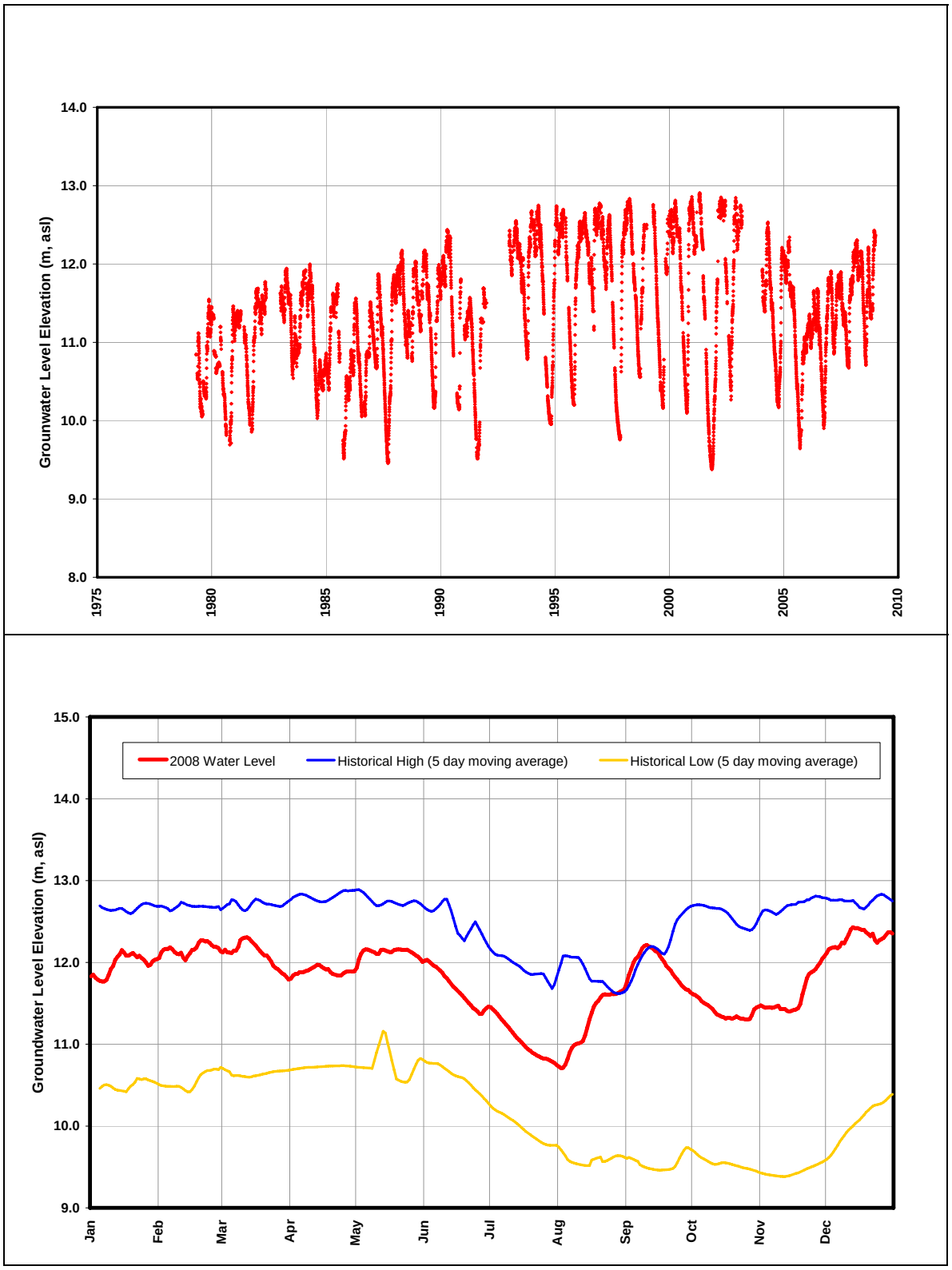

Figure B.9: Durham (045) Historical and 2008 Groundwater Level Elevations

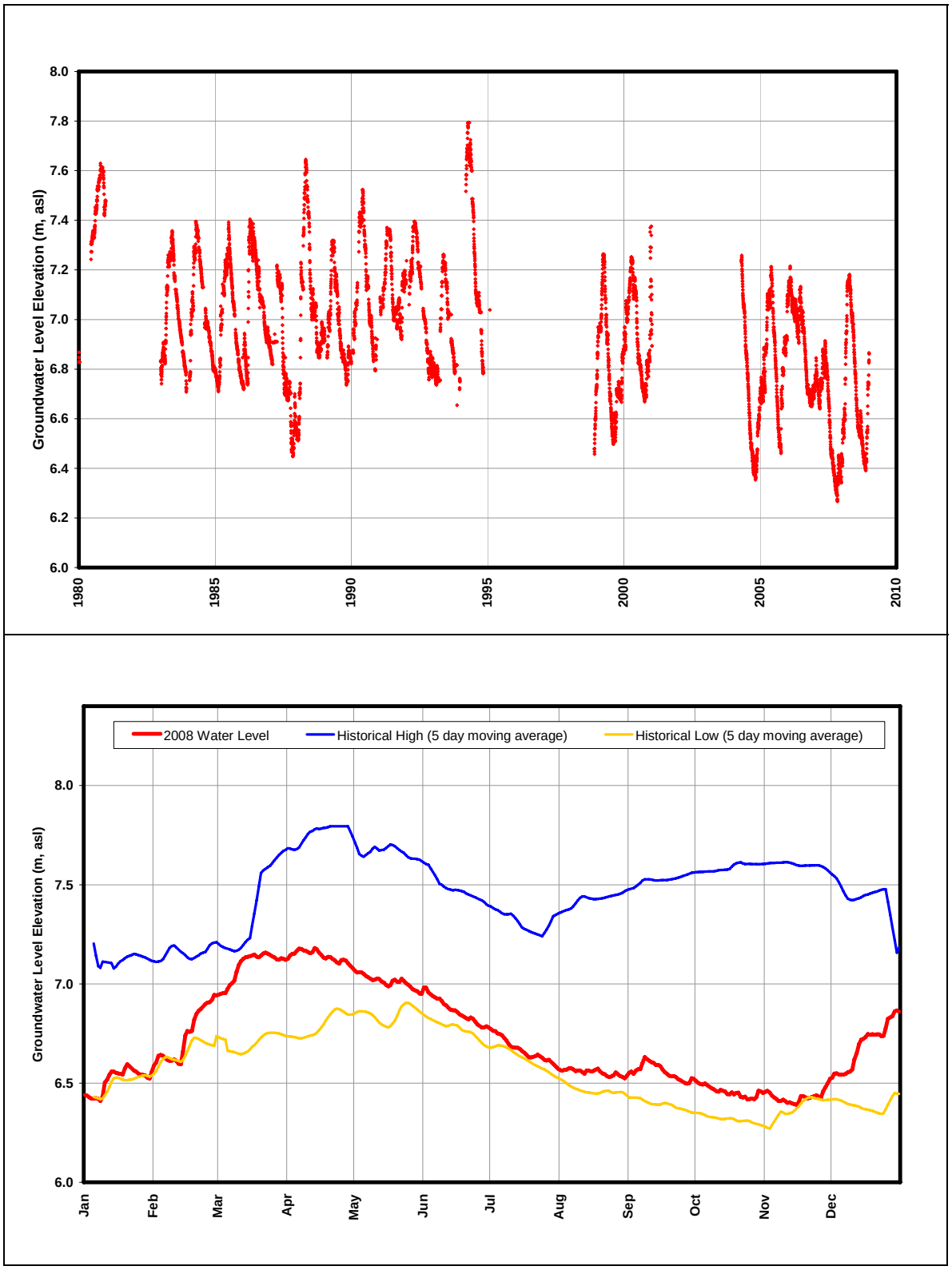

Figure B.10: Kentville (048) Historical and 2008 Groundwater Level Elevations

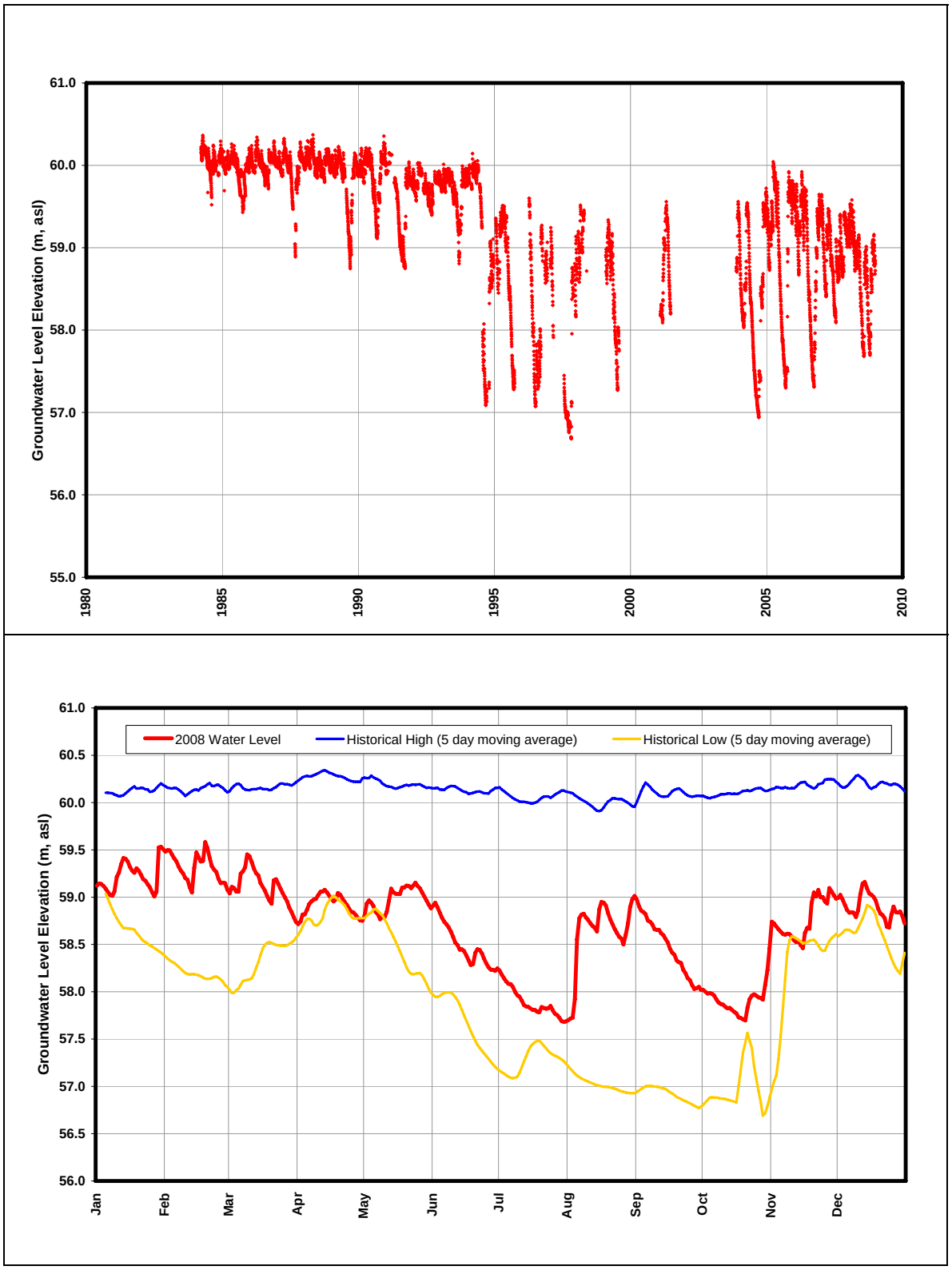

Figure B.11: Sydney (050) Historical and 2008 Groundwater Level Elevations

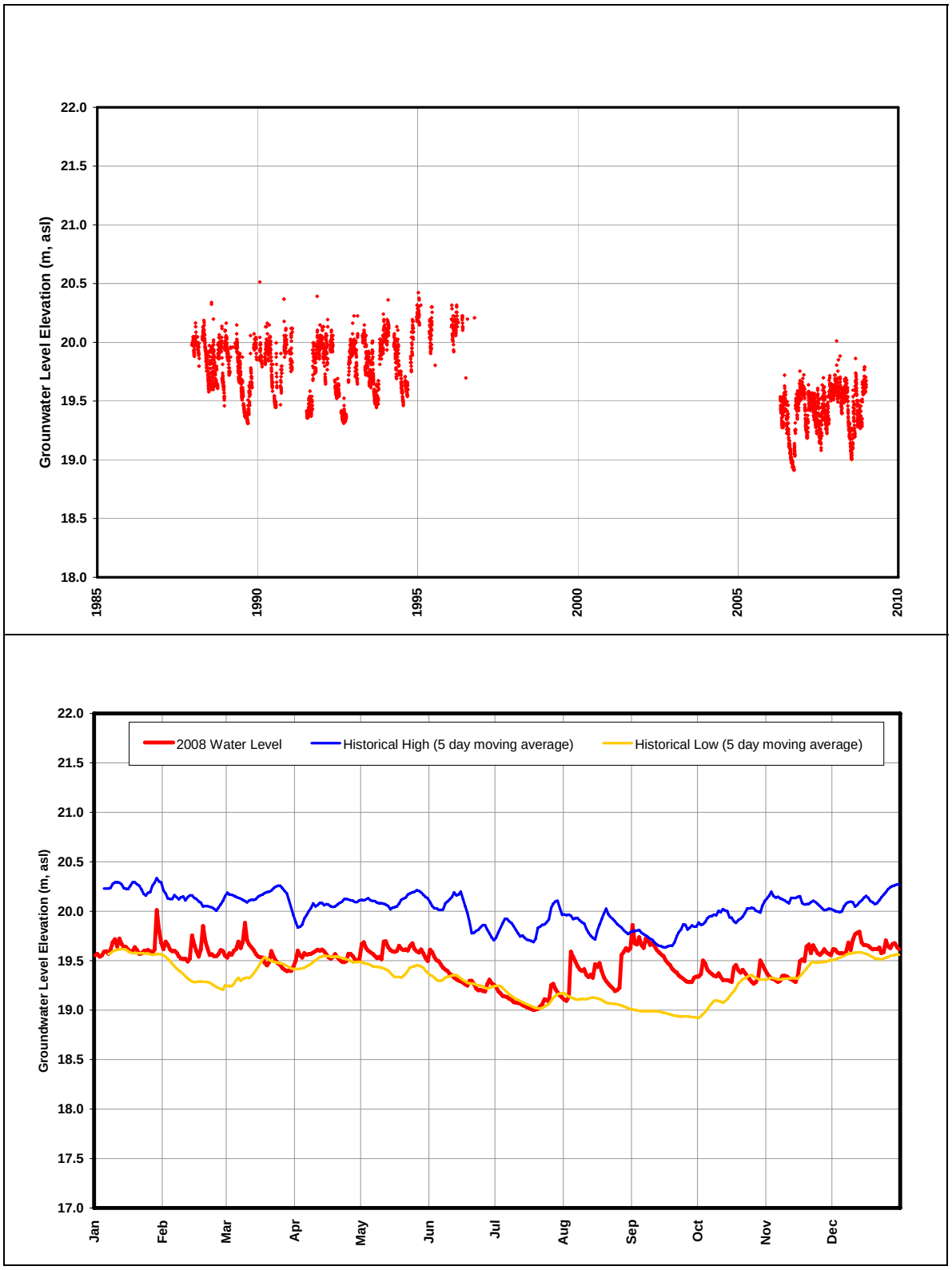

Figure B.12: North Grant (054) Historical and 2008 Groundwater Level Elevations

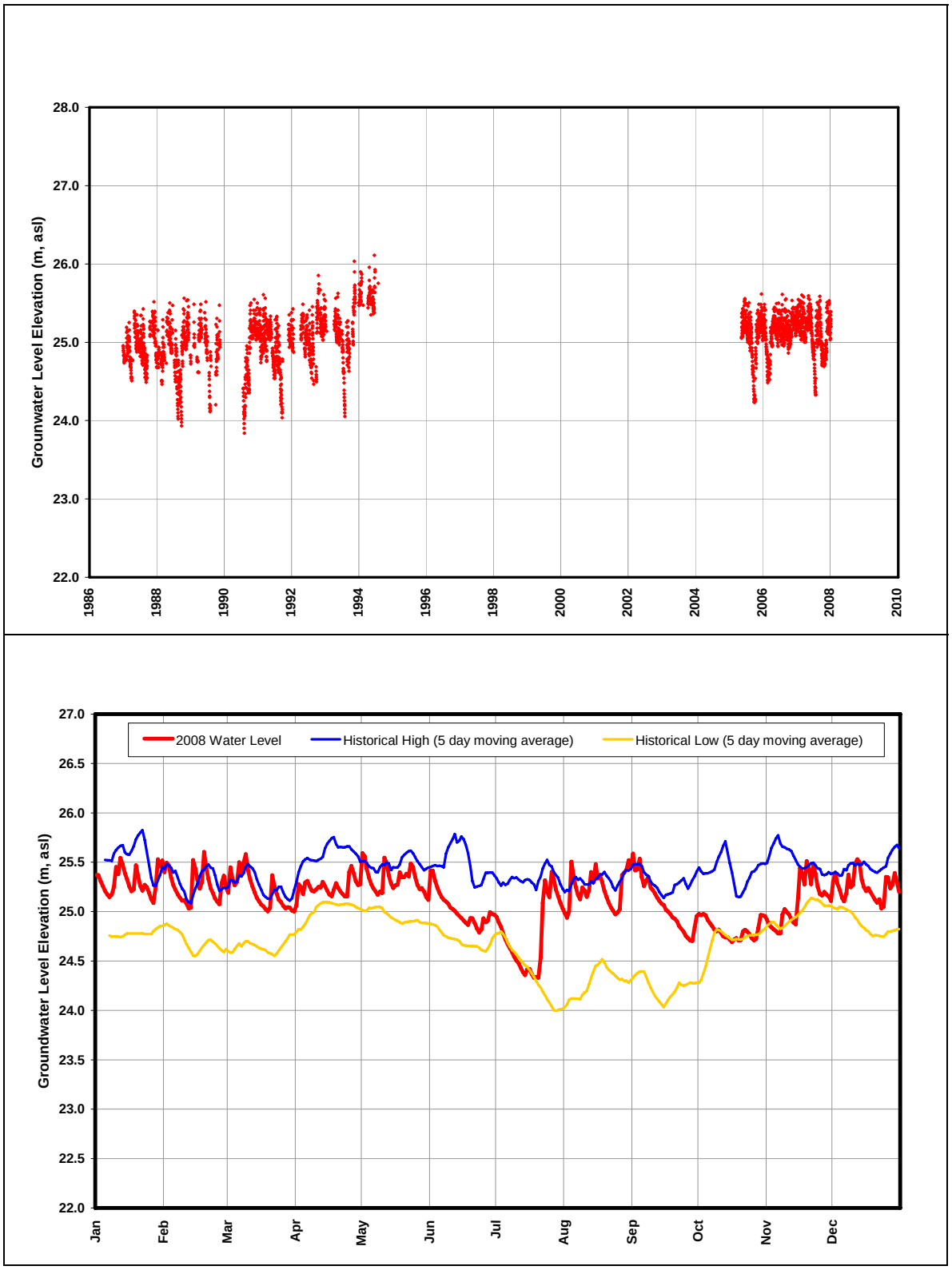

Figure B.13: Stillwater (055) Historical and 2008 Groundwater Level Elevations

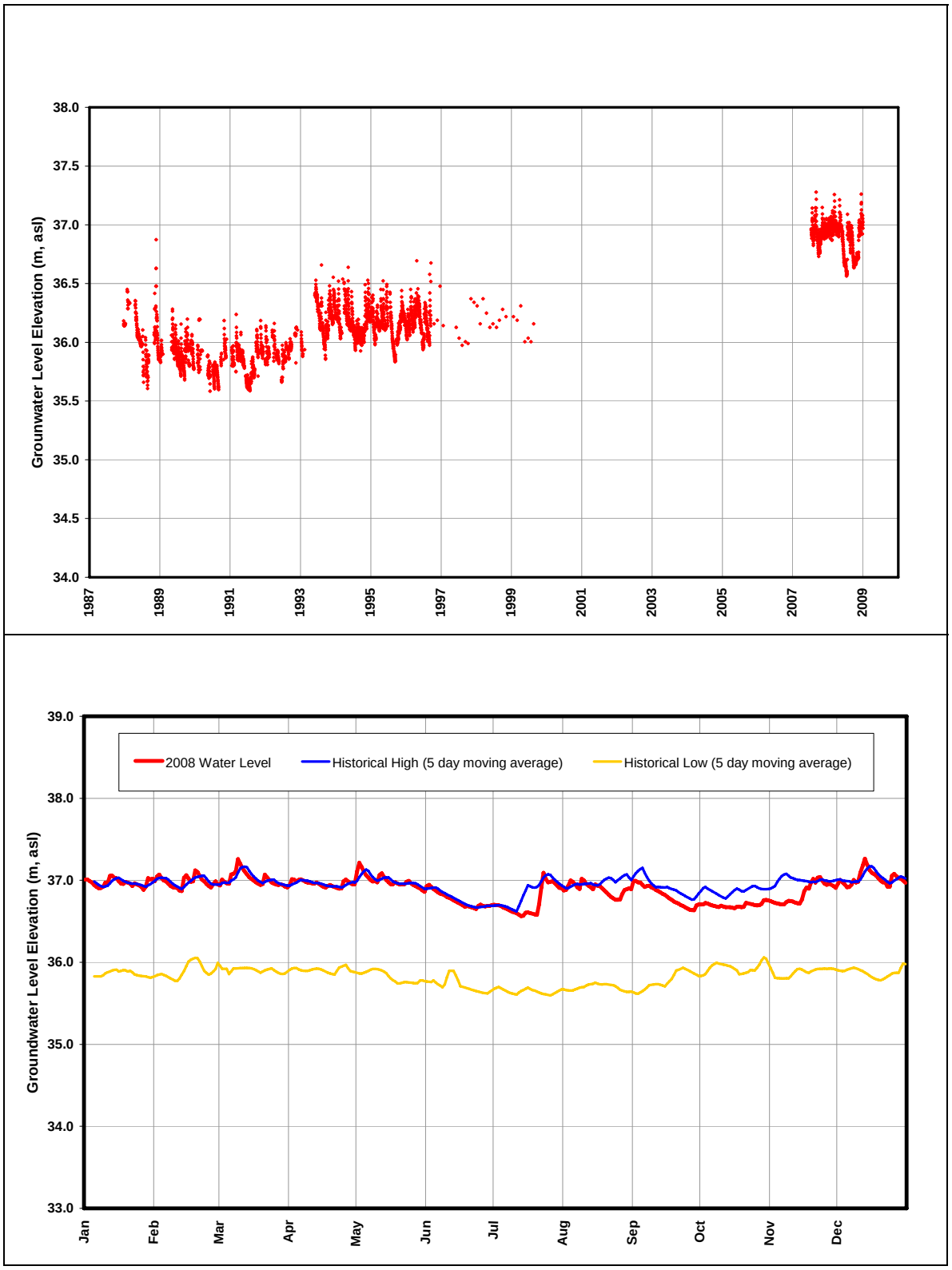

Figure B.14: Sheet Hbr (056) Historical and 2008 Groundwater Level Elevations

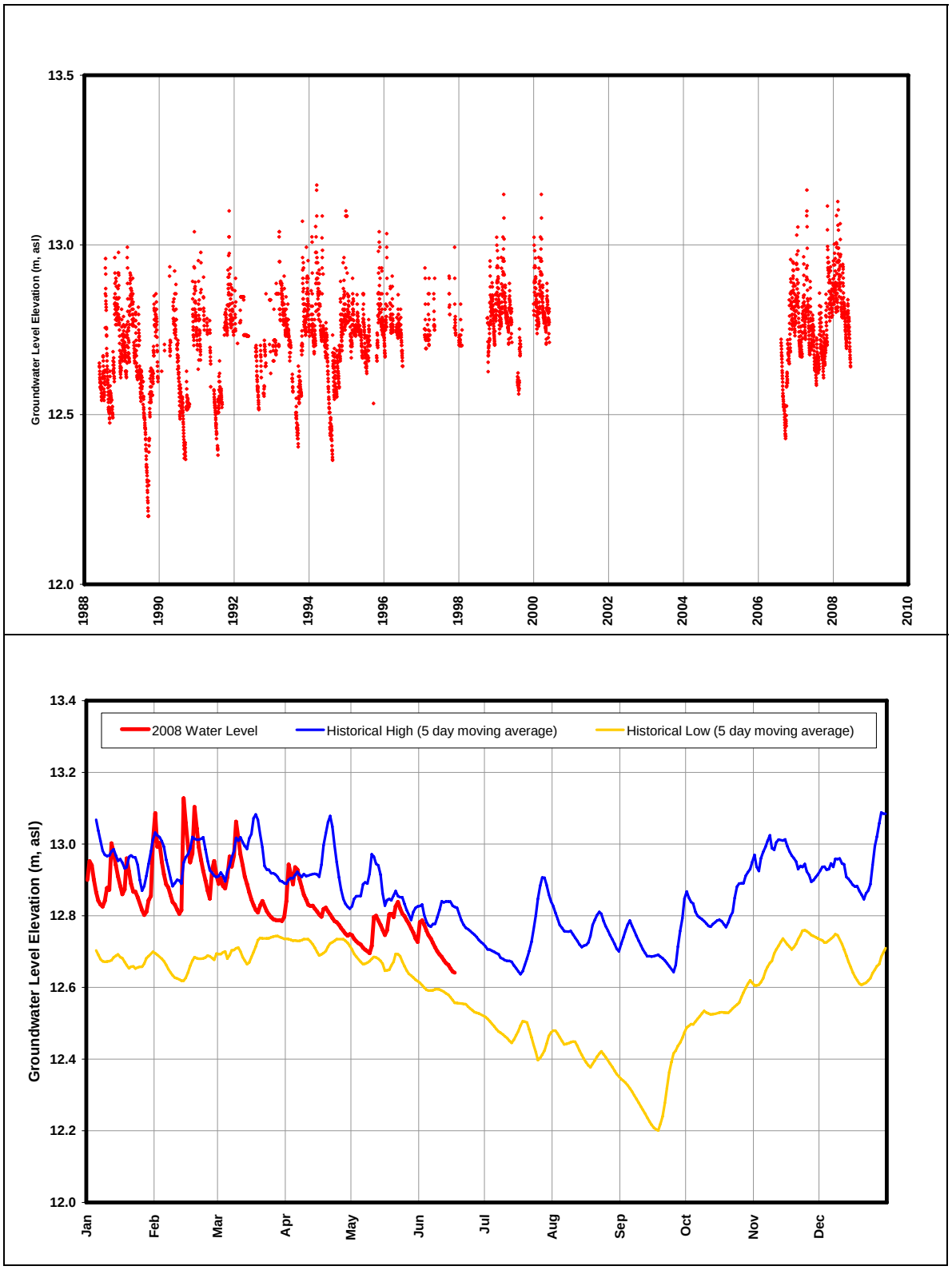

Figure B.15: Charleston (058) Historical and 2008 Groundwater Level Elevations

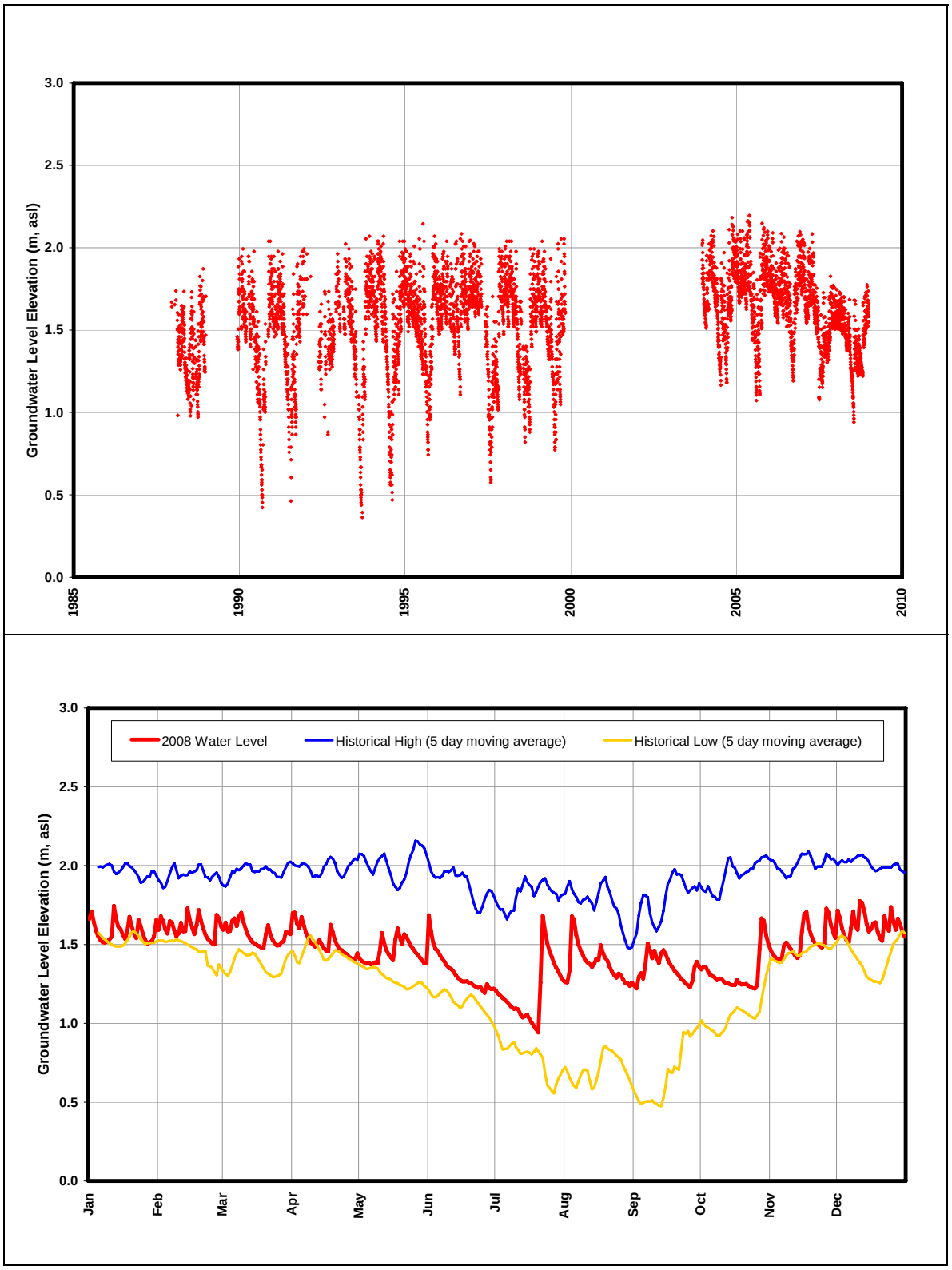

Figure B.16: Hayden Lake (059) Historical and 2008 Groundwater Level Elevations

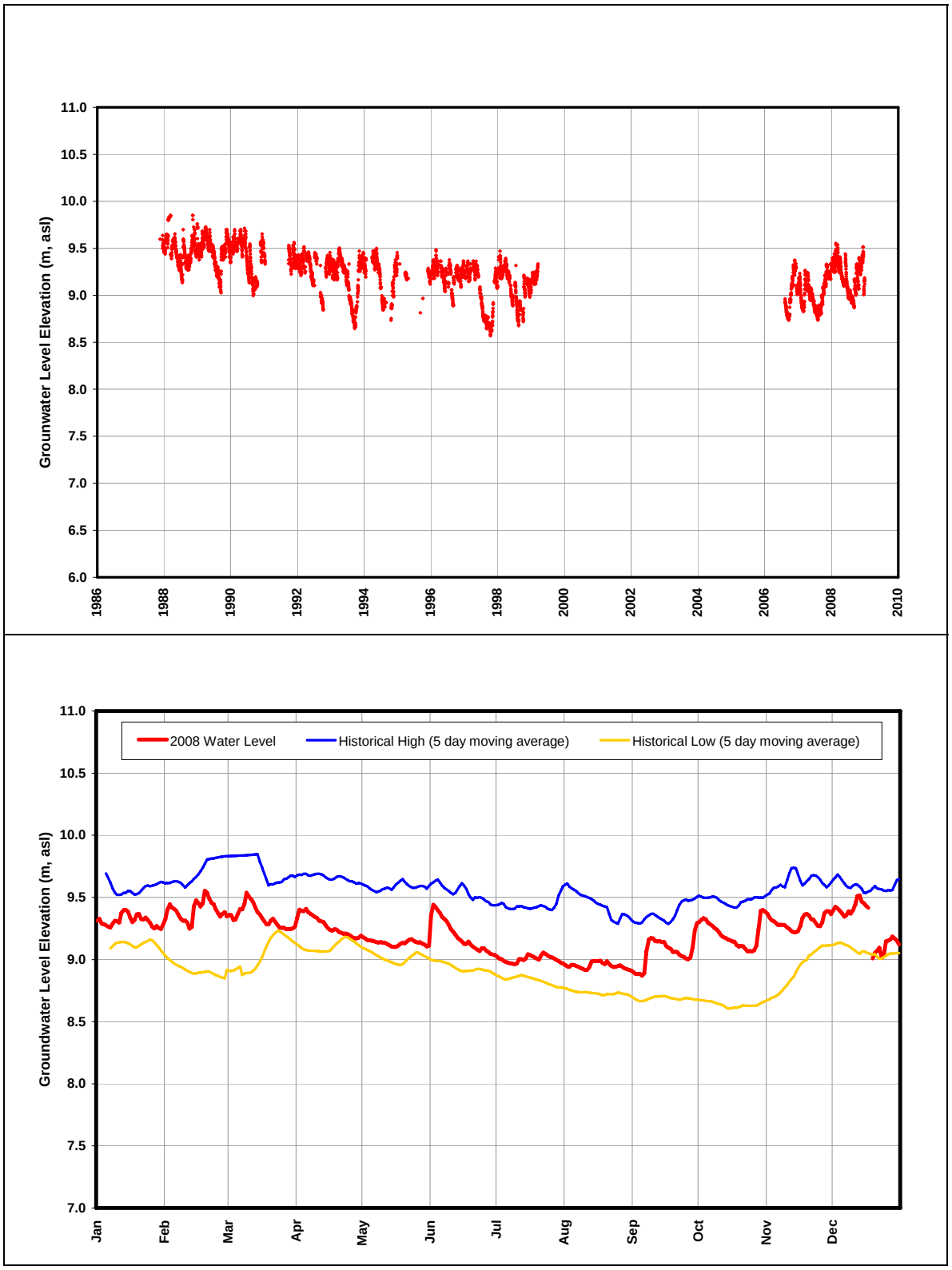

Figure B.17: Meteghan (060) Historical and 2008 Groundwater Level Elevations

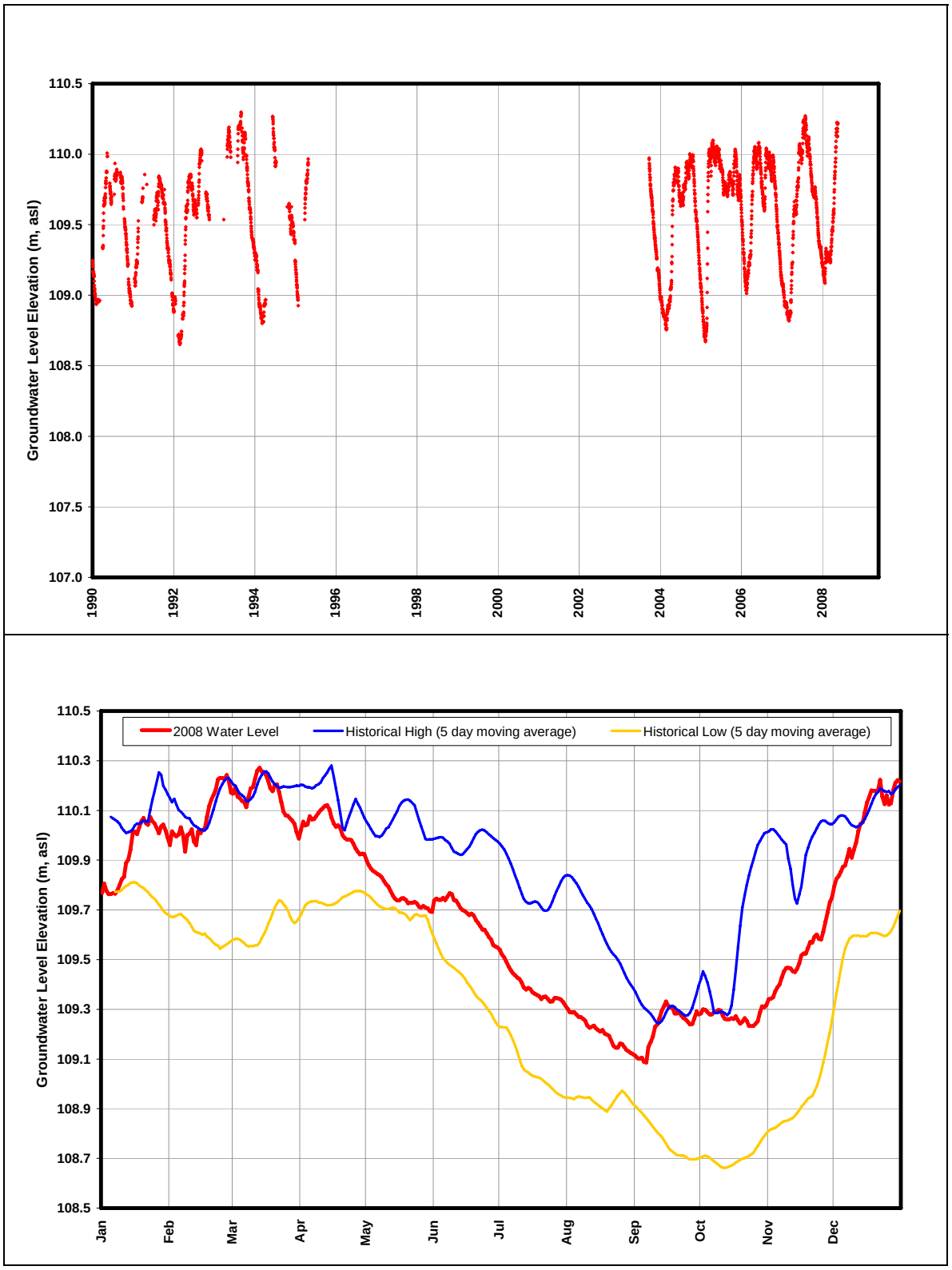

Figure B.18: Annapolis Royal (062) Historical and 2008 Groundwater Level Elevations

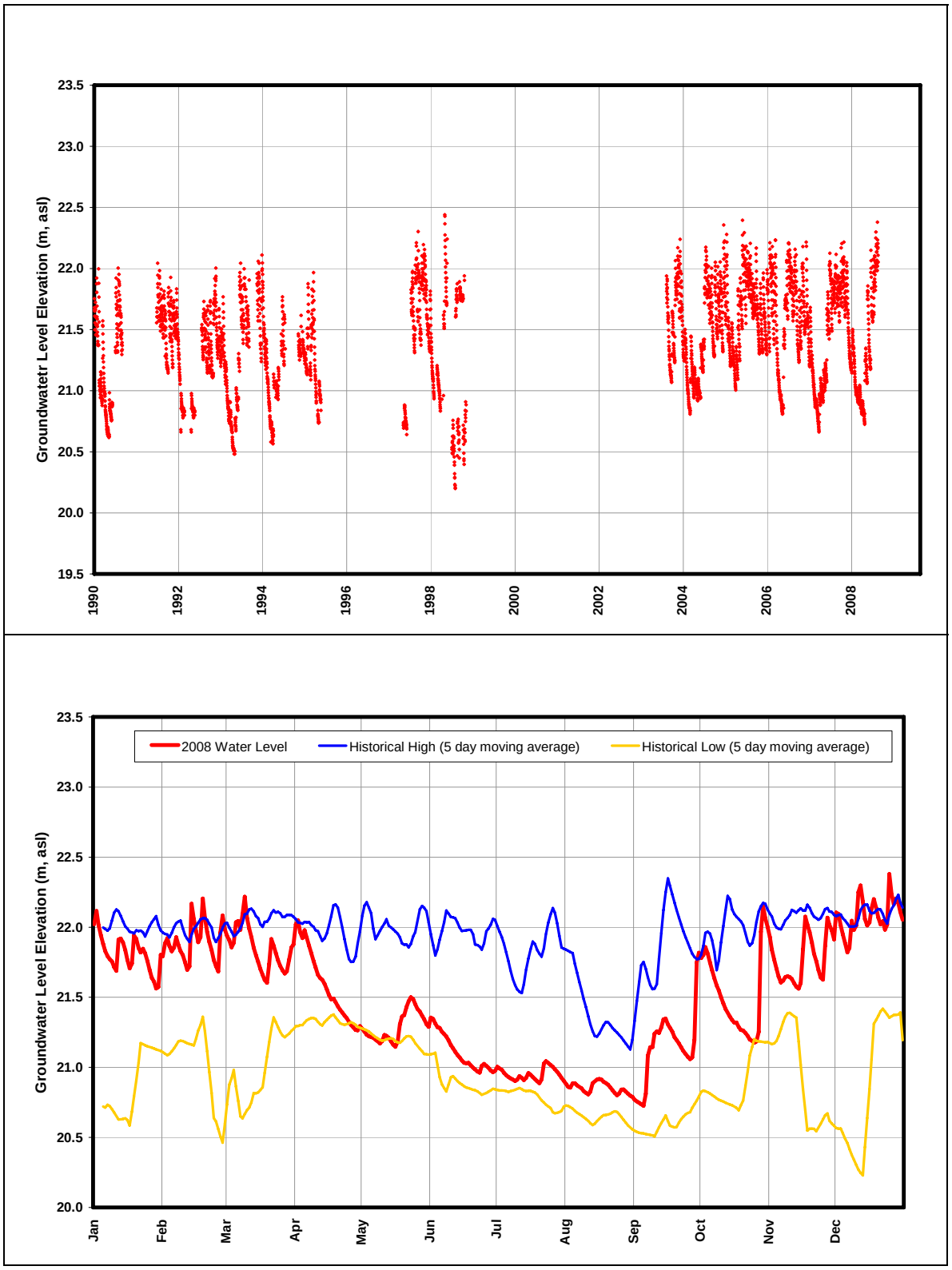

Figure B.19: Hebron (063) Historical and 2008 Groundwater Level Elevations

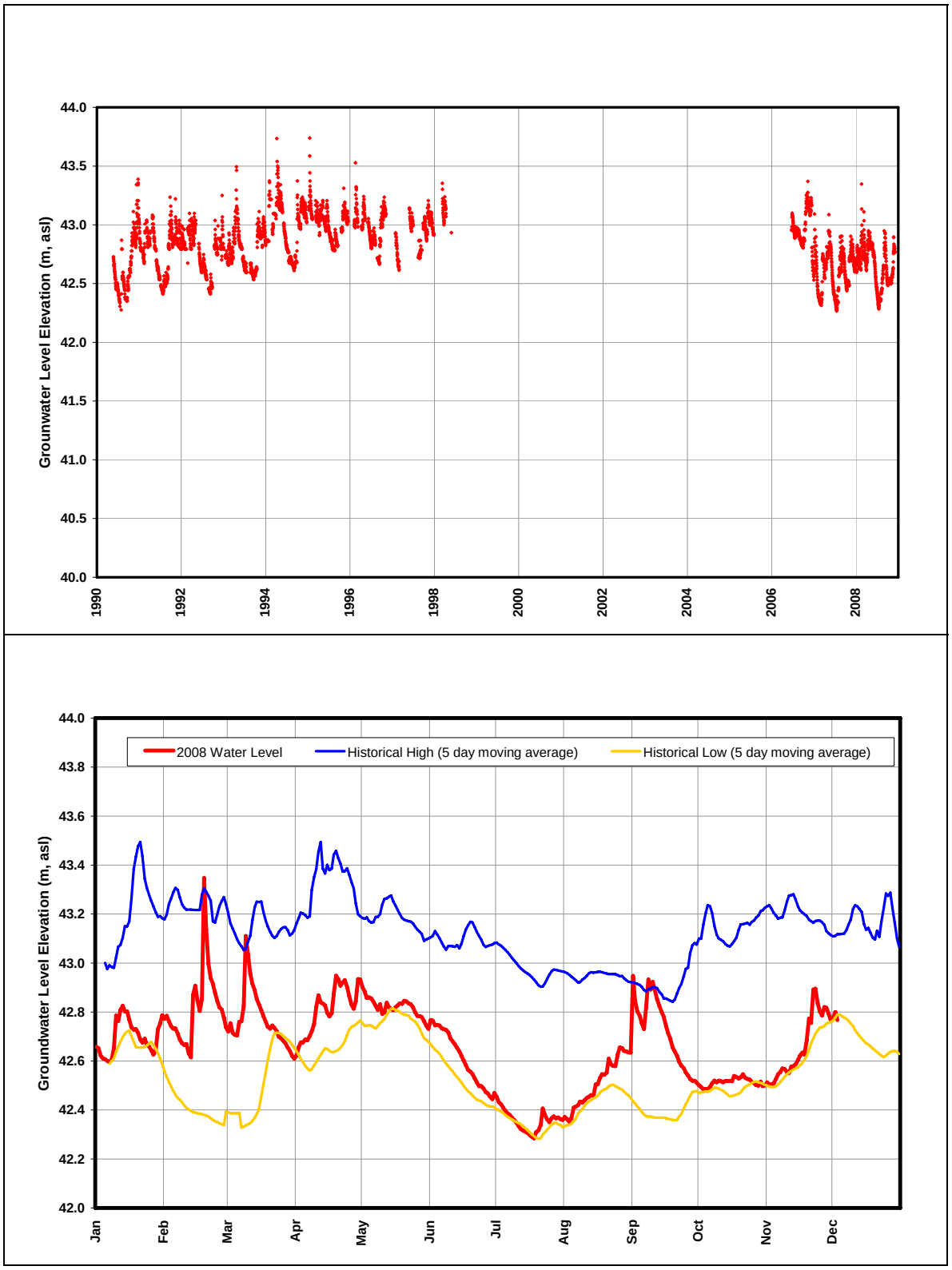

Figure B.20: Margaree (064) Historical and 2008 Groundwater Level Elevations

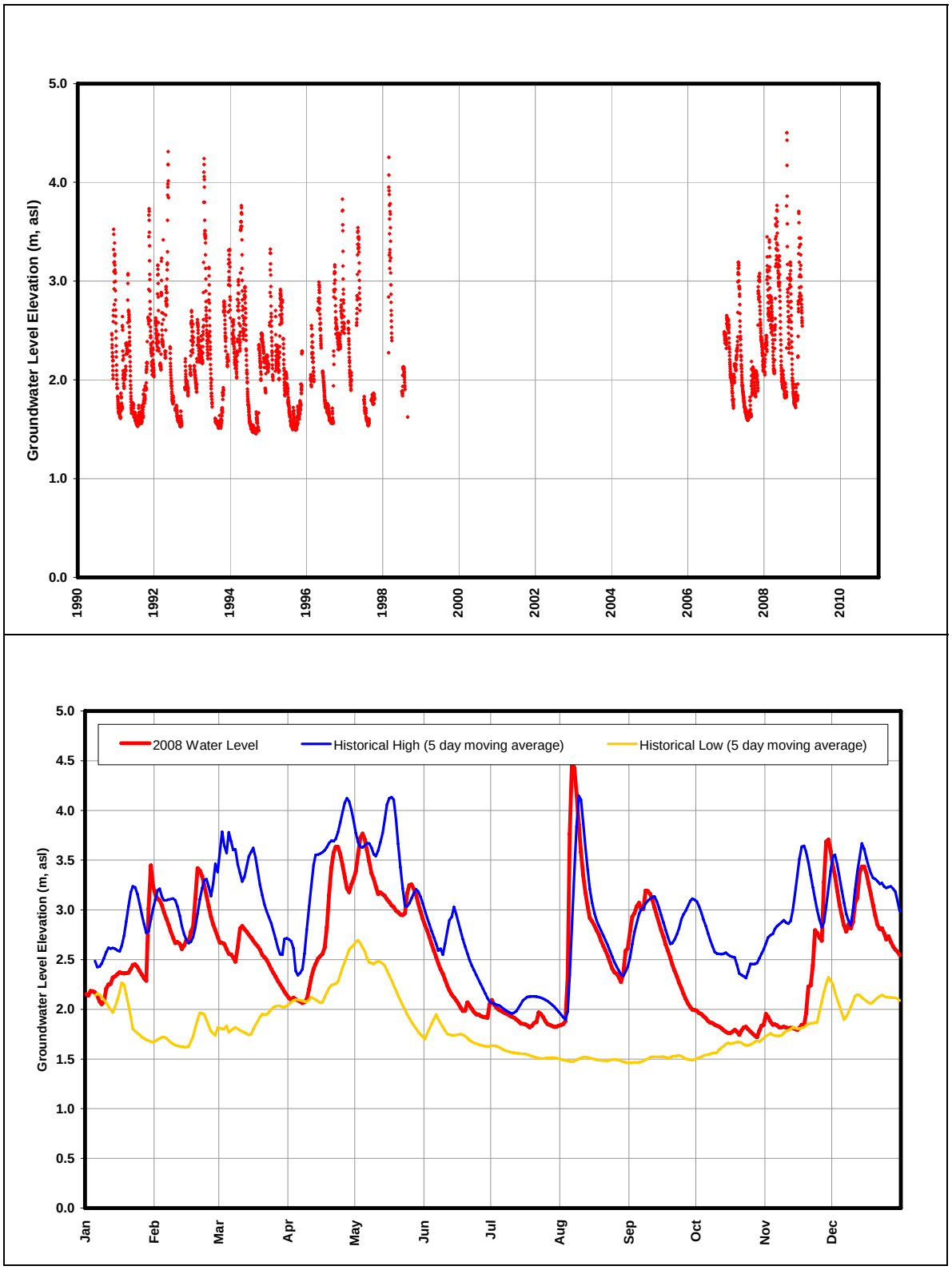

Figure B.21: Ingonish (065) Historical and 2008 Groundwater Level Elevations

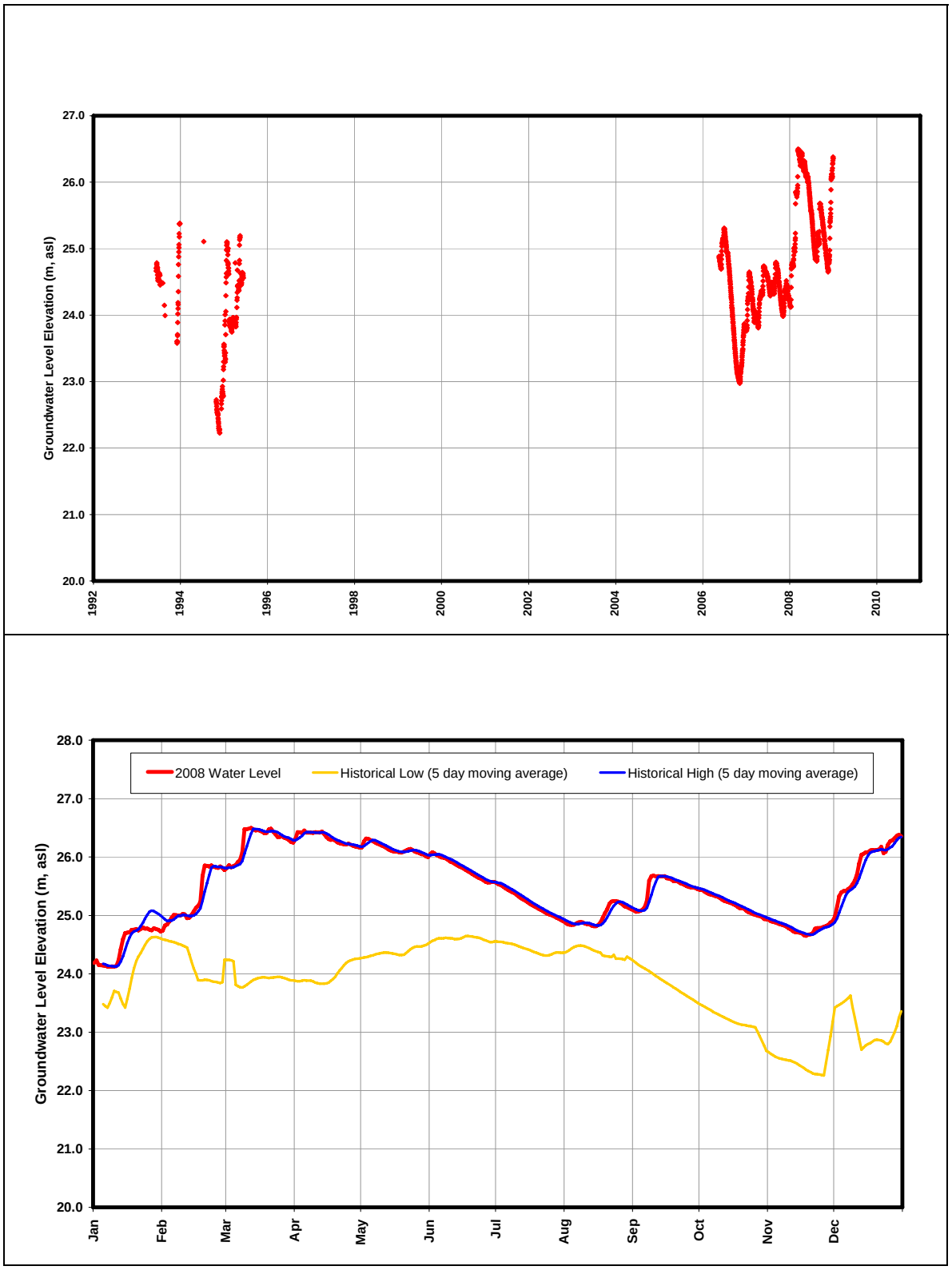

Figure B.22: Debert (068) Historical and 2008 Groundwater Level Elevations

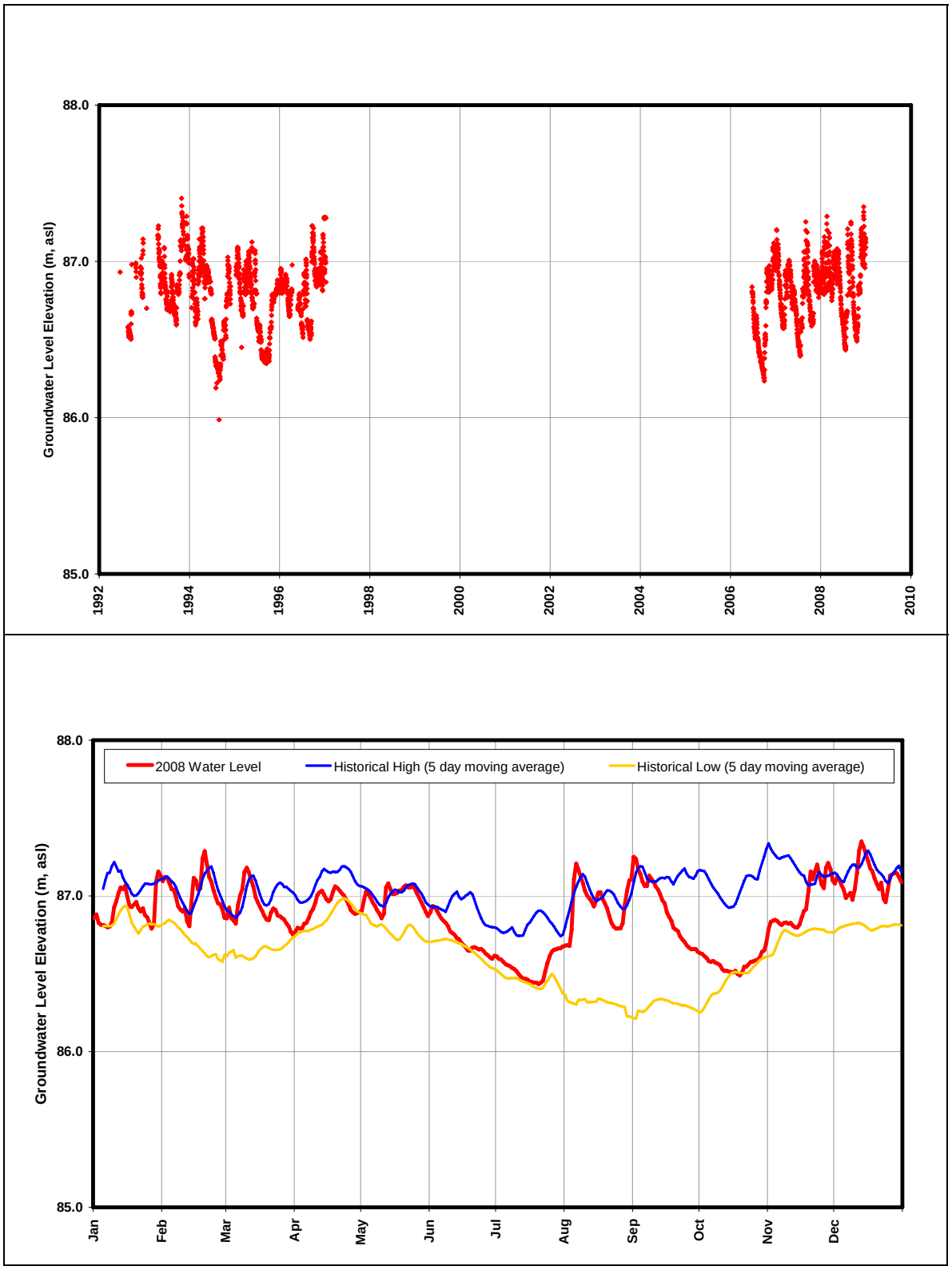

Figure B.23: Dalem Lake (069) Historical and 2008 Groundwater Level Elevations

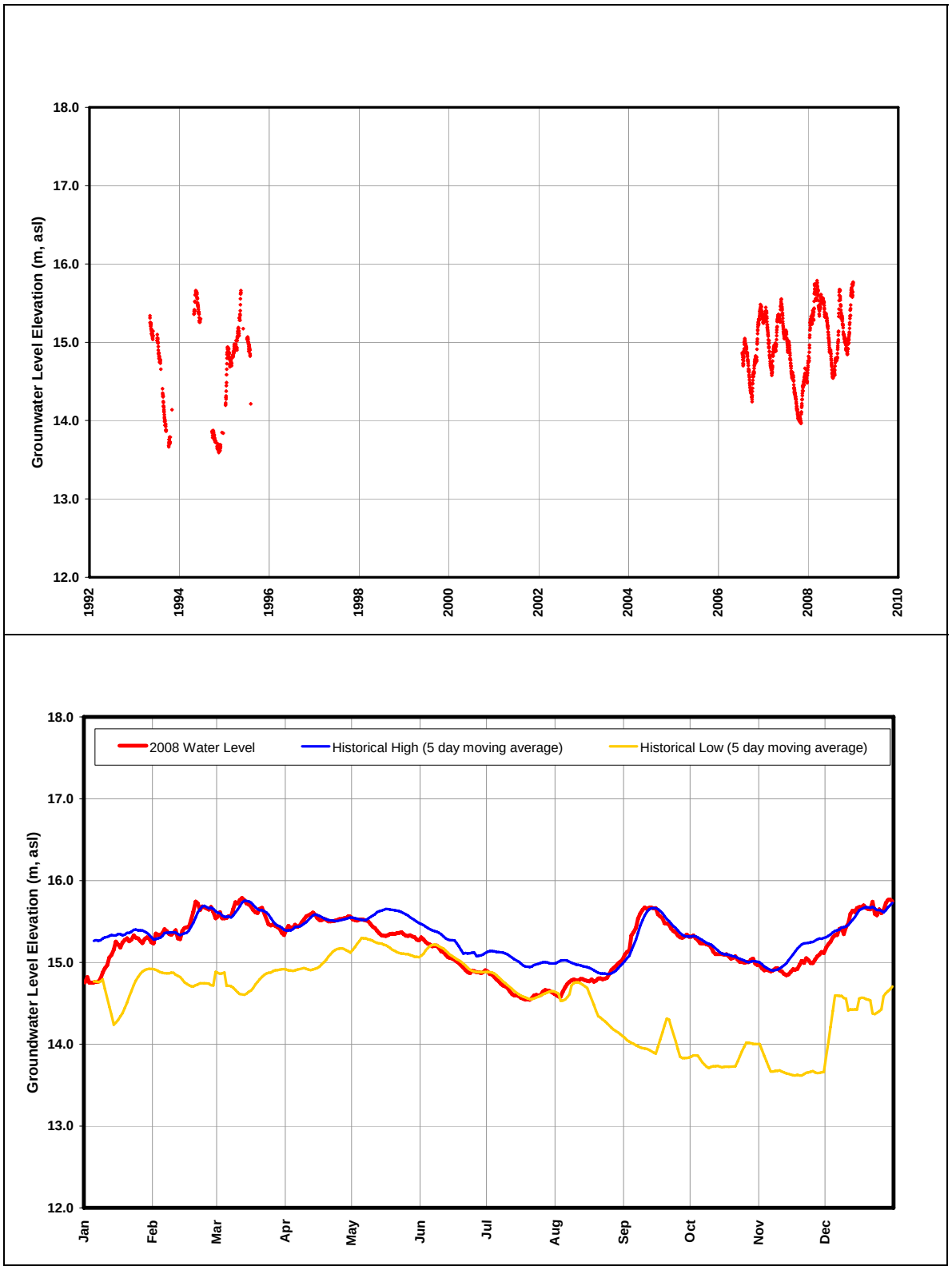

Figure B.24: Amherst (071) Historical and 2008 Groundwater Level Elevations

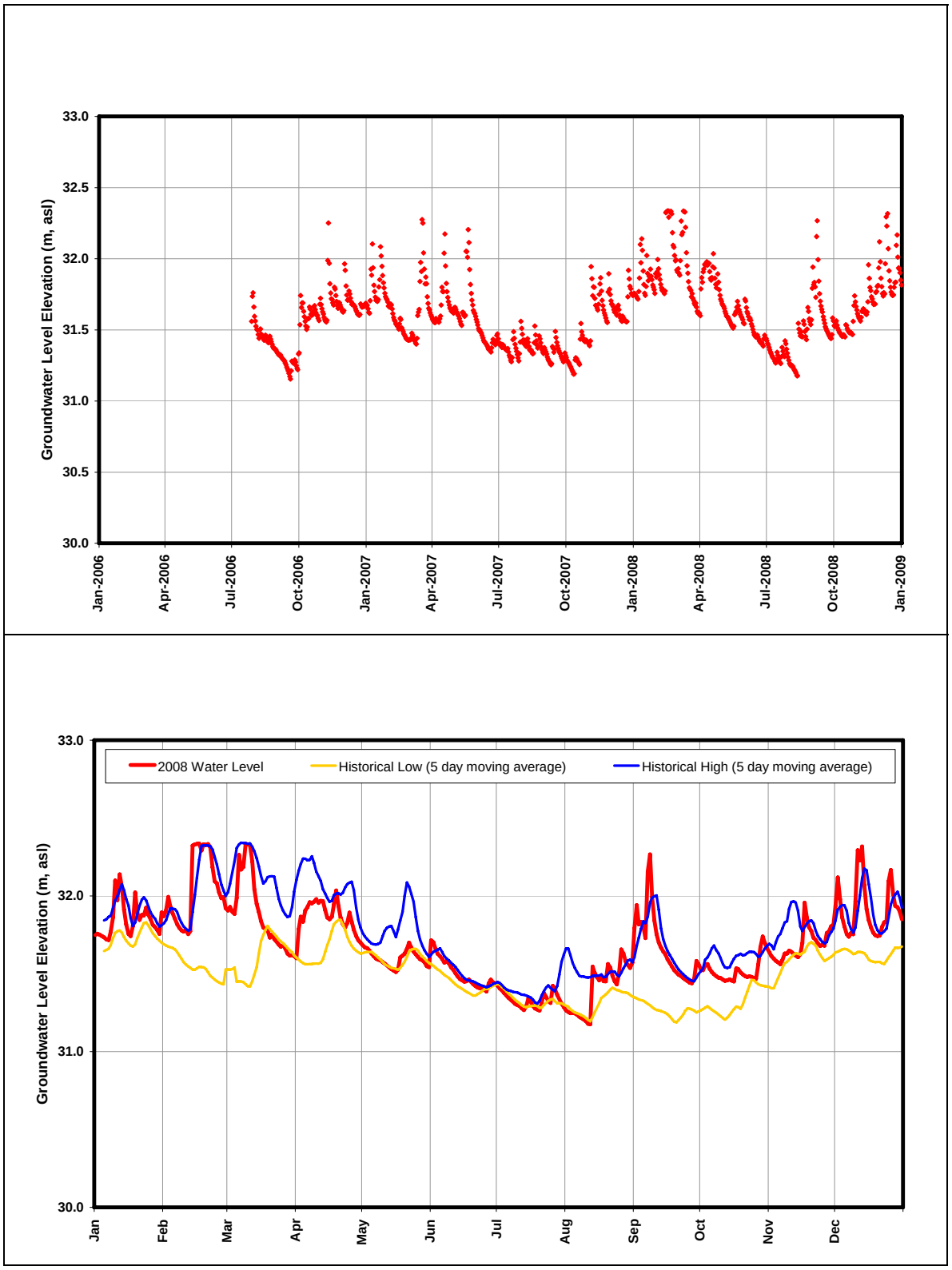

Figure B.25: Kelley River (075) Historical and 2008 Groundwater Level Elevations

No historical data available – monitoring began in 2008.

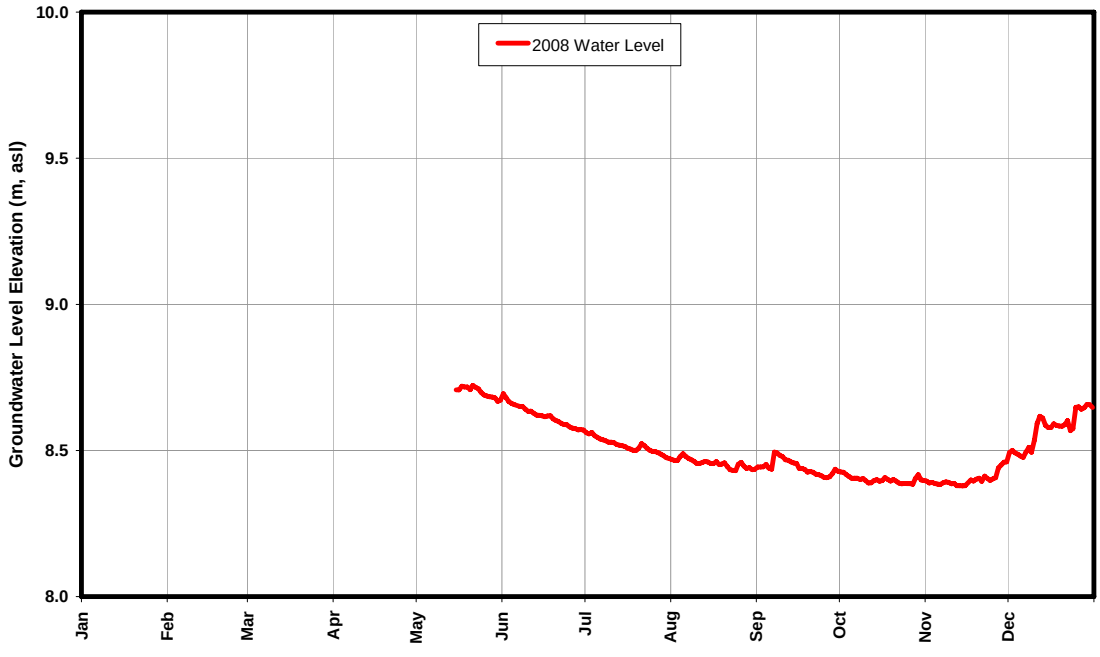

Figure B.26: Atlanta (074) Historical and 2008 Groundwater Level Elevations

No historical data available – monitoring began in 2008.

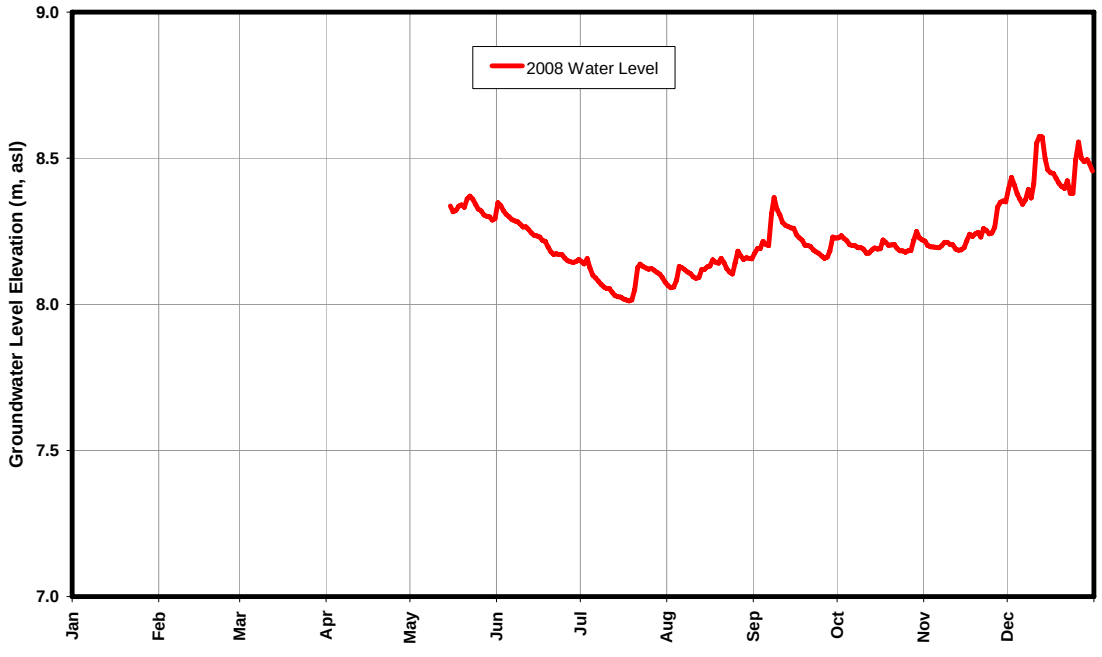

Figure B.27: Sheffield Mills (075) Historical and 2008 Groundwater Level Elevations

No historical data available – monitoring began in 2008.

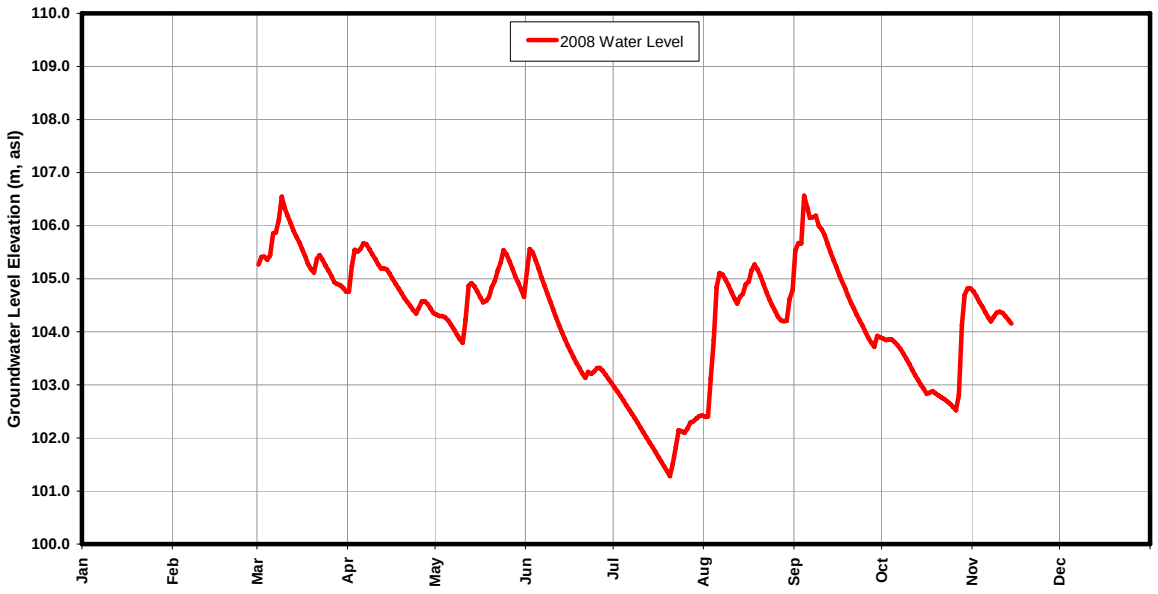

Figure B.28: Fall River (076) Historical and 2008 Groundwater Level Elevations

No historical data available – monitoring began in 2008

Figure B.29: West Northfield (077) Historical and 2008 Groundwater Level Elevations

No historical data available – monitoring began in 2008

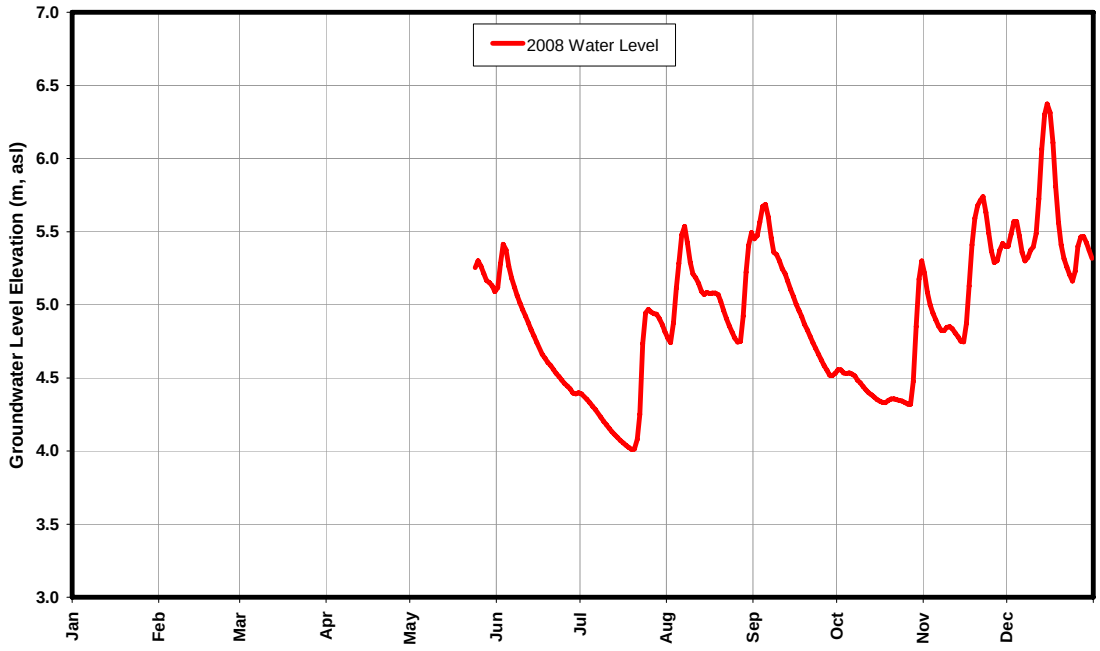

Figure B.30: Musquodoboit Hbr Historical and 2008 Groundwater Level Elevations

No historical data available – monitoring began in 2008

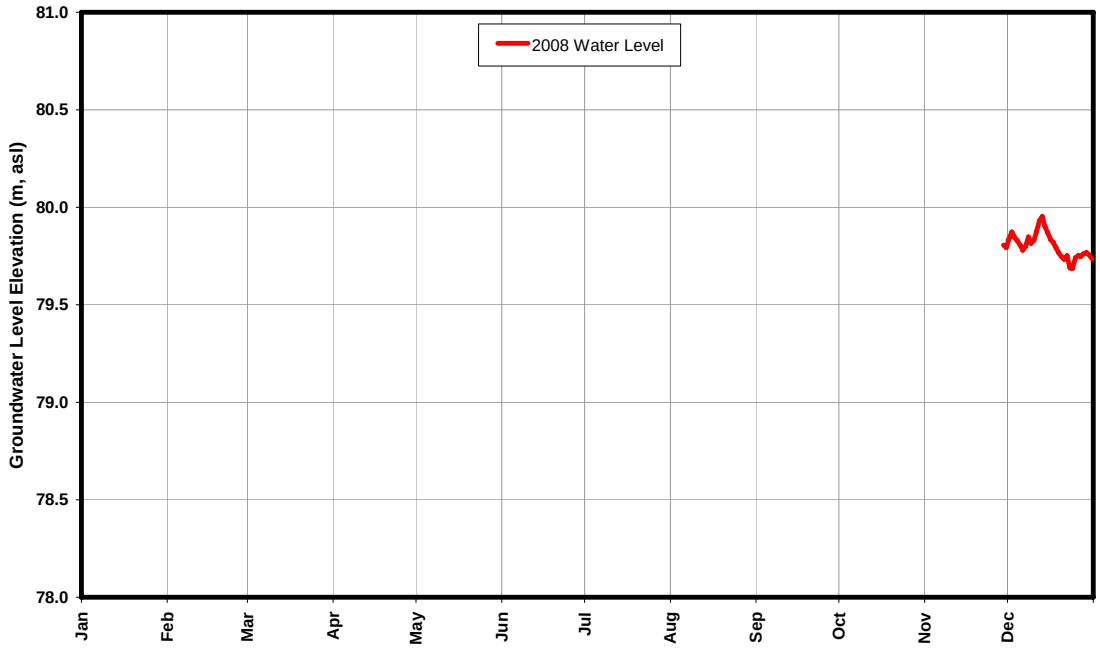

Figure B.31: Lewis Lake (079) Historical and 2008 Groundwater Level Elevations

APPENDIX C
GROUNDWATER CHEMISTRY RESULTS

Table C1. Observation Well Sampling History

Observation Well		General Chemistry	Metals	VOC	Pesticides	Tritium	Perchlorate
Greenwood (003)	23-Nov-2005	✓	✓	✓	✓	✓	✓
	18-Dec-2008	✓	✓	✓	✓		
Fraser Brook (004)	10-Dec-2004	✓	✓	✓	✓		✓
	3-Dec-2008	✓	✓	✓	✓		
Wilmot (005)	29-Nov-2006	✓	✓	✓			
Wolfville (010)	22-Dec-2004	✓	✓	✓	✓	✓	✓
	18-Dec-2008	✓	✓	✓	✓		
Truro (014)	Not Sampled						
Monastery (028)	15-Dec-2006	✓	✓	✓	✓	✓	✓
	9-Dec-2008	✓	✓	✓	✓		
Point Aconi (030)	15-Sep-2005	✓	✓	✓	✓	✓	✓
	10-Dec-2008	✓	✓	✓	✓		
Lawrencetown (043)	18-Nov-2004	✓	✓				
	5-Dec-2008	✓	✓	✓	✓		
Durham (045)	5-Oct-2005	✓	✓	✓	✓	✓	✓
	21-Jan-2009	✓	✓	✓	✓		
Kentville (048)	15-Jun-2005	✓	✓		✓	✓	✓
	7-Nov-2007	✓	✓	✓	✓		
Sydney (050)	15-Sep-2005	✓	✓	✓	✓	✓	✓
	11-Dec-2008	✓	✓	✓	✓		
North Grant (054)	13-Dec-2006	✓	✓	✓	✓	✓	
	22-Jul-2008	✓	✓	✓	✓		
Stillwater (055)	13-Dec-2006	✓	✓	✓	✓	✓	
	4-Dec-2008	✓	✓	✓	✓		
Sheet Harbour (056)	5-Dec-2008	✓	✓	✓	✓		
Charleston (058)	Not Sampled						
Hayden Lake (059)	9-Jun-2005	✓	✓	✓	✓	✓	✓
	16-Dec-2008	✓	✓	✓	✓		
Meteghan (060)	12-Dec-2006	✓	✓	✓	✓	✓	
	17-Dec-2008	✓	✓	✓	✓		
Annapolis Royal (062)	9-Nov-2005	✓	✓	✓	✓	✓	✓
	26-Nov-2007	✓	✓	✓	✓		
Hebron (063)	9-Jun-2005	✓	✓	✓	✓	✓	✓
	17-Dec-2008	✓	✓	✓	✓		
Margaree (064)	14-Dec-2006	✓	✓	✓	✓	✓	
	10-Dec-2008	✓	✓	✓	✓		
Ingonish (065)	Not Sampled						
Debert (068)	Not Sampled						
Dalem Lake (069)	14-Dec-2006	✓	✓	✓	✓	✓	
	11-Dec-2008	✓	✓	✓	✓		
Amherst (071)	16-Dec-2006	✓	✓	✓	✓	✓	
	8-Jan-2009	✓	✓	✓	✓		
Kelley River (073)	12-Jan-2007	✓	✓	✓	✓	✓	
Atlanta (074)	3-Sep-2007	✓	✓	✓	✓		
Sheffield Mills (075)	10-Sep-2007	✓	✓	✓	✓		
Fall River (076)	20-May-2008	✓	✓	✓	✓		
West Northfield (077)	12-Jun-2008	✓	✓	✓	✓		
Musquodoboit Harbour (078)	22-May-2008	✓	✓	✓	✓		
Lewis Lake (079)	31-Jul-2008	✓	✓	✓	✓		

Table C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Greenwood (Well 003)		Fraser Brook (Well 004)		Wilmot (Well 005)
				23-Nov-2005	18-Dec-2008	10-Dec-2004	3-Dec-2008	29-Nov-2006
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	ND	ND	74	71	16
Chloride (Cl)	mg/L	250 AO	1	6	3	5	5	22
Colour	TCU	15 AO	5	5	7	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO	-	10	5	79.1	75	180
Nitrate + Nitrite	mg/L	10	0.05	ND	0.12	ND	1.2	**30**
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	0.02
Nitrate (N)	mg/L	10	0.05	ND	0.12	ND	1.2	**30**
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	0.22	ND	ND	ND	ND
Total Organic Carbon (C)	mg/L	-	0.5	2	0.8	ND	0.5	ND
Orthophosphate (P)	mg/L	-	0.01	0.05	ND	0.02	0.03	0.07
pH	pH	6.5 - 8.5 AO	-	**6.41**	**6.49**	7.6	8.05	6.7
Reactive Silica (SiO2)	mg/L		0.5	11	11	7.8	7.1	7.9
Sulphate (SO4)	mg/L	500 AO	2	9	5	5	4	27
Turbidity	NTU	5 AO	0.1	**39**	**5.4**	0.2	0.3	**50**
Conductivity	uS/cm	-	-	79	41	166	160	410
Anion Sum	me/L	-	-	0.372	0.18	1.73	1.73	3.65
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	74	70	16
Calculated TDS	mg/L	-	1	40	28	94	95	275
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	ND
Cation Sum	me/L	-	-	0.549	0.38	1.78	1.71	3.92
Ion Balance (% Difference)	%	-	-	19.2	35.7	1.56	0.58	3.58
Langelier Index (@ 20C)	N/A	-	-	-	-	-0.68	-0.188	-1.75
Langelier Index (@ 4C)	N/A	-	-	-	-	-1.08	-0.44	-2
Saturation pH (@ 20C)	N/A	-	-	-	-	8.28	8.24	8.45
Saturation pH (@ 4C)	N/A	-	-	-	-	8.68	8.49	8.7
Calcium (Ca)	mg/L	-	0.1	2.2	1.2	19.3	18	56
Magnesium (Mg)	mg/L	-	0.1	1	0.4	7.5	7.3	8.5
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	0.2
Potassium (K)	mg/L	-	0.1	2.4	1.7	1	1	3.1
Sodium (Na)	mg/L	200 AO	0.1	3.6	2.1	4	4.3	7.5
Bromide (Br)	mg/L	-	0.5	ND	ND	0.03	ND	-
Fluoride (F)	mg/L	1.5	0.1	ND	ND	ND	ND	-
Metals								
Aluminum (Al)	ug/L	-	10	47	18	ND	ND	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	2	ND	**14**	**15**	ND
Barium (Ba)	ug/L	1000	5	59	25	5	6	89
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	ND	ND	30	27	14
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	3	1	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	3	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	**8700**	**4300**	ND	ND	ND
Lead (Pb)	ug/L	10	0.5	1.7	ND	ND	ND	2.3
Manganese (Mn)	ug/L	50 AO	2	**140**	**84**	ND	ND	15
Molybdenum (Mo)	ug/L	-	2	ND	ND	ND	ND	ND
Mercury (Hg)	ug/L	1	0.01	-	ND	-	ND	-
Nickel (Ni)	ug/L	-	2	4	2	ND	ND	3
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	9	ND	150	150	160
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	0.2	ND	1.5	1.4	ND
Vanadium (V)	ug/L	-	2	ND	ND	2	2	ND
Zinc (Zn)	ug/L	5000 AO	5	87	60	ND	ND	7

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 C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Wolfville (Well 010)		Monastery (Well 028)		Point Aconi (Well 030)	
				22-Dec-2004	18-Dec-2008	15-Dec-2006	09-Dec-2008	15-Sep-2005	10-Dec-2008
General Chemistry									
Total Alkalinity (Total as CaCO3)	mg/L	-	5	25	10	240	220	140	130
Chloride (Cl)	mg/L	250 AO	1	78	87	31	24	19	11
Colour	TCU	15 AO	5	ND	14	ND	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO	-	101	67	120	95	140	160
Nitrate + Nitrite	mg/L	10	0.05	1.9	1.5	ND	ND	ND	1.3
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	1.9	1.5	ND	ND	ND	1.3
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	0.63	0.14	0.12	ND	ND
Total Organic Carbon (C)	mg/L	-	0.5	ND	1.6	2.1	1	ND	1.3
Orthophosphate (P)	mg/L	-	0.01	ND	0.01	ND	ND	ND	ND
pH	pH	6.5 - 8.5 AO	-	6.5	6.53	8.14	8.23	8.01	7.97
Reactive Silica (SiO2)	mg/L		0.5	17	14	11	13	7.6	9.2
Sulphate (SO4)	mg/L	500 AO	2	12	11	72	59	10	21
Turbidity	NTU	5 AO	0.1	0.9	**68**	0.2	0.3	ND	0.2
Conductivity	uS/cm	-	-	382	370	660	640	380	340
Anion Sum	me/L	-	-	3.08	2.99	7.13	6.36	3.6	3.38
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	25	10	235	220	140	126
Calculated TDS	mg/L	-	1	196	201	417	365	207	194
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	3	4	1	1
Cation Sum	me/L	-	-	3.3	3.4	7.51	6.28	4.11	3.66
Ion Balance (% Difference)	%	-	-	3.3	6.42	2.61	0.63	6.56	3.98
Langelier Index (@ 20C)	N/A	-	-	-2.12	-2.59	0.553	0.539	0.41	0.423
Langelier Index (@ 4C)	N/A	-	-	-2.52	-2.84	0.304	0.29	0.16	0.173
Saturation pH (@ 20C)	N/A	-	-	8.62	9.12	7.59	7.69	7.6	7.55
Saturation pH (@ 4C)	N/A	-	-	9.02	9.37	7.84	7.94	7.85	7.8
Calcium (Ca)	mg/L	-	0.1	27.4	19	31	25	44	55
Magnesium (Mg)	mg/L	-	0.1	7.8	4.6	9.3	7.7	6.3	5.8
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	2	1.9	2.3	3.6	4	1
Sodium (Na)	mg/L	200 AO	0.1	28.3	29	120	98	30	10
Bromide (Br)	mg/L	-	0.5	0.06	ND	ND	ND		ND
Fluoride (F)	mg/L	1.5	0.1	ND	ND	0.3	ND		ND
Metals									
Aluminum (Al)	ug/L	-	10	ND	ND	ND	ND	15	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	0.78	ND	ND
Arsenic (As)	ug/L	10	2	ND	ND	6	4.1	ND	ND
Barium (Ba)	ug/L	1000	5	69	46	25	25	40	18
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	26	23	250	220	35	ND
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	2	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	7	ND	6	ND
Iron (Fe)	ug/L	300 AO	50	230	**20000**	ND	ND	ND	ND
Lead (Pb)	ug/L	10	0.5	ND	ND	ND	ND	0.6	ND
Manganese (Mn)	ug/L	50 AO	2	14	**1300**	42	48	**360**	7.9
Molybdenum (Mo)	ug/L	-	2	ND	ND	3	ND	ND	ND
Mercury (Hg)	ug/L	1	0.01	-	ND	ND	ND	-	ND
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	ND	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	110	67	2400	2600	230	110
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	ND	ND	0.6	0.72	0.3	0.36
Vanadium (V)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	ND	34	ND	18	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 C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Lawrencetown (Well 043)		Durham (Well 045)		Kentville (Well 048)	
				18-Nov-2004	05-Dec-08	5-Oct-2005	21-Jan-2009	15-Jun-2005	7-Nov-2007
General Chemistry									
Total Alkalinity (Total as CaCO3)	mg/L	-	5	82	82	140	110	20	22
Chloride (Cl)	mg/L	250 AO	1	150	180	44	19	230	**270**
Colour	TCU	15 AO	5	ND	ND	ND	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO	-	98.9	100	86	72	150	180
Nitrate + Nitrite	mg/L	10	0.05	ND	ND	ND	ND	1.2	0.96
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	ND	ND	ND	ND	1.2	0.96
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	0.19	0.12	0.11	ND	0.06	ND
Total Organic Carbon (C)	mg/L	-	0.5	ND	0.5	ND	ND	ND	ND
Orthophosphate (P)	mg/L	-	0.01	ND	ND	ND	0.01	ND	0.05
pH	pH	6.5 - 8.5 AO	-	7.3	8.14	8.16	7.95	6.84	7.39
Reactive Silica (SiO2)	mg/L		0.5	7.3	8.5	11	9.8	11	11
Sulphate (SO4)	mg/L	500 AO	2	ND	ND	16	11	16	19
Turbidity	NTU	5 AO	0.1	1	0.2	ND	0.5	5	0.7
Conductivity	uS/cm	-	-	695	710	410	290	910	1000
Anion Sum	me/L	-	-	5.92	6.77	4.31	2.95	7.36	8.5
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	82	81	134	108	20.3	22
Calculated TDS	mg/L	-	1	341	375	243	167	223	503
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	1	2	ND	ND	ND
Cation Sum	me/L	-	-	6.19	6.39	4.22	2.92	8.18	8.67
Ion Balance (% Difference)	%	-	-	2.27	2.89	1.01	0.51	5.28	0.99
Langelier Index (@ 20C)	N/A	-	-	-0.85	0.039	0.382	0.008	-1.54	-0.975
Langelier Index (@ 4C)	N/A	-	-	-1.25	-0.21	0.132	-0.242	-1.79	-1.22
Saturation pH (@ 20C)	N/A	-	-	8.15	8.1	7.78	7.94	8.38	8.37
Saturation pH (@ 4C)	N/A	-	-	8.55	8.35	8.03	8.19	8.63	8.61
Calcium (Ca)	mg/L	-	0.1	26.1	27	30	25	52	58
Magnesium (Mg)	mg/L	-	0.1	8.2	8.8	2.7	2.3	5.6	7.5
Phosphorus (P)	mg/L	-	0.1	ND	ND	0.1	ND	ND (0.2)	ND
Potassium (K)	mg/L	-	0.1	1.9	1.9	1.6	1.3	4.9	5.4
Sodium (Na)	mg/L	200 AO	0.1	95.4	98	57	33	120	120
Bromide (Br)	mg/L	-	0.5	0.53	ND	ND	ND	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.11	0.1	0.3	0.2	ND	ND
Metals									
Aluminum (Al)	ug/L	-	10	ND	ND	16	12	ND	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	**56**	**58**	4	2	ND	ND
Barium (Ba)	ug/L	1000	5	26	41	130	110	64	76
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	93	110	38	27	5.7	6
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	ND	ND	ND	ND	ND	**410**
Lead (Pb)	ug/L	10	0.5	ND	ND	ND	ND	ND	**45**
Manganese (Mn)	ug/L	50 AO	2	16	32	21	ND	ND	12
Molybdenum (Mo)	ug/L	-	2	ND	ND	8	4	ND	ND
Mercury (Hg)	ug/L	1	0.01	-	ND	-	ND	-	0.01
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	ND	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	1100	1400	1100	520	210	260
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	ND	ND	0.7	0.9	ND	ND
Vanadium (V)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	ND	21	ND	150	8

Notes:
AO = Aesthetic Objective.
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All guidelines are health-based MACs or IMACs, unless otherwise indicated.
Shaded values exceed guidelines.

Table C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Sydney (Well 050)		North Grant (Well 054)		Stillwater (Well 055)	
				15-Sep-2005	11-Dec-2008	13-Dec-2006	22-Jul-2008	13-Dec-2006	04-Dec-2008
General Chemistry									
Total Alkalinity (Total as CaCO3)	mg/L	-	5	83	90	93	92	58	64
Chloride (Cl)	mg/L	250 AO	1	7	5	30	27	5	5
Colour	TCU	15 AO	5	ND	8	ND	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO	-	87	89	38	36	58	53
Nitrate + Nitrite	mg/L	10	0.05	0.17	ND	0.55	0.7	0.13	0.1
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	0.17	ND	0.55	0.7	0.13	0.1
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	ND	ND	ND	0.09	0.06
Total Organic Carbon (C)	mg/L	-	0.5	ND	1.3	2.5	ND	2.5	0.8
Orthophosphate (P)	mg/L	-	0.01	ND	ND	ND	ND	ND	ND
pH	pH	6.5 - 8.5 AO	-	8.03	7.7	7.83	8.03	7.32	7.28
Reactive Silica (SiO2)	mg/L		0.5	8.6	8	9.6	9.8	12	11
Sulphate (SO4)	mg/L	500 AO	2	7	7	35	31	6	4
Turbidity	NTU	5 AO	0.1	0.3	0.2	1.1	**53**	0.4	0.6
Conductivity	uS/cm	-	-	210	190	340	340	140	140
Anion Sum	me/L	-	-	2.02	2.1	3.5	3.3	1.44	1.52
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	82	90	93	91	58	64
Calculated TDS	mg/L	-	1	115	116	209	206	89	88
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	ND	ND
Cation Sum	me/L	-	-	2.07	2.05	3.43	3.58	1.5	1.4
Ion Balance (% Difference)	%	-	-	1.29	1.2	1.07	4.07	2.18	4.11
Langelier Index (@ 20C)	N/A	-	-	0.069	-0.207	-0.526	-0.363	-0.962	-0.998
Langelier Index (@ 4C)	N/A	-	-	-0.182	-0.458	-0.776	-0.613	-1.21	-1.25
Saturation pH (@ 20C)	N/A	-	-	7.96	7.91	8.36	8.39	8.28	8.28
Saturation pH (@ 4C)	N/A	-	-	8.21	8.16	8.61	8.64	8.53	8.53
Calcium (Ca)	mg/L	-	0.1	30	31	12	11	19	18
Magnesium (Mg)	mg/L	-	0.1	3	2.8	2.2	2.2	2.2	2
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	1.7	1.4	1	1	1.8	1.6
Sodium (Na)	mg/L	200 AO	0.1	6.6	5.5	61	61	6.8	7
Bromide (Br)	mg/L	-	0.5	ND	ND	ND	ND	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.1	0.1	0.6	0.6	ND	ND
Metals									
Aluminum (Al)	ug/L	-	10	11	ND	46	620	35	20
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	ND	ND	3	**15**	ND	ND
Barium (Ba)	ug/L	1000	5	93	91	88	110	11	10
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	15	10	610	560	8	8
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND	ND	1
Copper (Cu)	ug/L	1000 AO	2	7	ND	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	80	250	85	**4900**	ND	ND
Lead (Pb)	ug/L	10	0.5	ND	ND	ND	0.6	ND	ND
Manganese (Mn)	ug/L	50 AO	2	**630**	**830**	8	27	37	**100**
Molybdenum (Mo)	ug/L	-	2	ND	ND	3	3	ND	ND
Mercury (Hg)	ug/L	1	0.01	-	ND	ND	ND	ND	ND
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	ND	3
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	ND	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	230	180	180	180	64	71
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	24	ND	ND
Uranium (U)	ug/L	20	0.1	ND	ND	1.3	2.1	0.5	0.3
Vanadium (V)	ug/L	-	2	ND	ND	2	17	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	6	ND	ND	8	ND	ND

Notes:
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ND( ) = not detected at the elevated detection limit shown in brackets ( )
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Shaded values exceed guidelines.

Table C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Sheet Harbour (Well 056)	Hayden Lake (Well 059)		Meteghan (Well 060)	
				05-Dec-08	9-Jun-2005	16-Dec-2008	12-Dec-2006	17-Dec-2008
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	96	14	12	67	63
Chloride (Cl)	mg/L	250 AO	1	7	9.2	9	16	17
Colour	TCU	15 AO	5	ND	ND	ND	6	ND
Hardness (CaCO3)	mg/L	500 AO	-	81	15	13	85	77
Nitrate + Nitrite	mg/L	10	0.05	ND	ND	0.06	ND	ND
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	ND	ND	0.06	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	ND	ND	0.07	0.08
Total Organic Carbon (C)	mg/L	-	0.5	0.6	0.8	0.6	3.3	0.6
Orthophosphate (P)	mg/L	-	0.01	ND	ND	ND	ND	ND
pH	pH	6.5 - 8.5 AO	-	7.99	6.74	**6.33**	7.42	7.31
Reactive Silica (SiO2)	mg/L		0.5	11	5.9	7.6	8.7	9
Sulphate (SO4)	mg/L	500 AO	2	4	4.3	4	13	13
Turbidity	NTU	5 AO	0.1	0.3	ND	0.1	**59**	**49**
Conductivity	uS/cm	-	-	220	70	64	200	200
Anion Sum	me/L	-	-	2.19	0.622	0.58	2.11	2.04
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	95	13.6	12	67	63
Calculated TDS	mg/L	-	1	121	41.2	40	124	119
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	ND
Cation Sum	me/L	-	-	2.07	0.659	0.57	2.29	2.15
Ion Balance (% Difference)	%	-	-	2.82	2.9	0.87	4.09	2.63
Langelier Index (@ 20C)	N/A	-	-	0.053	-2.86	-3.4	-0.765	-0.956
Langelier Index (@ 4C)	N/A	-	-	-0.198	-3.11	-3.65	-1.02	-1.21
Saturation pH (@ 20C)	N/A	-	-	7.94	9.6	9.73	8.19	8.27
Saturation pH (@ 4C)	N/A	-	-	8.19	9.85	9.98	8.44	8.52
Calcium (Ca)	mg/L	-	0.1	27	3.7	3.1	22	19
Magnesium (Mg)	mg/L	-	0.1	2.9	1.5	1.3	7.3	6.8
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	1.9	0.9	1	1.7	1.7
Sodium (Na)	mg/L	200 AO	0.1	9.5	7.5	6.6	8.5	9.2
Bromide (Br)	mg/L	-	0.5	ND	ND	ND	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.1	ND	ND	0.6	0.6
Metals								
Aluminum (Al)	ug/L	-	10	ND	25	73	ND	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	10	ND	ND	ND	ND
Barium (Ba)	ug/L	1000	5	7	7.4	8	5	6
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	18	6.9	7	47	51
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	ND	37	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	77	ND	ND	**4900**	**4600**
Lead (Pb)	ug/L	10	0.5	ND	ND	ND	ND	ND
Manganese (Mn)	ug/L	50 AO	2	**160**	13	10	**60**	**52**
Molybdenum (Mo)	ug/L	-	2	ND	ND	ND	ND	ND
Mercury (Hg)	ug/L	1	0.01	ND	-	ND	ND	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	170	19	20	36	35
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	2	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	1	ND	ND	ND	ND
Vanadium (V)	ug/L	-	2	ND	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	21	5	5	ND

Notes:
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ND = not detected
ND( ) = not detected at the elevated detection limit shown in brackets ( )
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Shaded values exceed guidelines.

Table C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Annapolis Royal (Well 062)		Hebron (Well 063)		Margaree (Well 064)	
				9-Nov-2005	26/Nov/2007	9-Jun-2005	17-Dec-2009	14-Dec-2006	10-Dec-2008
General Chemistry									
Total Alkalinity (Total as CaCO3)	mg/L	-	5	52	54	23	24	160	160
Chloride (Cl)	mg/L	250 AO	1	6	6	49	57	10	8
Colour	TCU	15 AO	5	ND	ND	5.8	8	ND	ND
Hardness (CaCO3)	mg/L	500 AO	-	43	41	71	65	210	190
Nitrate + Nitrite	mg/L	10	0.05	ND	ND	ND	ND	ND	ND
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	ND	ND	ND	ND	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	ND	ND	0.05	0.13	0.12
Total Organic Carbon (C)	mg/L	-	0.5	ND	ND	1.2	1.6	3.6	ND
Orthophosphate (P)	mg/L	-	0.01	0.03	0.02	ND	0.01	ND	ND
pH	pH	6.5 - 8.5 AO	-	7.3	8.03	**6.29**	6.5	8.13	8.11
Reactive Silica (SiO2)	mg/L		0.5	14	12	17	16	12	16
Sulphate (SO4)	mg/L	500 AO	2	7	7	13	16	93	87
Turbidity	NTU	5 AO	0.1	0.2	**15**	**150**	**45**	0.2	0.7
Conductivity	uS/cm	-	-	130	140	270	310	510	510
Anion Sum	me/L	-	-	1.38	1.4	2.12	2.41	5.48	5.17
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	52	53	23.2	24	160	154
Calculated TDS	mg/L	-	1	89	88	169	174	311	295
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	2	2
Cation Sum	me/L	-	-	1.44	1.42	3.38	3.14	5.5	4.95
Ion Balance (% Difference)	%	-	-	2.2	0.71	22.9	13.2	0.182	2.17
Langelier Index (@ 20C)	N/A	-	-	-1.15	-0.431	-2.47	-2.29	0.525	0.484
Langelier Index (@ 4C)	N/A	-	-	-1.41	-0.682	-2.72	-2.54	0.276	0.235
Saturation pH (@ 20C)	N/A	-	-	8.45	8.46	8.76	8.79	7.61	7.63
Saturation pH (@ 4C)	N/A	-	-	8.71	8.71	9.01	9.04	7.85	7.88
Calcium (Ca)	mg/L	-	0.1	15	14	18	16	41	41
Magnesium (Mg)	mg/L	-	0.1	1.6	1.5	6.3	6	26	21
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	0.1	ND	ND
Potassium (K)	mg/L	-	0.1	1	1.2	1.7	1.8	1.7	1.3
Sodium (Na)	mg/L	200 AO	0.1	13	13	20	20	28	27
Bromide (Br)	mg/L	-	0.5	ND	ND	0.5	0.5	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.2	0.2	ND	ND	0.6	0.6
Metals									
Aluminum (Al)	ug/L	-	10	ND	ND	ND	ND	12	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	4	4	ND	ND	ND	ND
Barium (Ba)	ug/L	1000	5	52	66	14	17	21	19
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	12	12	8.8	10	450	490
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	ND	ND	**27000**	**26000**	ND	ND
Lead (Pb)	ug/L	10	0.5	ND	1	ND	ND	ND	ND
Manganese (Mn)	ug/L	50 AO	2	**110**	**93**	**440**	**460**	5	ND
Molybdenum (Mo)	ug/L	-	2	4	4	ND	ND	ND	ND
Mercury (Hg)	ug/L	1	0.01	-	0.02	-	ND	ND	ND
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	ND	ND
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	59	61	91	92	15000	14000
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	1.9	3.6	ND	ND	ND	ND
Vanadium (V)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	ND	16	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 C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Dalem Lake (Well 069)		Amherst (Well 071)		Kelley River (Well 073)	Atlanta (Well 074)
				14-Dec-2006	11-Dec-2008	16-Dec-2006	08-Jan-2009	12-Jan-2007	03-Sep-2007
General Chemistry									
Total Alkalinity (Total as CaCO3)	mg/L	-	5	63	65	120	120	22	95
Chloride (Cl)	mg/L	250 AO	1	38	38	33	32	8	8
Colour	TCU	15 AO	5	ND	ND	ND	ND	ND	ND
Hardness (CaCO3)	mg/L	500 AO	-	120	100	83	74	13	75
Nitrate + Nitrite	mg/L	10	0.05	ND	0.06	1.3	1.4	0.07	0.74
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	0.01	ND	ND
Nitrate (N)	mg/L	10	0.05	ND	0.06	1.3	1.4	0.07	0.74
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	ND	ND	ND	ND	ND
Total Organic Carbon (C)	mg/L	-	0.5	2.6	ND	2.3	ND	2.7	ND
Orthophosphate (P)	mg/L	-	0.01	0.01	ND	0.04	0.05	ND	ND
pH	pH	6.5 - 8.5 AO	-	7.8	7.77	8.08	7.97	7.22	8.08
Reactive Silica (SiO2)	mg/L		0.5	12	12	11	11	4.3	11
Sulphate (SO4)	mg/L	500 AO	2	8	7	40	42	4	4
Turbidity	NTU	5 AO	0.1	0.3	1.2	ND	0.3	0.2	ND
Conductivity	uS/cm	-	-	260	260	430	390	81	210
Anion Sum	me/L	-	-	2.51	2.54	4.3	4.26	0.765	2.26
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	62	65	120	117	22	94
Calculated TDS	mg/L	-	1	150	145	260	259	46	135
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	1	1	ND	1
Cation Sum	me/L	-	-	2.77	2.45	4.55	4.46	0.746	2.47
Ion Balance (% Difference)	%	-	-	4.97	1.8	2.89	2.29	1.26	4.44
Langelier Index (@ 20C)	N/A	-	-	-0.191	-0.263	0.17	0.007	-2.19	0.116
Langelier Index (@ 4C)	N/A	-	-	-0.442	-0.514	-0.08	-0.242	-2.44	-0.135
Saturation pH (@ 20C)	N/A	-	-	7.99	8.03	7.91	7.96	9.41	7.96
Saturation pH (@ 4C)	N/A	-	-	8.24	8.28	8.16	8.21	9.66	8.22
Calcium (Ca)	mg/L	-	0.1	38	33	26	24	3.6	27
Magnesium (Mg)	mg/L	-	0.1	6.1	5.3	4.3	3.6	1	2.2
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	1.3	1.2	1.3	1.2	1	2.2
Sodium (Na)	mg/L	200 AO	0.1	7.5	7.5	66	68	11	21
Bromide (Br)	mg/L	-	0.5	ND	ND	ND	ND	ND	ND
Fluoride (F)	mg/L	1.5	0.1	0.2	0.2	0.6	0.6	ND	ND
Metals									
Aluminum (Al)	ug/L	-	10	ND	ND	ND	ND	ND	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	4	3	ND	ND	ND	ND
Barium (Ba)	ug/L	1000	5	150	150	170	180	24	8
Beryllium (Be)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Bismuth (Bi)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Boron (B)	ug/L	5000	5	9	5	12	11	14	13
Cadmium (Cd)	ug/L	5	0.3	ND	ND	ND	ND	ND	ND
Chromium (Cr)	ug/L	50	2	ND	ND	ND	ND	ND	ND
Cobalt (Co)	ug/L	-	1	ND	ND	ND	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	180	160	ND	ND	87	ND
Lead (Pb)	ug/L	10	0.5	ND	ND	ND	ND	ND	ND
Manganese (Mn)	ug/L	50 AO	2	**330**	**350**	3	ND	20	ND
Molybdenum (Mo)	ug/L	-	2	ND	ND	50	56	ND	ND
Mercury (Hg)	ug/L	1	0.01	ND	ND	ND	ND	ND	ND
Nickel (Ni)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Selenium (Se)	ug/L	10	2	ND	ND	ND	ND	ND	2
Silver (Ag)	ug/L	-	0.5	ND	ND	ND	ND	ND	ND
Strontium (Sr)	ug/L	-	5	77	58	58	58	20	280
Thallium (Tl)	ug/L	-	0.1	ND	ND	ND	ND	ND	ND
Tin (Sn)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Titanium (Ti)	ug/L	-	2	ND	ND	ND	ND	ND	ND
Uranium (U)	ug/L	20	0.1	ND	ND	3.7	3.8	ND	**21**
Vanadium (V)	ug/L	-	2	ND	ND	5	4	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	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 C2: General Chemistry and Metal Results

Parameter	Units	Drinking Water Guideline	Detection Limit	Sheffield Mills (Well 075) 10-Sep-2007	Fall River (Well 076) 20-May-2008	West Northfield (Well 077) 12/Jun/2008	Musquodoboit (Well 078) 22/May/2008	Lewis Lake (Well 079) 31/Jul/2008
General Chemistry								
Total Alkalinity (Total as CaCO3)	mg/L	-	5	95	ND	57	81	62
Chloride (Cl)	mg/L	250 AO	1	6	12	15	8	11
Colour	TCU	15 AO	5	ND	42	7	5	6
Hardness (CaCO3)	mg/L	500 AO	-	98	13	80	21	21
Nitrate + Nitrite	mg/L	10	0.05	0.78	0.14	ND	ND	ND
Nitrite (N)	mg/L	1	0.01	ND	ND	ND	ND	ND
Nitrate (N)	mg/L	10	0.05	0.78	0.12	ND	ND	ND
Nitrogen (Ammonia Nitrogen)	mg/L	-	0.05	ND	0.07	ND	0.16	ND
Total Organic Carbon (C)	mg/L	-	0.5	ND	1.1	ND	ND	0.5
Orthophosphate (P)	mg/L	-	0.01	ND	ND	ND	ND	0.03
pH	pH	6.5 - 8.5 AO	-	7.99	**6**	8.1	7.78	7.8
Reactive Silica (SiO2)	mg/L		0.5	8.9	4	9.1	2.4	20
Sulphate (SO4)	mg/L	500 AO	2	3	14	32	9	7
Turbidity	NTU	5 AO	0.1	ND	4.6	0.5	0.6	3.6
Conductivity	uS/cm	-	-	210	110	240	210	170
Anion Sum	me/L	-	-	2.17	0.69	2.31	2.13	1.83
Bicarb. Alkalinity (calc. as CaCO3)	mg/L	-	1	94	ND	57	81	61
Calculated TDS	mg/L	-	1	124	54	139	119	124
Carb. Alkalinity (calc. as CaCO3)	mg/L	-	1	ND	ND	ND	ND	ND
Cation Sum	me/L	-	-	2.31	0.95	2.31	2.14	1.98
Ion Balance (% Difference)	%	-	-	3.13	15.9	0	0.23	3.94
Langelier Index (@ 20C)	N/A	-	-	0.147	-	-0.081	-0.857	-0.889
Langelier Index (@ 4C)	N/A	-	-	-0.104	-	-0.331	-1.11	-1.14
Saturation pH (@ 20C)	N/A	-	-	7.84	-	8.18	8.64	8.69
Saturation pH (@ 4C)	N/A	-	-	8.09	-	8.43	8.89	8.94
Calcium (Ca)	mg/L	-	0.1	35	3.4	27	6.4	7.5
Magnesium (Mg)	mg/L	-	0.1	2.7	1.1	3	1.3	0.5
Phosphorus (P)	mg/L	-	0.1	ND	ND	ND	ND	ND
Potassium (K)	mg/L	-	0.1	2.5	0.9	0.9	4.5	4.4
Sodium (Na)	mg/L	200 AO	0.1	6.8	8.1	16	37	33
Bromide (Br)	mg/L	-	0.5	ND	0.5	ND	ND	2.6
Fluoride (F)	mg/L	1.5	0.1	ND	ND	1.1	1.6	**2.5**
Metals								
Aluminum (Al)	ug/L	-	10	ND	45	ND	ND	ND
Antimony (Sb)	ug/L	6	2	ND	ND	ND	ND	ND
Arsenic (As)	ug/L	10	2	ND	ND	ND	ND	**18**
Barium (Ba)	ug/L	1000	5	18	14	6	5	72
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	7	6	27	120	35
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	4	ND	ND	ND
Copper (Cu)	ug/L	1000 AO	2	ND	ND	ND	ND	ND
Iron (Fe)	ug/L	300 AO	50	ND	**8700**	150	ND	140
Lead (Pb)	ug/L	10	0.5	ND	1.5	ND	ND	0.7
Manganese (Mn)	ug/L	50 AO	2	ND	**770**	**150**	35	**60**
Molybdenum (Mo)	ug/L	-	2	ND	ND	6	5	3
Mercury (Hg)	ug/L	1	0.01	ND	ND	0.01	0.01	ND
Nickel (Ni)	ug/L	-	2	ND	5	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	420	11	99	39	100
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	8.4	ND	0.2	ND	0.2
Vanadium (V)	ug/L	-	2	ND	ND	ND	ND	ND
Zinc (Zn)	ug/L	5000 AO	5	ND	21	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Greenwood (Well 003)		Fraser Brook (Well 004)		Wilmot (Well 005)
			23-Nov-2005	18-Dec-2008	10-Dec-2004	3-Dec-2008	29-Nov-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	5	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	5	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Wolfville (Well 010)		Monastery (Well 028)		Point Aconi (Well 030)	
			22-Dec-2004	18-Dec-2008	15-Dec-2006	09-Dec-2008	15-Sep-2005	10-Dec-2008
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	ND	ND	ND
Chlorobenzene	80	1	ND	ND	ND	ND	ND	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	-	2	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	1	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	-	1	ND	ND	ND	ND	ND	ND
Benzene	5	1	ND	ND	ND	ND	ND	ND
Bromodichloromethane	16	1	ND	ND	ND	ND	ND	ND
Bromoform	100	1	ND	ND	ND	ND	ND	ND
Bromomethane	-	8	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	1	ND	ND	ND	ND	ND	ND
Chloroethane	-	8	ND	ND	ND	ND	ND	ND
Chloroform	100	1	ND	ND	ND	ND	ND	ND
Chloromethane	-	8	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	ND	ND	ND
Dibromochloromethane	100	1	ND	ND	ND	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	ND	ND	ND
Ethylene Dibromide	-	1	ND	ND	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	ND	ND	ND
o-Xylene	300 AO	1	ND	ND	ND	ND	ND	ND
p+m-Xylene	300 AO	2	ND	ND	ND	ND	ND	ND
Styrene	-	1	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	30	1	ND	ND	ND	ND	ND	ND
Toluene	24 AO	1	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND	ND	ND
Trichloroethylene	5	1	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	1	ND	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Lawrencetown (Well 043)	Durham (Well 045)		Kentville (Well 048)	Sydney (Well 050)	
			5-Dec-2008	5-Oct-2005	21-Jan-2009	7-Nov-2007	15-Sep-2005	11-Dec-2008
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	ND	ND	ND
Chlorobenzene	80	1	ND	ND	ND	ND	ND	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	-	2	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	1	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	-	1	ND	ND	ND	ND	ND	ND
Benzene	5	1	ND	ND	ND	ND	ND	ND
Bromodichloromethane	16	1	ND	ND	ND	ND	ND	ND
Bromoform	100	1	ND	ND	ND	ND	ND	ND
Bromomethane	-	8	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	1	ND	ND	ND	ND	ND	ND
Chloroethane	-	8	ND	ND	ND	ND	ND	ND
Chloroform	100	1	ND	ND	ND	ND	ND	ND
Chloromethane	-	8	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	ND	ND	ND
Dibromochloromethane	100	1	ND	ND	ND	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	ND	ND	ND
Ethylene Dibromide	-	1	ND	ND	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	ND	ND	ND
o-Xylene	300 AO	1	ND	ND	ND	ND	ND	ND
p+m-Xylene	300 AO	2	ND	ND	ND	ND	ND	ND
Styrene	-	1	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	30	1	ND	ND	ND	ND	ND	ND
Toluene	24 AO	1	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND	ND	ND
Trichloroethylene	5	1	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	1	ND	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	North Grant (Well 054)		Stillwater (Well 055)		Sheet Harbour (Well 056)
			13-Dec-2006	22-Jul-2008	13-Dec-2006	4-Dec-2008	5-Dec-2008
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	5	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	1	ND	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND	ND
Trichloroethylene	5	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Hayden Lake (Well 059)		Meteghan (Well 060)		Annapolis Royal (Well 062)	
			9-Jun-2005	16-Dec-2008	13-Dec-2006	17-Dec-2008	9-Nov-2005	26-Nov-2007
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	ND	ND	ND
Chlorobenzene	80	1	ND	ND	ND	ND	ND	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	-	2	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	1	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	-	1	ND	ND	ND	ND	ND	ND
Benzene	5	1	ND	ND	ND	ND	ND	ND
Bromodichloromethane	16	1	ND	ND	ND	ND	ND	ND
Bromoform	100	1	ND	ND	ND	ND	ND	ND
Bromomethane	-	8	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	1	ND	ND	ND	ND	ND	ND
Chloroethane	-	8	ND	ND	ND	ND	ND	ND
Chloroform	100	1	3.2	ND	ND	ND	ND (2)	ND
Chloromethane	-	8	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	ND	ND	ND
Dibromochloromethane	100	1	ND	ND	ND	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	ND	ND	ND
Ethylene Dibromide	-	1	ND	ND	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	ND	ND	ND
o-Xylene	300 AO	1	ND	ND	ND	ND	ND	ND
p+m-Xylene	300 AO	2	ND	ND	ND	ND	ND	ND
Styrene	-	1	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	30	1	ND	ND	ND	ND	ND	ND
Toluene	24 AO	1	ND	ND	ND	ND	2	1
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND	ND	ND
Trichloroethylene	5	1	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	1	ND	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Hebron (Well 063)		Margaree (Well 064)		Dalem Lake (Well 069)	
			9-Jun-2005	17-Dec-2009	14-Dec-2006	10-Dec-2008	14-Dec-2006	11-Dec-2008
CHLOROBENZENES								
1,2-Dichlorobenzene	200	0.5	ND	ND	ND	ND	ND	ND
1,3-Dichlorobenzene	-	1	ND	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	5	1	ND	ND	ND	ND	ND	ND
Chlorobenzene	80	1	ND	ND	ND	ND	ND	ND
VOLATILES								
1,1,1-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2,2-Tetrachloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1,2-Trichloroethane	-	1	ND	ND	ND	ND	ND	ND
1,1-Dichloroethane	-	2	ND	ND	ND	ND	ND	ND
1,1-Dichloroethylene	14	2	ND	ND	ND	ND	ND	ND
1,2-Dichloroethane	5	1	ND	ND	ND	ND	ND	ND
1,2-Dichloropropane	-	1	ND	ND	ND	ND	ND	ND
Benzene	5	1	ND	ND	ND	ND	ND	ND
Bromodichloromethane	16	1	ND	ND	ND	ND	ND	ND
Bromoform	100	1	ND	ND	ND	ND	ND	ND
Bromomethane	-	8	ND	ND	ND	ND	ND	ND
Carbon Tetrachloride	5	1	ND	ND	ND	ND	ND	ND
Chloroethane	-	8	ND	ND	ND	ND	ND	ND
Chloroform	100	1	ND	ND	ND	ND	ND	ND
Chloromethane	-	8	ND	ND	ND	ND	ND	ND
cis-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
cis-1,3-Dichloropropene	-	2	ND	ND	ND	ND	ND	ND
Dibromochloromethane	100	1	ND	ND	ND	ND	ND	ND
Ethylbenzene	2.4 AO	1	ND	ND	ND	ND	ND	ND
Ethylene Dibromide	-	1	ND	ND	ND	ND	ND	ND
Methylene Chloride(Dichloromethane)	-	3	ND	ND	ND	ND	ND	ND
o-Xylene	300 AO	1	ND	ND	ND	ND	ND	ND
p+m-Xylene	300 AO	2	ND	ND	ND	ND	ND	ND
Styrene	-	1	ND	ND	ND	ND	ND	ND
Tetrachloroethylene	30	1	ND	ND	ND	ND	ND	ND
Toluene	24 AO	1	ND	ND	ND	ND	ND	ND
trans-1,2-Dichloroethylene	-	2	ND	ND	ND	ND	ND	ND
trans-1,3-Dichloropropene	-	1	ND	ND	ND	ND	ND	ND
Trichloroethylene	5	1	ND	ND	ND	ND	ND	ND
Trichlorofluoromethane (FREON 11)	-	8	ND	ND	ND	ND	ND	ND
Vinyl Chloride	2	1	ND	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 C3: Volatile Organic Compound (VOC) Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Fall River (Well 076) 20-May-2008	West Northfield (Well 077) 12-Jun-2008	Musquodoboit (Well 078) 22-May-2008	Lewis Lake (Well 079) 31-Jul-2008
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	5	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	5	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 indicated.
Shaded values exceed guidelines.

Table C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Greenwood (Well 003)		Fraser Brook (Well 004)		Wolfville (Well 010)	
			23-Nov-2005	18-Dec-2008	10-Dec-2004	3-Dec-2008	22-Dec-2004	18-Dec-2008
Herbicides								
Atrazine	5	0.2	ND	ND	ND	ND	ND	ND
De-ethyl Atrazine		0.3	ND	ND	ND	ND	ND	ND
Butylate		0.5	ND	ND	ND	ND	ND	ND
Cyanazine	10	0.5	ND	ND	ND	ND	ND	ND
Desmetryn		0.3	ND	ND	ND	ND	ND	ND
Diphenylamine		0.1	ND	ND	ND	ND	ND	ND
Eptam		0.5	ND	ND	ND	ND	ND	ND
Ethalfluralin		0.5	ND	ND	ND	ND	ND	ND
Hexazinone		0.1	ND	ND	ND	ND	ND	ND
Metalaxyl		0.3	ND	ND	ND	ND	ND	ND
Metribuzin	80	0.3	ND	ND	ND	ND	ND	ND
Metolachlor	50	0.2	ND	ND	ND	ND	ND	ND
Pirimicarb		0.5	ND	ND	ND	ND	ND	ND
Profluralin		0.5	ND	ND	ND	ND	ND	ND
Prometryn		0.2	ND	ND	ND	ND	ND	ND
Propazine		0.1	ND	ND	ND	ND	ND	ND
Simazine	10	0.5	ND	ND	ND	ND	ND	ND
Terbuthylazine		0.1	ND	ND	ND	ND	ND	ND
Terbutryn		0.2	ND	ND	ND	ND	ND	ND
Triallate		0.3	ND	ND	ND	ND	ND	ND
Triadimefon		0.3	ND	ND	ND	ND	ND	ND
Trifluralin	45	0.2	ND	ND	ND	ND	ND	ND
Organochlorine Pesticides								
Alachlor		0.5	ND		ND	ND	ND	
Aldrin + Dieldrin	0.7	0.5	ND	ND	ND	ND	ND	ND
BHC, alpha-		0.3	ND	ND	ND	ND	ND	ND
BHC, beta-		0.3	ND	ND	ND	ND	ND	ND
Captan		1	ND	ND	ND	ND	ND	ND
Chlorbenside		0.1	ND	ND	ND	ND	ND	ND
Chlordane, alpha-		0.5	ND	ND	ND	ND	ND	ND
Chlordane, gamma-		0.5	ND	ND	ND	ND	ND	ND
Chlorfenson (Ovex)		0.2	ND	ND	ND	ND	ND	ND
Chlorothalonil (Daconil)		1	ND	ND	ND	ND	ND	ND
Chlorpropham		0.2	ND	ND	ND	ND	ND	ND
Dacthal (DCPA)		0.1	ND	ND	ND	ND	ND	ND
4,4'-DDE		0.01	ND (0.1)	ND (0.1)	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)	ND (0.2)	ND (0.2)
DDT - parapara (4,4')		0.01	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Diallate(e/z)		0.5	ND	ND	ND	ND	ND	ND
Dichlobenil		0.2	ND	ND	ND	ND	ND	ND
Dichloran		0.5	ND	ND	ND	ND	ND	ND
Dichlofluanid		0.5	ND	ND	ND	ND	ND	ND
Dicofol		0.2	ND	ND	ND	ND	ND	ND
Endosulfan I		0.5	ND	ND	ND	ND	ND	ND
Endosulfan II		0.5	ND	ND	ND	ND	ND	ND
Endosulfan Sulphate		0.5	ND	ND	ND	ND	ND	ND
Endrin		0.5	ND	ND	ND	ND	ND	ND
Folpet		1	ND	ND	ND	ND	ND	ND
Heptachlor		0.5	ND	ND	ND	ND	ND	ND
Lindane (BHC), gamma-		0.5	ND	ND	ND	ND	ND	ND
Methidathion		0.3	ND	ND	ND	ND	ND	ND
Methoxychlor	900	0.1	ND	ND	ND	ND	ND	ND
Mirex		0.3	ND	ND	ND	ND	ND	ND
Nitrofen		0.2	ND	ND	ND	ND	ND	ND
Permethrin-cis/trans		0.5	ND	ND	ND	ND	ND	ND
Procymidone		0.2	ND	ND	ND	ND	ND	ND
Pronamide		0.2	ND	ND	ND	ND	ND	ND
Quintozene (Pentachloronitrobenzene)		0.5	ND	ND	-	-	-	ND
Tecnazene		0.5	ND	ND	ND	ND	ND	ND
Tetradifon		0.2	ND	ND	ND	ND	ND	ND
Tolylfluanid		0.5	ND	ND	ND	ND	ND	ND
Vinclozolin		0.5	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Monastery (Well 028)	Point Aconi (Well 030)		Lawrencetown (Well 043)	Durham (Well 045)	
			15-Dec-2006	15-Sep-2005	10-Dec-2008	5-Dec-2008	5-Oct-2005	21-Jan-2009
Herbicides								
Atrazine	5	0.2	ND	ND	ND	ND	ND	ND
De-ethyl Atrazine		0.3	ND	ND	ND	ND	ND	ND
Butylate		0.5	ND	ND	ND	ND	ND	ND
Cyanazine	10	0.5	ND	ND	ND	ND	ND	ND
Desmetryn		0.3	ND	ND	ND	ND	ND	ND
Diphenylamine		0.1	ND	ND	ND	ND	ND	ND
Eptam		0.5	ND	ND	ND	ND	ND	ND
Ethalfluralin		0.5	ND	ND	ND	ND	ND	ND
Hexazinone		0.1	ND	ND	ND	ND	ND	ND
Metalaxyl		0.3	ND	ND	ND	ND	ND	ND
Metribuzin	80	0.3	ND	ND	ND	ND	ND	ND
Metolachlor	50	0.2	ND	ND	ND	ND	ND	ND
Pirimicarb		0.5	ND	ND	ND	ND	ND	ND
Profluralin		0.5	ND	ND	ND	ND	ND	ND
Prometryn		0.2	ND	ND	ND	ND	ND	ND
Propazine		0.1	ND	ND	ND	ND	ND	ND
Simazine	10	0.5	ND	ND	ND	ND	ND	ND
Terbuthylazine		0.1	ND	ND	ND	ND	ND	ND
Terbutryn		0.2	ND	ND	ND	ND	ND	ND
Triallate		0.3	ND	ND	ND	ND	ND	ND
Triadimefon		0.3	ND	ND	ND	ND	ND	ND
Trifluralin	45	0.2	ND	ND	ND	ND	ND	ND
Organochlorine Pesticides								
Alachlor		0.5	ND	ND			ND	ND
Aldrin + Dieldrin	0.7	0.5	ND	ND	ND	ND	ND	ND
BHC, alpha-		0.3	ND	ND	ND	ND	ND	ND
BHC, beta-		0.3	ND	ND	ND	ND	ND	ND
Captan		1	ND	ND	ND	ND	ND	ND
Chlorbenside		0.1	ND	ND	ND	ND	ND	ND
Chlordane, alpha-		0.5	ND	ND	ND	ND	ND	ND
Chlordane, gamma-		0.5	ND	ND	ND	ND	ND	ND
Chlorfenson (Ovex)		0.2	ND	ND	ND	ND	ND	ND
Chlorothalonil (Daconil)		1	ND	ND	ND	ND	ND	ND
Chlorpropham		0.2	ND	ND	ND	ND	ND	ND
Dacthal (DCPA)		0.1	ND	ND	ND	ND	ND	ND
4,4'-DDE		0.01	ND (0.1)	ND (0.1)	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)	ND (0.2)	ND (0.2)
DDT - parapara (4,4')		0.01	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Diallate(e/z)		0.5	ND	ND	ND	ND	ND	ND
Dichlobenil		0.2	ND	ND	ND	ND	ND	ND
Dichloran		0.5	ND	ND	ND	ND	ND	ND
Dichlofluanid		0.5	ND	ND	ND	ND	ND	ND
Dicofol		0.2	ND	ND	ND	ND	ND	ND
Endosulfan I		0.5	ND	ND	ND	ND	ND	ND
Endosulfan II		0.5	ND	ND	ND	ND	ND	ND
Endosulfan Sulphate		0.5	ND	ND	ND	ND	ND	ND
Endrin		0.5	ND	ND	ND	ND	ND	ND
Folpet		1	ND	ND	ND	ND	ND	ND
Heptachlor		0.5	ND	ND	ND	ND	ND	ND
Lindane (BHC), gamma-		0.5	ND	ND	ND	ND	ND	ND
Methidathion		0.3	ND	ND	ND	ND	ND	ND
Methoxychlor	900	0.1		ND	ND	ND	ND	ND
Mirex		0.3	ND	ND	ND	ND	ND	ND
Nitrofen		0.2	ND	ND	ND	ND	ND	ND
Permethrin-cis/trans		0.5	ND	ND	ND	ND	ND	ND
Procymidone		0.2	ND	ND	ND	ND	ND	ND
Pronamide		0.2	ND	ND	ND	ND	ND	ND
Quintozene (Pentachloronitrobenzene)		0.5		ND	ND	ND	ND	ND
Tecnazene		0.5	ND	ND	ND	ND	ND	ND
Tetradifon		0.2	ND	ND	ND	ND	ND	ND
Tolylfluanid		0.5	ND	ND	ND	ND	ND	ND
Vinclozolin		0.5	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Kentville (Well 048)		Sydney (Well 050)		North Grant (Well 054)	
			15-Jun-2005	7-Nov-2007	15-Sep-2005	11-Dec-2008	12-Dec-2006	22-Jul-2008
Herbicides								
Atrazine	5	0.2	ND (1)	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
Ethalfluralin		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
Terbuthylazine		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 (0.02)
BHC, alpha-		0.3	-	ND	ND	ND	ND	ND (0.1)
BHC, beta-		0.3	-	ND	ND	ND	ND	ND (0.1)
Captan		1	-	ND	ND	ND	ND	ND
Chlorbenside		0.1	-	ND	ND	ND	ND	ND
Chlordane, alpha-		0.5	-	ND	ND	ND	ND	ND (0.06)
Chlordane, gamma-		0.5	-	ND	ND	ND	ND	ND (0.06)
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 (0.1)	ND (0.1)	ND (0.1)	ND	ND
DDT - orthopara (2,4')		0.01	ND	ND (0.2)	ND (0.2)	ND (0.2)	ND	ND
DDT - parapara (4,4')		0.01	ND	ND (0.2)	ND (0.2)	ND (0.2)	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
Dichlofluanid		0.5	-	ND	ND	ND	ND	ND
Dicofol		0.2	-	ND	ND	ND	ND	ND
Endosulfan I		0.5	-	ND	ND	ND	ND	ND (0.2)
Endosulfan II		0.5	-	ND	ND	ND	ND	ND (0.2)
Endosulfan Sulphate		0.5	-	ND	ND	ND	ND	ND (0.2)
Endrin		0.5	-	ND	ND	ND	ND	ND (0.02)
Folpet		1	-	ND	ND	ND	ND	ND
Heptachlor		0.5	-	ND	ND	ND	ND	ND (0.1)
Lindane (BHC), gamma-		0.5	-	ND	ND	ND	ND	ND (0.1)
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
Tolylfluanid		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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Stillwater (Well 055)		Sheet Harbour (Well 056)	Hayden Lake (Well 059)		Meteghan (Well 060)	
			12-Dec-2006	4-Dec-2008	5-Dec-2008	9-Jun-2005	16-Dec-2008	13-Dec-2006	17-Dec-2008
Herbicides									
Atrazine	5	0.2	ND	ND	ND	ND (2.5)	ND	ND	ND
De-ethyl Atrazine		0.3	ND	ND	ND	-	ND	ND	ND
Butylate		0.5	ND	ND	ND	-	ND	ND	ND
Cyanazine	10	0.5	ND	ND	ND	-	ND	ND	ND
Desmetryn		0.3	ND	ND	ND	-	ND	ND	ND
Diphenylamine		0.1	ND	ND	ND	-	ND	ND	ND
Eptam		0.5	ND	ND	ND	-	ND	ND	ND
Ethalfluralin		0.5	ND	ND	ND	-	ND	ND	ND
Hexazinone		0.1	ND	ND	ND	-	ND	ND	ND
Metalaxyl		0.3	ND	ND	ND	-	ND	ND	ND
Metribuzin	80	0.3	ND	ND	ND	-	ND	ND	ND
Metolachlor	50	0.2	ND	ND	ND	-	ND	ND	ND
Pirimicarb		0.5	ND	ND	ND	-	ND	ND	ND
Profluralin		0.5	ND	ND	ND	-	ND	ND	ND
Prometryn		0.2	ND	ND	ND	-	ND	ND	ND
Propazine		0.1	ND	ND	ND	-	ND	ND	ND
Simazine	10	0.5	ND	ND	ND	-	ND	ND	ND
Terbuthylazine		0.1	ND	ND	ND	-	ND	ND	ND
Terbutryn		0.2	ND	ND	ND	-	ND	ND	ND
Triallate		0.3	ND	ND	ND	-	ND	ND	ND
Triadimefon		0.3	ND	ND	ND	-	ND	ND	ND
Trifluralin	45	0.2	ND	ND	ND	-	ND	ND	ND
Organochlorine Pesticides									
Alachlor		0.5	ND	ND		-		ND	ND
Aldrin + Dieldrin	0.7	0.5	ND	ND	ND	-	ND	ND	ND
BHC, alpha-		0.3	ND	ND	ND	-	ND	ND	ND
BHC, beta-		0.3	ND	ND	ND	-	ND	ND	ND
Captan		1	ND	ND	ND	-	ND	ND	ND
Chlorbenside		0.1	ND	ND	ND	-	ND	ND	ND
Chlordane, alpha-		0.5	ND	ND	ND	-	ND	ND	ND
Chlordane, gamma-		0.5	ND	ND	ND	-	ND	ND	ND
Chlorfenson (Ovex)		0.2	ND	ND	ND	-	ND	ND	ND
Chlorothalonil (Daconil)		1	ND	ND	ND	-	ND	ND	ND
Chlorpropham		0.2	ND	ND	ND	-	ND	ND	ND
Dacthal (DCPA)		0.1	ND	ND	ND	-	ND	ND	ND
4,4'-DDE		0.01	ND	ND (0.1)	ND (0.1)	ND	ND (0.1)	ND	ND (0.1)
DDT - orthopara (2,4')		0.01	ND	ND (0.2)	ND (0.2)	ND	ND (0.2)	ND	ND (0.2)
DDT - parapara (4,4')		0.01	ND	ND (0.2)	ND (0.2)	ND	ND (0.2)	ND	ND (0.2)
Diallate(e/z)		0.5	ND	ND	ND	-	ND	ND	ND
Dichlobenil		0.2	ND	ND	ND	-	ND	ND	ND
Dichloran		0.5	ND	ND	ND	-	ND	ND	ND
Dichlofluanid		0.5	ND	ND	ND	-	ND	ND	ND
Dicofol		0.2	ND	ND	ND	-	ND	ND	ND
Endosulfan I		0.5	ND	ND	ND	-	ND	ND	ND
Endosulfan II		0.5	ND	ND	ND	-	ND	ND	ND
Endosulfan Sulphate		0.5	ND	ND	ND	-	ND	ND	ND
Endrin		0.5	ND	ND	ND	-	ND	ND	ND
Folpet		1	ND	ND	ND	-	ND	ND	ND
Heptachlor		0.5	ND	ND	ND	-	ND	ND	ND
Lindane (BHC), gamma-		0.5	ND	ND	ND	-	ND	ND	ND
Methidathion		0.3	ND	ND	ND	-	ND	ND	ND
Methoxychlor	900	0.1	ND	ND	ND	-	ND	ND	ND
Mirex		0.3	ND	ND	ND	-	ND	ND	ND
Nitrofen		0.2	ND	ND	ND	-	ND	ND	ND
Permethrin-cis/trans		0.5	ND	ND	ND	-	ND	ND	ND
Procymidone		0.2	ND	ND	ND	-	ND	ND	ND
Pronamide		0.2	ND	ND	ND	-	ND	ND	ND
Quintozene (Pentachloronitrobenzene)		0.5	ND	ND	ND	-	ND	ND	ND
Tecnazene		0.5	ND	ND	ND	-	ND	ND	ND
Tetradifon		0.2	ND	ND	ND	-	ND	ND	ND
Tolylfluanid		0.5	ND	ND	ND	-	ND	ND	ND
Vinclozolin		0.5	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Annapolis Royal (Well 062)		Hebron (Well 063)		Margaree (Well 064)	
			9-Nov-2005	26-Nov-2007	9-Jun-2005	17-Dec-2008	14-Dec-2006	8-Dec-2008
Herbicides								
Atrazine	5	0.2	ND	ND	ND (2.5)	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
Ethalfluralin		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
Terbuthylazine		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
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 (0.1)	ND (0.1)	ND	ND (0.1)	ND	ND (0.1)
DDT - orthopara (2,4')		0.01	ND (0.2)	ND (0.2)	ND	ND (0.2)	ND	ND (0.2)
DDT - parapara (4,4')		0.01	ND (0.2)	ND (0.2)	ND	ND (0.2)	ND	ND (0.2)
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
Dichlofluanid		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
Tolylfluanid		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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Dalem Lake (Well 069)		Amherst (Well 071)		Kelley River (Well 073)	Atlanta (Well 074)	Sheffield Mills (Well 075)
			14-Dec-2006	11-Dec-2008	16-Dec-2006	8-Jan-2009	12-Jan-2007	3-Sep-2007	10-Sep-2007
Herbicides									
Atrazine	5	0.2	ND	ND	ND	ND	ND	ND	ND
De-ethyl Atrazine		0.3	ND	ND	ND	ND	ND	ND	ND
Butylate		0.5	ND	ND	ND	ND	ND	ND	ND
Cyanazine	10	0.5	ND	ND	ND	ND	ND	ND	ND
Desmetryn		0.3	ND	ND	ND	ND	ND	ND	ND
Diphenylamine		0.1	ND	ND	ND	ND	ND	ND	ND
Eptam		0.5	ND	ND	ND	ND	ND	ND	ND
Ethalfluralin		0.5	ND	ND	ND	ND	ND	ND	ND
Hexazinone		0.1	ND	ND	ND	ND	ND	ND	ND
Metalaxyl		0.3	ND	ND	ND	ND	ND	ND	ND
Metribuzin	80	0.3	ND	ND	ND	ND	ND	ND	ND
Metolachlor	50	0.2	ND	ND	ND	ND	ND	ND	ND
Pirimicarb		0.5	ND	ND	ND	ND	ND	ND	ND
Profluralin		0.5	ND	ND	ND	ND	ND	ND	ND
Prometryn		0.2	ND	ND	ND	ND	ND	ND	ND
Propazine		0.1	ND	ND	ND	ND	ND	ND	ND
Simazine	10	0.5	ND	ND	ND	ND	ND	ND	ND
Terbuthylazine		0.1	ND	ND	ND	ND	ND	ND	ND
Terbutryn		0.2	ND	ND	ND	ND	ND	ND	ND
Triallate		0.3	ND	ND	ND	ND	ND	ND	ND
Triadimefon		0.3	ND	ND	ND	ND	ND	ND	ND
Trifluralin	45	0.2	ND	ND	ND	ND	ND	ND	ND
Organochlorine Pesticides									
Alachlor		0.5	ND	ND	ND	ND	ND	ND	ND
Aldrin + Dieldrin	0.7	0.5	ND	ND	ND	ND	ND	ND	ND
BHC, alpha-		0.3	ND	ND	ND	ND	ND	ND	ND
BHC, beta-		0.3	ND	ND	ND	ND	ND	ND	ND
Captan		1	ND	ND	ND	ND	ND	ND	ND
Chlorbenside		0.1	ND	ND	ND	ND	ND	ND	ND
Chlordane, alpha-		0.5	ND	ND	ND	ND	ND	ND	ND
Chlordane, gamma-		0.5	ND	ND	ND	ND	ND	ND	ND
Chlorfenson (Ovex)		0.2	ND	ND	ND	ND	ND	ND	ND
Chlorothalonil (Daconil)		1	ND	ND	ND	ND	ND	ND	ND
Chlorpropham		0.2	ND	ND	ND	ND	ND	ND	ND
Dacthal (DCPA)		0.1	ND	ND	ND	ND	ND	ND	ND
4,4'-DDE		0.01	ND	ND (0.1)	ND	ND	ND (0.1)	ND	ND
DDT - orthopara (2,4')		0.01	ND	ND (0.2)	ND	ND	ND (0.2)	ND	ND
DDT - parapara (4,4')		0.01	ND	ND (0.2)	ND	ND	ND (0.2)	ND	ND
Diallate(e/z)		0.5	ND	ND	ND	ND	ND	ND	ND
Dichlobenil		0.2	ND	ND	ND	ND	ND	ND	ND
Dichloran		0.5	ND	ND	ND	ND	ND	ND	ND
Dichlofluanid		0.5	ND	ND	ND	ND	ND	ND	ND
Dicofol		0.2	ND	ND	ND	ND	ND	ND	ND
Endosulfan I		0.5	ND	ND	ND	ND	ND	ND	ND
Endosulfan II		0.5	ND	ND	ND	ND	ND	ND	ND
Endosulfan Sulphate		0.5	ND	ND	ND	ND	ND	ND	ND
Endrin		0.5	ND	ND	ND	ND	ND	ND	ND
Folpet		1	ND	ND	ND	ND	ND	ND	ND
Heptachlor		0.5	ND	ND	ND	ND	ND	ND	ND
Lindane (BHC), gamma-		0.5	ND	ND	ND	ND	ND	ND	ND
Methidathion		0.3	ND	ND	ND	ND	ND	ND	ND
Methoxychlor	900	0.1	ND	ND	ND	ND	ND	ND	ND
Mirex		0.3	ND	ND	ND	ND	ND	ND	ND
Nitrofen		0.2	ND	ND	ND	ND	ND	ND	ND
Permethrin-cis/trans		0.5	ND	ND	ND	ND	ND	ND	ND
Procymidone		0.2	ND	ND	ND	ND	ND	ND	ND
Pronamide		0.2	ND	ND	ND	ND	ND	ND	ND
Quintozene (Pentachloronitrobenzene)		0.5	ND	ND	ND	ND	ND	ND	ND
Tecnazene		0.5	ND	ND	ND	ND	ND	ND	ND
Tetradifon		0.2	ND	ND	ND	ND	ND	ND	ND
Tolylfluanid		0.5	ND	ND	ND	ND	ND	ND	ND
Vinclozolin		0.5	ND	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Fall River (Well 076) 20-May-2008	West Northfield (Well 077) 12-Jun-2008	Musquodoboit (Well 078) 22-May-2008	Lewis Lake (Well 079) 31-Jul-2008	Tatamagouche (Well 083) 21-Jul-2008
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
Ethalfluralin		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
Terbuthylazine		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 (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
BHC, alpha-		0.3	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
BHC, beta-		0.3	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Captan		1	ND	ND	ND	ND	ND
Chlorbenside		0.1	ND	ND	ND	ND	ND
Chlordane, alpha-		0.5	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)
Chlordane, gamma-		0.5	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)	ND (0.06)
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
Dichlofluanid		0.5	ND	ND	ND	ND	ND
Dicofol		0.2	ND	ND	ND	ND	ND
Endosulfan I		0.5	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Endosulfan II		0.5	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Endosulfan Sulphate		0.5	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)	ND (0.2)
Endrin		0.5	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
Folpet		1	ND	ND	ND	ND	ND
Heptachlor		0.5	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
Lindane (BHC), gamma-		0.5	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)	ND (0.1)
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
Tolylfluanid		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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Greenwood (Well 003)		Fraser Brook (Well 004)		Wolfville (Well 010)	
			23-Nov-2005	18-Dec-2008	10-Dec-2004	3-Dec-2008	22-Dec-2004	18-Dec-2008
Organophosphorus Pesticides								
Aspon		0.2	ND	ND	ND	ND	ND	ND
Azinphos ethyl		0.5	ND	ND	ND	ND	ND	ND
Azinphos methyl	20	1	ND	ND	ND	ND	ND	ND
Bromacil		0.1	ND	ND	ND	ND	ND	ND
Benfluralin		0.1	ND	ND	ND	ND	ND	ND
Bromophos		0.1	ND	ND	ND	ND	ND	ND
Bromophos-ethyl		0.3	ND	ND	ND	ND	ND	ND
Carbophenothion		0.3	ND	ND	ND	ND	ND	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	ND	ND	ND	ND
Chlormephos		0.5	ND	ND	ND	ND	ND	ND
Chlorpyrifos	90	0.2	ND	ND	ND	ND	ND	ND
Chlorpyriphos-methyl		0.1	ND	ND	ND	ND	ND	ND
Chlorthiophos		0.3	ND	ND	ND	ND	ND	ND
Cyanophos		0.2	ND	ND	ND	ND	ND	ND
Demeton		1	ND	ND	ND	ND	ND	ND
Diazinon	20	0.3	ND	ND	ND	ND	ND	ND
Dichlofenthion		0.2	ND	ND	ND	ND	ND	ND
Dichlorvos/Naled		0.1	ND	ND	ND	ND	ND	ND
Dicrotophos		0.5	ND	ND	ND	ND	ND	ND
Dimethoate	20	0.5	ND	ND	ND	ND	ND	ND
Dioxathion		1	ND	ND	ND	ND	ND	ND
Disulfoton (Di-Syston)		1	ND	ND	ND	ND	ND	ND
EPN		0.5	ND	ND	ND	ND	ND	ND
Ethion		0.2	ND	ND	ND	ND	ND	ND
Fenchlorphos (Ronnel)		0.1	ND	ND	ND	ND	ND	ND
Fenitrothion		0.5	ND	ND	ND	ND	ND	ND
Fensulfothion		0.1	ND	ND	ND	ND	ND	ND
Fenthion		0.1	ND	ND	ND	ND	ND	ND
Fonofos		0.1	ND	ND	ND	ND	ND	ND
Iodofenphos		0.1	ND	ND	ND	ND	ND	ND
Isofenphos		0.3	ND	ND	ND	ND	ND	ND
Malaoxon		1	ND	ND	ND	ND	ND	ND
Malathion	190	0.5	ND	ND	ND	ND	ND	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	ND	ND	ND	ND
Omethoate		1	ND	ND	ND	ND	ND	ND
Parathion	50	0.5	ND	ND	ND	ND	ND	ND
Parathion methyl		0.5	ND	ND	ND	ND	ND	ND
Phorate (Thimet)	2	0.5	ND	ND	ND	ND	ND	ND
Phosalone		0.2	ND	ND	ND	ND	ND	ND
Phosmet		0.2	ND	ND	ND	ND	ND	ND
Phosphamidon		0.2	ND	ND	ND	ND	ND	ND
Pirimiphos-ethyl		0.5	ND	ND	ND	ND	ND	ND
Pirimiphos-methyl		0.2	ND	ND	ND	ND	ND	ND
Profenophos		0.5	ND	ND	ND	ND	ND	ND
Pyrazophos		0.1	ND	ND	ND	ND	ND	ND
Quinalphos		0.3	ND	ND	ND	ND	ND	ND
Sulfotep		0.1	ND	ND	ND	ND	ND	ND
Terbufos	1	0.3	ND	ND	ND	ND	ND	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	ND	-	-	-	ND
Other								
Hexachlorobenzene		0.2	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Monastery (Well 028)	Point Aconi (Well 030)		Lawrencetown (Well 043)	Durham (Well 045)	
			15-Dec-2006	15-Sep-2005	10-Dec-2008	5-Dec-2008	5-Oct-2005	21-Jan-2009
Organophosphorus Pesticides								
Aspon		0.2	ND	ND	ND	ND	ND	ND
Azinphos ethyl		0.5	ND	ND	ND	ND	ND	ND
Azinphos methyl	20	1	ND	ND	ND	ND	ND	ND
Bromacil		0.1	ND (1)	ND	ND	ND	ND	ND
Benfluralin		0.1	ND	ND	ND	ND	ND	ND
Bromophos		0.1	ND	ND	ND	ND	ND	ND
Bromophos-ethyl		0.3	ND	ND	ND	ND	ND	ND
Carbophenothion		0.3	ND	ND	ND	ND	ND	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	ND	ND	ND	ND
Chlormephos		0.5	ND	ND	ND	ND	ND	ND
Chlorpyrifos	90	0.2	ND	ND	ND	ND	ND	ND
Chlorpyriphos-methyl		0.1	ND	ND	ND	ND	ND	ND
Chlorthiophos		0.3	ND	ND	ND	ND	ND	ND
Cyanophos		0.2	ND	ND	ND	ND	ND	ND
Demeton		1	ND	ND	ND	ND	ND	ND
Diazinon	20	0.3	ND	ND	ND	ND	ND	ND
Dichlofenthion		0.2	ND	ND	ND	ND	ND	ND
Dichlorvos/Naled		0.1	ND	ND	ND	ND	ND	ND
Dicrotophos		0.5	ND	ND	ND	ND	ND	ND
Dimethoate	20	0.5	ND	ND	ND	ND	ND	ND
Dioxathion		1	ND	ND	ND	ND	ND	ND
Disulfoton (Di-Syston)		1	ND	ND	ND	ND	ND	ND
EPN		0.5	ND	ND	ND	ND	ND	ND
Ethion		0.2	ND	ND	ND	ND	ND	ND
Fenchlorphos (Ronnel)		0.1		ND	ND	ND	ND	ND
Fenitrothion		0.5	ND	ND	ND	ND	ND	ND
Fensulfothion		0.1	ND	ND	ND	ND	ND	ND
Fenthion		0.1	ND	ND	ND	ND	ND	ND
Fonofos		0.1	ND	ND	ND	ND	ND	ND
Iodofenphos		0.1	ND	ND	ND	ND	ND	ND
Isofenphos		0.3	ND	ND	ND	ND	ND	ND
Malaoxon		1	ND	ND	ND	ND	ND	ND
Malathion	190	0.5	ND	ND	ND	ND	ND	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	ND	ND	ND	ND
Omethoate		1	ND	ND	ND	ND	ND	ND
Parathion	50	0.5	ND	ND	ND	ND	ND	ND
Parathion methyl		0.5	ND	ND	ND	ND	ND	ND
Phorate (Thimet)	2	0.5	ND	ND	ND	ND	ND	ND
Phosalone		0.2	ND	ND	ND	ND	ND	ND
Phosmet		0.2	ND	ND	ND	ND	ND	ND
Phosphamidon		0.2	ND	ND	ND	ND	ND	ND
Pirimiphos-ethyl		0.5	ND	ND	ND	ND	ND	ND
Pirimiphos-methyl		0.2	ND	ND	ND	ND	ND	ND
Profenophos		0.5	ND	ND	ND	ND	ND	ND
Pyrazophos		0.1	ND	ND	ND	ND	ND	ND
Quinalphos		0.3	ND	ND	ND	ND	ND	ND
Sulfotep		0.1	ND	ND	ND	ND	ND	ND
Terbufos	1	0.3	ND	ND	ND	ND	ND	ND
Tetrachlorvinphos (Stirophos)		0.2		ND	ND	ND	ND	ND
Other								
Hexachlorobenzene		0.2	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Kentville (Well 048)		Sydney (Well 050)		North Grant (Well 054)	
			15-Jun-2005	7-Nov-2007	15-Sep-2005	11-Dec-2008	12-Dec-2006	22-Jul-2008
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 (0.01)
Chlorpyriphos-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 (2)	ND	ND	ND	ND	ND (0.02)
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 (2)	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 (2)	ND	ND	ND	ND	ND
Parathion methyl		0.5	ND (2)	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	-	ND	-	-	-	ND
Propiconazole		0.5	-	ND	-	-	-	ND

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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Stillwater (Well 055)		Sheet Harbour (Well 056)	Hayden Lake (Well 059)		Meteghan (Well 060)	
			12-Dec-2006	4-Dec-2008	5-Dec-2008	9-Jun-2005	16-Dec-2008	13-Dec-2006	17-Dec-2008
Organophosphorus Pesticides									
Aspon		0.2	ND	ND	ND	-	ND	ND	ND
Azinphos ethyl		0.5	ND	ND	ND	-	ND	ND	ND
Azinphos methyl	20	1	ND	ND	ND	-	ND	ND	ND
Bromacil		0.1	ND	ND	ND	-	ND	ND	ND
Benfluralin		0.1	ND	ND	ND	-	ND	ND	ND
Bromophos		0.1	ND	ND	ND	-	ND	ND	ND
Bromophos-ethyl		0.3	ND	ND	ND	-	ND	ND	ND
Carbophenothion		0.3	ND	ND	ND	-	ND	ND	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	ND	-	ND	ND	ND
Chlormephos		0.5	ND	ND	ND	-	ND	ND	ND
Chlorpyrifos	90	0.2	ND	ND	ND	-	ND	ND	ND
Chlorpyriphos-methyl		0.1	ND	ND	ND	-	ND	ND	ND
Chlorthiophos		0.3	ND	ND	ND	-	ND	ND	ND
Cyanophos		0.2	ND	ND	ND	-	ND	ND	ND
Demeton		1	ND	ND	ND	-	ND	ND	ND
Diazinon	20	0.3	ND	ND	ND	ND (5)	ND	ND	ND
Dichlofenthion		0.2	ND	ND	ND	-	ND	ND	ND
Dichlorvos/Naled		0.1	ND	ND	ND	-	ND	ND	ND
Dicrotophos		0.5	ND	ND	ND	-	ND	ND	ND
Dimethoate	20	0.5	ND	ND	ND	-	ND	ND	ND
Dioxathion		1	ND	ND	ND	-	ND	ND	ND
Disulfoton (Di-Syston)		1	ND	ND	ND	-	ND	ND	ND
EPN		0.5	ND	ND	ND	-	ND	ND	ND
Ethion		0.2	ND	ND	ND	-	ND	ND	ND
Fenchlorphos (Ronnel)		0.1	ND	ND	ND	-	ND	ND	ND
Fenitrothion		0.5	ND	ND	ND	-	ND	ND	ND
Fensulfothion		0.1	ND	ND	ND	-	ND	ND	ND
Fenthion		0.1	ND	ND	ND	-	ND	ND	ND
Fonofos		0.1	ND	ND	ND	-	ND	ND	ND
Iodofenphos		0.1	ND	ND	ND	-	ND	ND	ND
Isofenphos		0.3	ND	ND	ND	-	ND	ND	ND
Malaoxon		1	ND	ND	ND	-	ND	ND	ND
Malathion	190	0.5	ND	ND	ND	ND (5)	ND	ND	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	ND	-	ND	ND	ND
Omethoate		1	ND	ND	ND	-	ND	ND	ND
Parathion	50	0.5	ND	ND	ND	ND (5)	ND	ND	ND
Parathion methyl		0.5	ND	ND	ND	ND (5)	ND	ND	ND
Phorate (Thimet)	2	0.5	ND	ND	ND	-	ND	ND	ND
Phosalone		0.2	ND	ND	ND	-	ND	ND	ND
Phosmet		0.2	ND	ND	ND	-	ND	ND	ND
Phosphamidon		0.2	ND	ND	ND	-	ND	ND	ND
Pirimiphos-ethyl		0.5	ND	ND	ND	-	ND	ND	ND
Pirimiphos-methyl		0.2	ND	ND	ND	-	ND	ND	ND
Profenophos		0.5	ND	ND	ND	-	ND	ND	ND
Pyrazophos		0.1	ND	ND	ND	-	ND	ND	ND
Quinalphos		0.3	ND	ND	ND	-	ND	ND	ND
Sulfotep		0.1	ND	ND	ND	-	ND	ND	ND
Terbufos	1	0.3	ND	ND	ND	-	ND	ND	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	ND	ND	-	ND	ND	ND
Other									
Hexachlorobenzene		0.2	ND	ND	ND	-	ND	ND	ND
Iprodione		1	-	-	-	-	-	-	-
Propiconazole		0.5	-	-	-	-	-	-	-

Notes:
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ND = not detected
ND( ) = not detected at the elevated detection limit shown in brackets ( )
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Shaded values exceed guidelines.

Table C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Annapolis Royal (Well 062)		Hebron (Well 063)		Margaree (Well 064)	
			9-Nov-2005	26-Nov-2007	9-Jun-2005	17-Dec-2008	14-Dec-2006	8-Dec-2008
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
Chlorpyriphos-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 (5)	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 (5)	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 (5)	ND	ND	ND
Parathion methyl		0.5	ND	ND	ND (5)	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	-	ND	-	-	-	-
Propiconazole		0.5	-	ND	-	-	-	-

Notes:
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ND = not detected
ND( ) = not detected at the elevated detection limit shown in brackets ( )
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Shaded values exceed guidelines.

Table C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Dalem Lake (Well 069)		Amherst (Well 071)		Kelley River (Well 073)	Atlanta (Well 074)	Sheffield Mills (Well 075)
			14-Dec-2006	11-Dec-2008	16-Dec-2006	8-Jan-2009	12-Jan-2007	3-Sep-2007	10-Sep-2007
Organophosphorus Pesticides									
Aspon		0.2	ND	ND	ND	ND	ND	ND	ND
Azinphos ethyl		0.5	ND	ND	ND	ND	ND	ND	ND
Azinphos methyl	20	1	ND	ND	ND	ND	ND	ND	ND
Bromacil		0.1	ND	ND	ND	ND	ND	ND	ND
Benfluralin		0.1	ND	ND	ND	ND	ND	ND	ND
Bromophos		0.1	ND	ND	ND	ND	ND	ND	ND
Bromophos-ethyl		0.3	ND	ND	ND	ND	ND	ND	ND
Carbophenothion		0.3	ND	ND	ND	ND	ND	ND	ND
Chlorfenvinphos(e/z)		0.1	ND	ND	ND	ND	ND	ND	ND
Chlormephos		0.5	ND	ND	ND	ND	ND	ND	ND
Chlorpyrifos	90	0.2	ND	ND	ND	ND	ND	ND	ND
Chlorpyriphos-methyl		0.1	ND	ND	ND	ND	ND	ND	ND
Chlorthiophos		0.3	ND	ND	ND	ND	ND	ND	ND
Cyanophos		0.2	ND	ND	ND	ND	ND	ND	ND
Demeton		1	ND	ND	ND	ND	ND	ND	ND
Diazinon	20	0.3	ND	ND	ND	ND	ND	ND	ND
Dichlofenthion		0.2	ND	ND	ND	ND	ND	ND	ND
Dichlorvos/Naled		0.1	ND	ND	ND	ND	ND	ND	ND
Dicrotophos		0.5	ND	ND	ND	ND	ND	ND	ND
Dimethoate	20	0.5	ND	ND	ND	ND	ND	ND	ND
Dioxathion		1	ND	ND	ND	ND	ND	ND	ND
Disulfoton (Di-Syston)		1	ND	ND	ND	ND	ND	ND	ND
EPN		0.5	ND	ND	ND	ND	ND	ND	ND
Ethion		0.2	ND	ND	ND	ND	ND	ND	ND
Fenchlorphos (Ronnel)		0.1	ND	ND	ND	ND	ND	ND	ND
Fenitrothion		0.5	ND	ND	ND	ND	ND	ND	ND
Fensulfothion		0.1	ND	ND	ND	ND	ND	ND	ND
Fenthion		0.1	ND	ND	ND	ND	ND	ND	ND
Fonofos		0.1	ND	ND	ND	ND	ND	ND	ND
Iodofenphos		0.1	ND	ND	ND	ND	ND	ND	ND
Isofenphos		0.3	ND	ND	ND	ND	ND	ND	ND
Malaoxon		1	ND	ND	ND	ND	ND	ND	ND
Malathion	190	0.5	ND	ND	ND	ND	ND	ND	ND
Mevinphos-cis/trans (Phosdrin)		0.1	ND	ND	ND	ND	ND	ND	ND
Omethoate		1	ND	ND	ND	ND	ND	ND	ND
Parathion	50	0.5	ND	ND	ND	ND	ND	ND	ND
Parathion methyl		0.5	ND	ND	ND	ND	ND	ND	ND
Phorate (Thimet)	2	0.5	ND	ND	ND	ND	ND	ND	ND
Phosalone		0.2	ND	ND	ND	ND	ND	ND	ND
Phosmet		0.2	ND	ND	ND	ND	ND	ND	ND
Phosphamidon		0.2	ND	ND	ND	ND	ND	ND	ND
Pirimiphos-ethyl		0.5	ND	ND	ND	ND	ND	ND	ND
Pirimiphos-methyl		0.2	ND	ND	ND	ND	ND	ND	ND
Profenophos		0.5	ND	ND	ND	ND	ND	ND	ND
Pyrazophos		0.1	ND	ND	ND	ND	ND	ND	ND
Quinalphos		0.3	ND	ND	ND	ND	ND	ND	ND
Sulfotep		0.1	ND	ND	ND	ND	ND	ND	ND
Terbufos	1	0.3	ND	ND	ND	ND	ND	ND	ND
Tetrachlorvinphos (Stirophos)		0.2	ND	ND	ND	ND	ND	ND	ND
Other									
Hexachlorobenzene		0.2	ND	ND	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 C4: Pesticide Results (ug/L)

Parameter	Drinking Water Guideline	Detection Limit	Fall River (Well 076) 20-May-2008	West Northfield (Well 077) 12-Jun-2008	Musquodoboit (Well 078) 22-May-2008	Lewis Lake (Well 079) 31-Jul-2008	Tatamagouche (Well 083) 21-Jul-2008
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 (0.01)	ND (0.01)	ND (0.01)	ND (0.01)	ND (0.01)
Chlorpyriphos-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 (0.02)	ND (0.02)	ND (0.02)	ND (0.02)	ND (0.02)
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	ND	ND	ND	ND	ND
Propiconazole		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 C5: 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	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
Mixture of recent and old	1 to 5
Old (recharged before 1952)	<1
Source: Clark and Fritz, 1997	

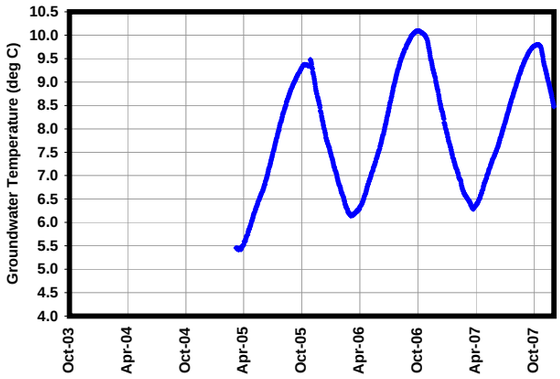
Table C6: Perchlorate Results

Observation Well	Date Sampled	Recommended Guidance Value (Health Canada, 2007) (ug/L)	Detection Limit (ug/L)	Perchlorate Result (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

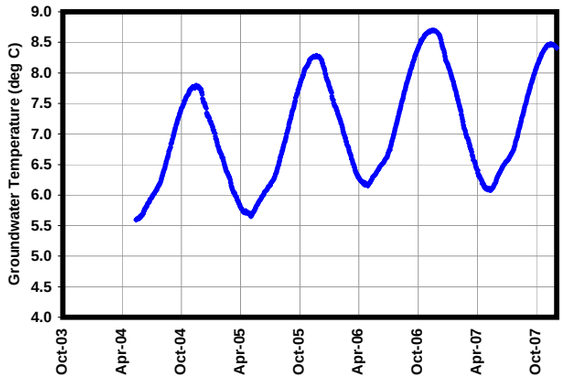
ND = Not Detected

APPENDIX D
GROUNDWATER TEMPERATURE GRAPHS

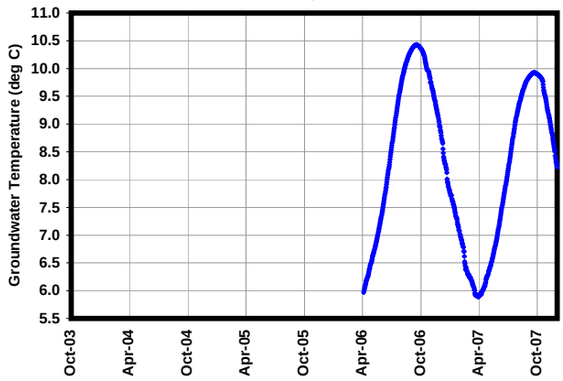
Greenwood (003) - Average Daily Groundwater Temperature (2005 - 2007)



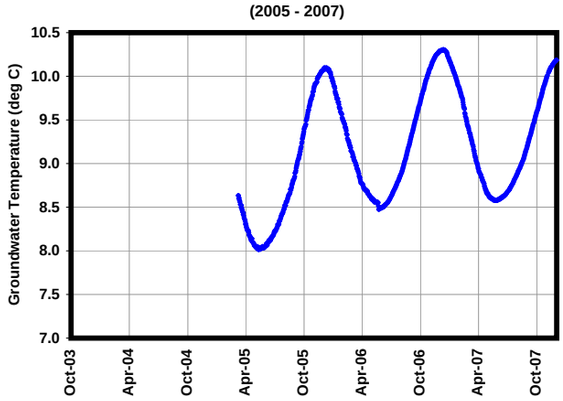
Fraser Brook (004) - Average Daily Groundwater Temperature (2004 - 2007)



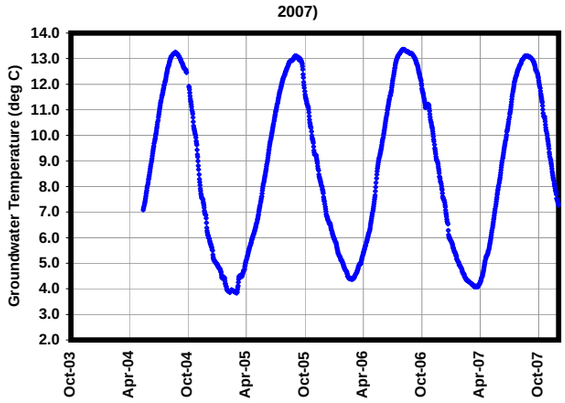
Wilmot (005) - Average Daily Groundwater Temperature (2006 2007)



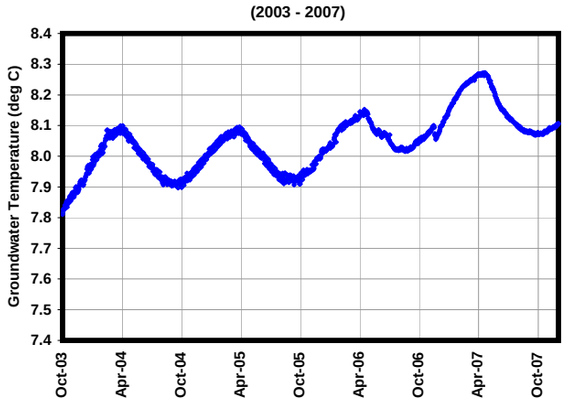
Wolfville (010) - Average Daily Groundwater Temperature (2005 - 2007)



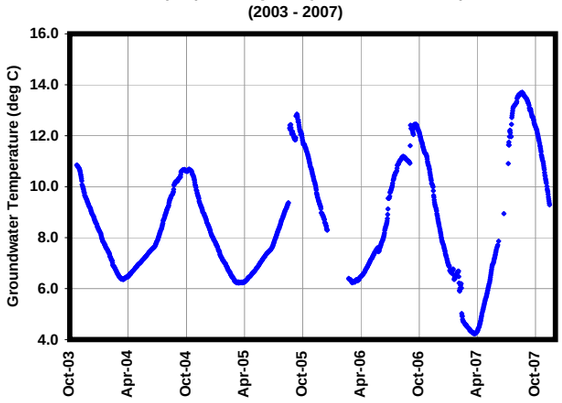
Truro (014) - Average Daily Groundwater Temperature (2004 - 2007)



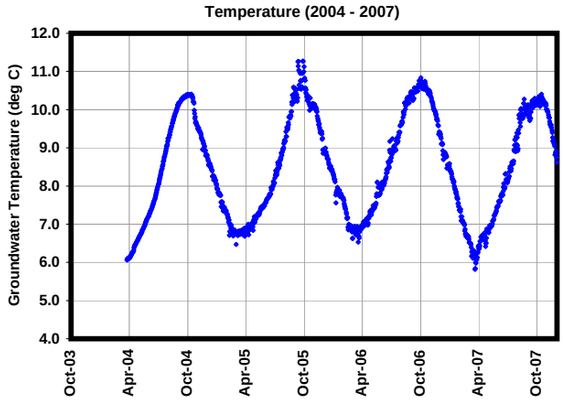
Monastery (028) - Average Daily Groundwater Temperature (2003 - 2007)



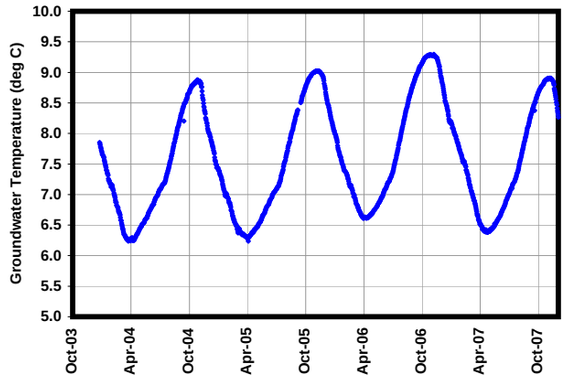
Point Aconi (030) - Average Daily Groundwater Temperature (2003 - 2007)



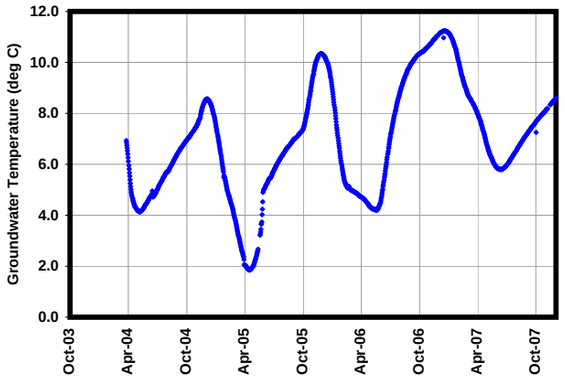
Lawrencetown (043) - Average Daily Groundwater Temperature (2004 - 2007)



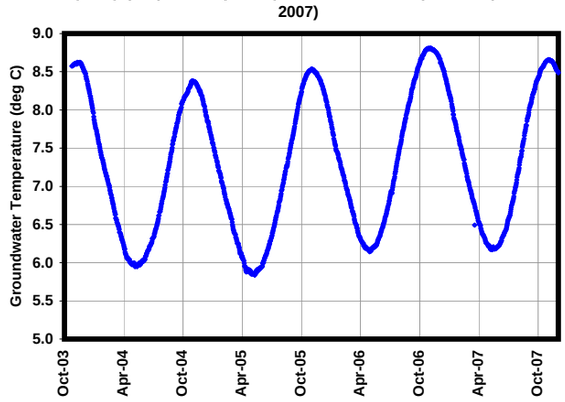
Durham (045) - Average Daily Groundwater Temperature (2004 - 2007)



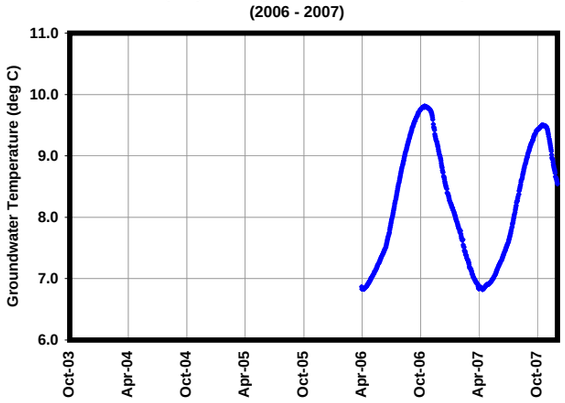
Kentville (048) - Average Daily Groundwater Temperature (2004 - 2007)



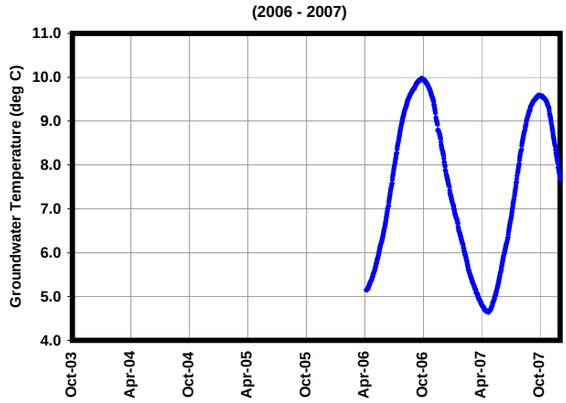
Sydney (050) - Average Daily Groundwater Temperature (2003 2007)



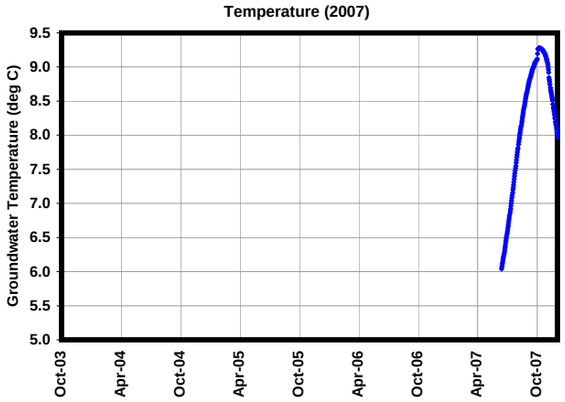
North Grant (054) - Average Daily Groundwater Temperature (2006 - 2007)



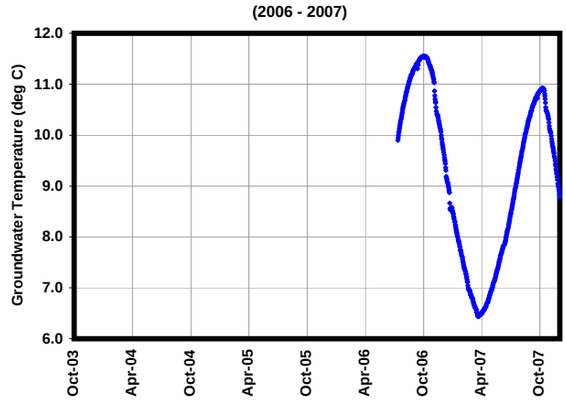
Stillwater (055) - Average Daily Groundwater Temperature (2006 - 2007)



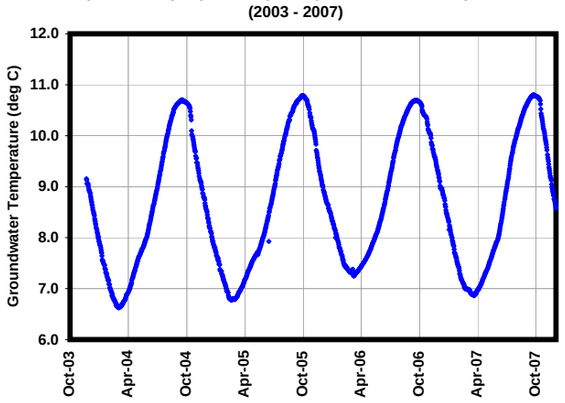
Sheet Harbour (056) - Average Daily Groundwater Temperature (2007)



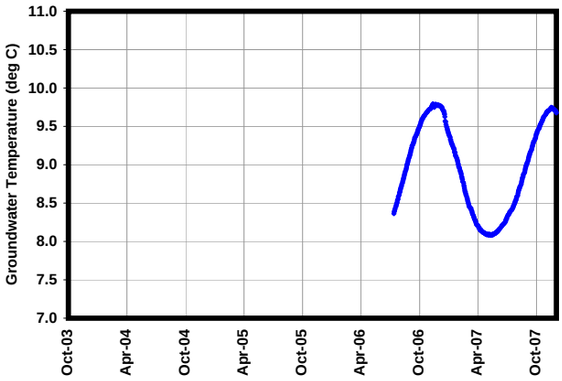
Charleston (058) - Average Daily Groundwater Temperature (2006 - 2007)



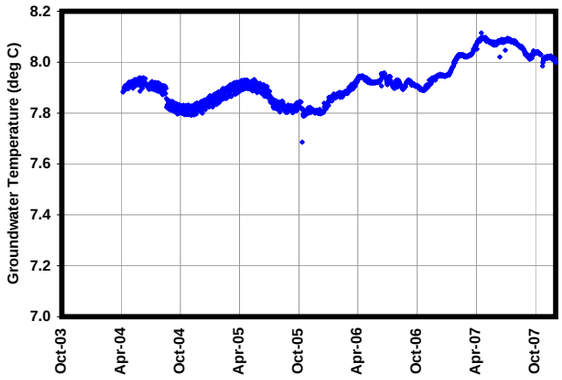
Hayden Lake (059) - Average Daily Groundwater Temperature (2003 - 2007)



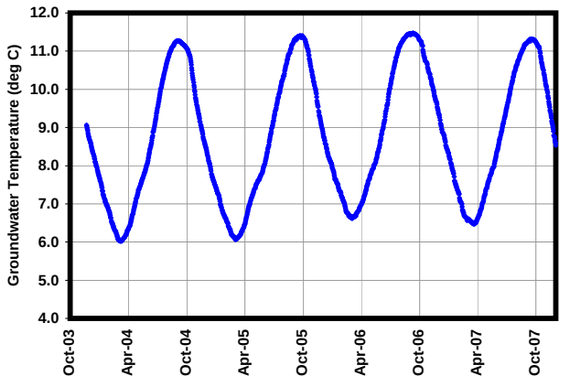
Meteghan (060) - Average Daily Groundwater Temperature (2006 - 2007)



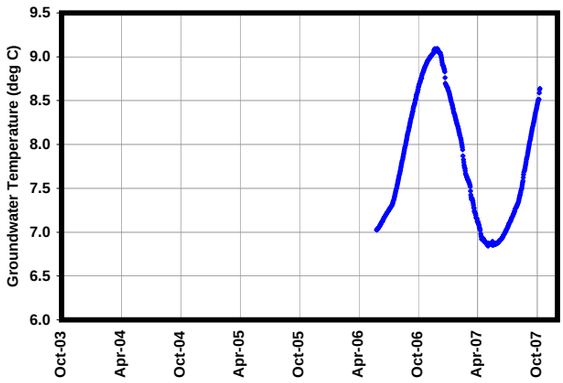
Annapolis Royal (062a) - Average Daily Groundwater Temperature (2004 - 2007)



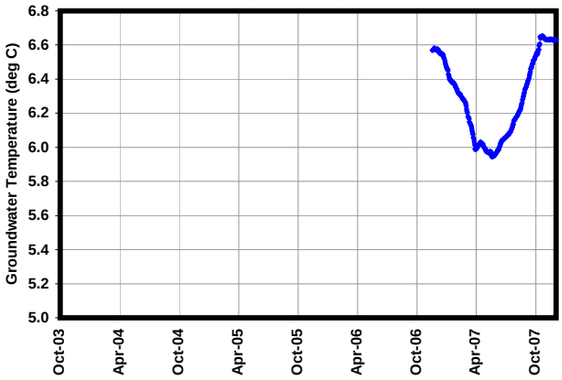
Hebron (063) - Average Daily Groundwater Temperature (2003 - 2007)



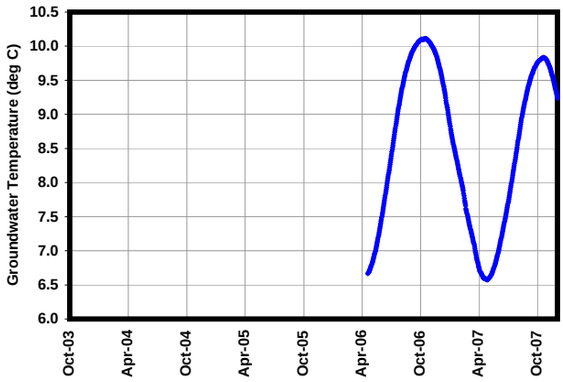
Margaree (064) - Average Daily Groundwater Temperature (2006 - 2007)



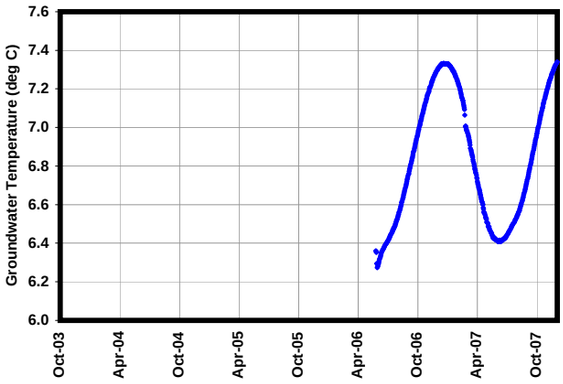
Ingonish (065) - Average Daily Groundwater Temperature (2006 - 2007)



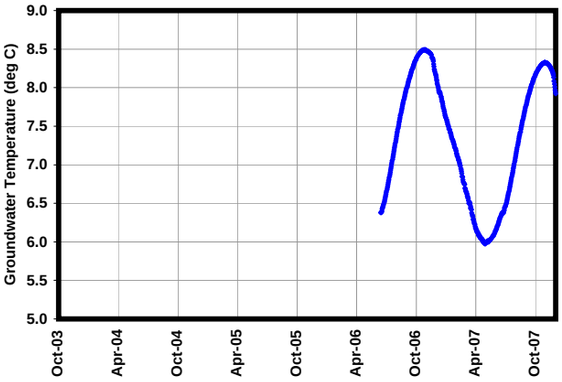
Debert (068) - Average Daily Groundwater Temperature (2006 - 2007)

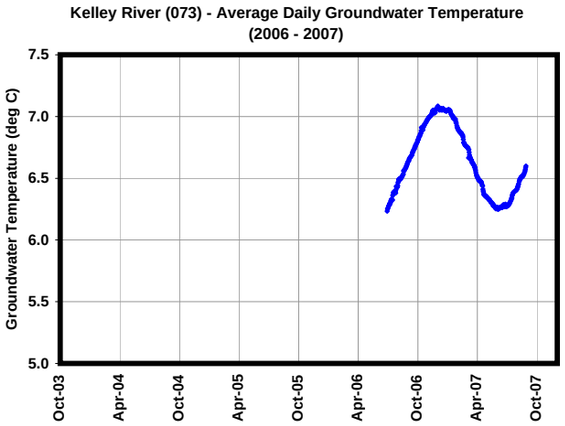


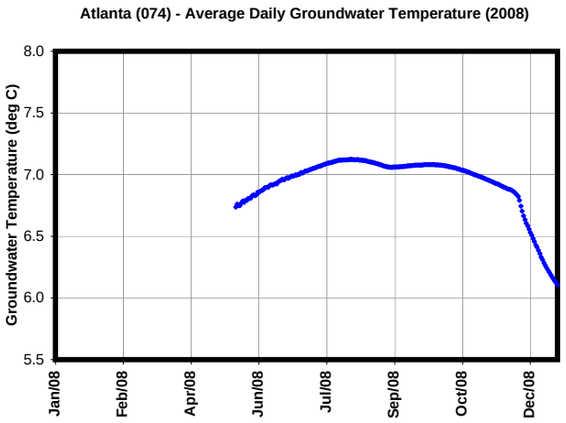
Dalem Lake (069) - Average Daily Groundwater Temperature (2006 - 2007)

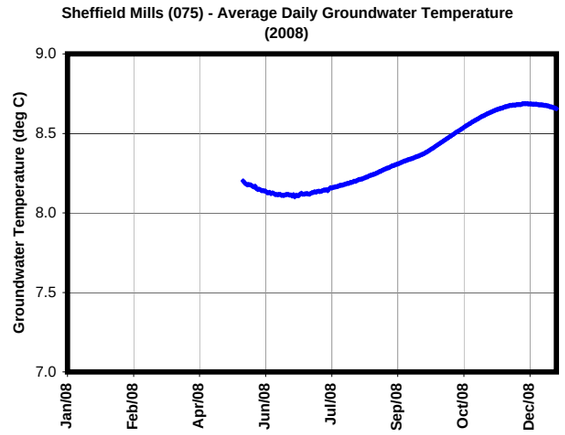


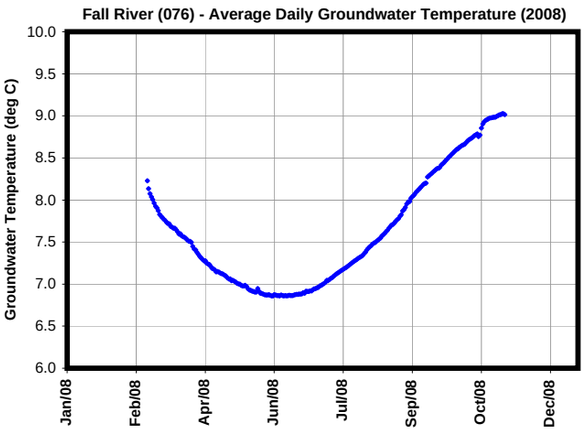
Amherst (071) - Average Daily Groundwater Temperature (2006 - 2007)

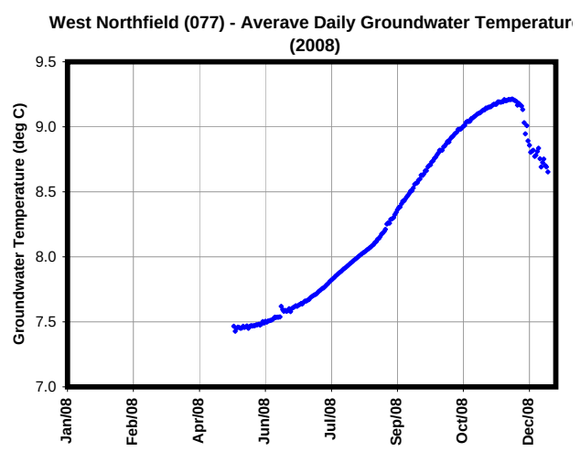


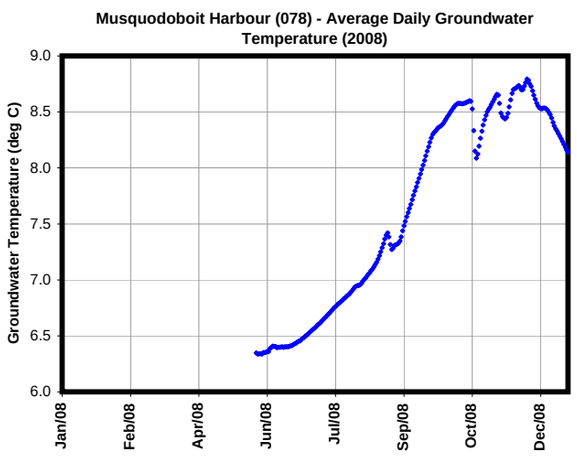

Kelley River (073) - Average Daily Groundwater Temperature (2006 - 2007)
Groundwater Temperature (deg C)
7.5
7.0
6.5
6.0
5.5
5.0
Oct-03
Apr-04
Oct-04
Apr-05
Oct-05
Apr-06
Oct-06
Apr-07
Oct-07

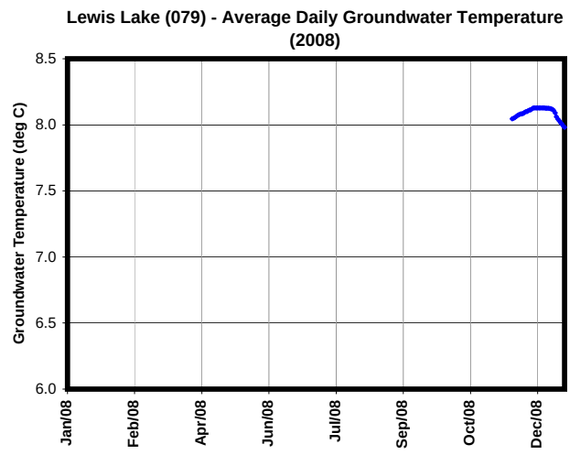

Atlanta (074) - Average Daily Groundwater Temperature (2008)
Groundwater Temperature (deg C)
8.0
7.5
7.0
6.5
6.0
5.5
Jan/08
Feb/08
Apr/08
Jun/08
Jul/08
Sep/08
Oct/08
Dec/08


Sheffield Mills (075) - Average Daily Groundwater Temperature (2008)
Groundwater Temperature (deg C)
9.0
8.5
8.0
7.5
7.0
Jan/08
Feb/08
Apr/08
Jun/08
Jul/08
Sep/08
Oct/08
Dec/08


Fall River (076) - Average Daily Groundwater Temperature (2008)
Groundwater Temperature (deg C)
10.0
9.5
9.0
8.5
8.0
7.5
7.0
6.5
6.0
Jan/08
Feb/08
Apr/08
Jun/08
Jul/08
Sep/08
Oct/08
Dec/08


West Northfield (077) - Averave Daily Groundwater Temperatur (2008)
Groundwater Temperature (deg C)
9.5
9.0
8.5
8.0
7.5
7.0
Jan/08
Feb/08
Apr/08
Jun/08
Jul/08
Sep/08
Oct/08
Dec/08


Musquodoboit Harbour (078) - Average Daily Groundwater Temperature (2008)
Groundwater Temperature (deg C)
9.0
8.5
8.0
7.5
7.0
6.5
6.0
Jan/08
Feb/08
Apr/08
Jun/08
Jul/08
Sep/08
Oct/08
Dec/08


Lewis Lake (079) - Average Daily Groundwater Temperature (2008)
Groundwater Temperature (deg C)
8.5
8.0
7.5
7.0
6.5
6.0
Jan/08
Feb/08
Apr/08
Jun/08
Jul/08
Sep/08
Oct/08
Dec/08

APPENDIX E
WATER LEVEL TREND ANALYSIS

Table E1. 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	1966	2008	20	-20	-0.2	70%
Fraser Brook	004	1966	2008	19	65	0.3	95%
Wilmot	005	1966	2008	18	9	0.1	60%
Wolfville	010	1969	2008	20	-138	-2.5	99%
Truro	014	1971	2008	16	18	2.2	75%
Monastery	028	1976	2008	10	-17	-3.9	90%
Point Aconi	030	1976	2008	16	16	0.5	75%
Lawrencetown	043	1978	2008	12	-16	-2.4	80%
Durham	045	1979	2008	23	81	2.4	95%
Kentville	048	1980	2008	15	-51	-1.0	99%
Sydney	050	1984	2008	14	-65	-5.5	99%
North Grant	054	1987	2008	7	NA	NA	NA
Stillwater	055	1987	2008	6	NA	NA	NA
Sheet Harbour	056	1987	2008	6	NA	NA	NA
Charleston	058	1988	2008	5	NA	NA	NA
Hayden Lake	059	1988	2008	14	43	1.2	95%
Meteghan	060	1987	2008	8	NA	NA	NA
Annapolis Royal	062	1990	2008	7	NA	NA	NA
Hebron	063	1990	2008	7	NA	NA	NA
Margaree	064	1990	2008	7	NA	NA	NA
Ingonish	065	1990	2008	6	NA	NA	NA
Debert	068	1993	2008	3	NA	NA	NA
Dalem Lake	069	1992	2008	5	NA	NA	NA
Amherst	071	1993	2008	2	NA	NA	NA
Kelley River	073	2006	2008	2	NA	NA	NA
Atlanta	074	2008	2008	<1	NA	NA	NA
Sheffield Mills	075	2008	2008	<1	NA	NA	NA
Fall River	076	2008	2008	<1	NA	NA	NA
West Northfield	077	2008	2008	<1	NA	NA	NA
Musquodoboit Hbr	078	2008	2008	<1	NA	NA	NA
Lewis Lake	079	2008	2008	<1	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).