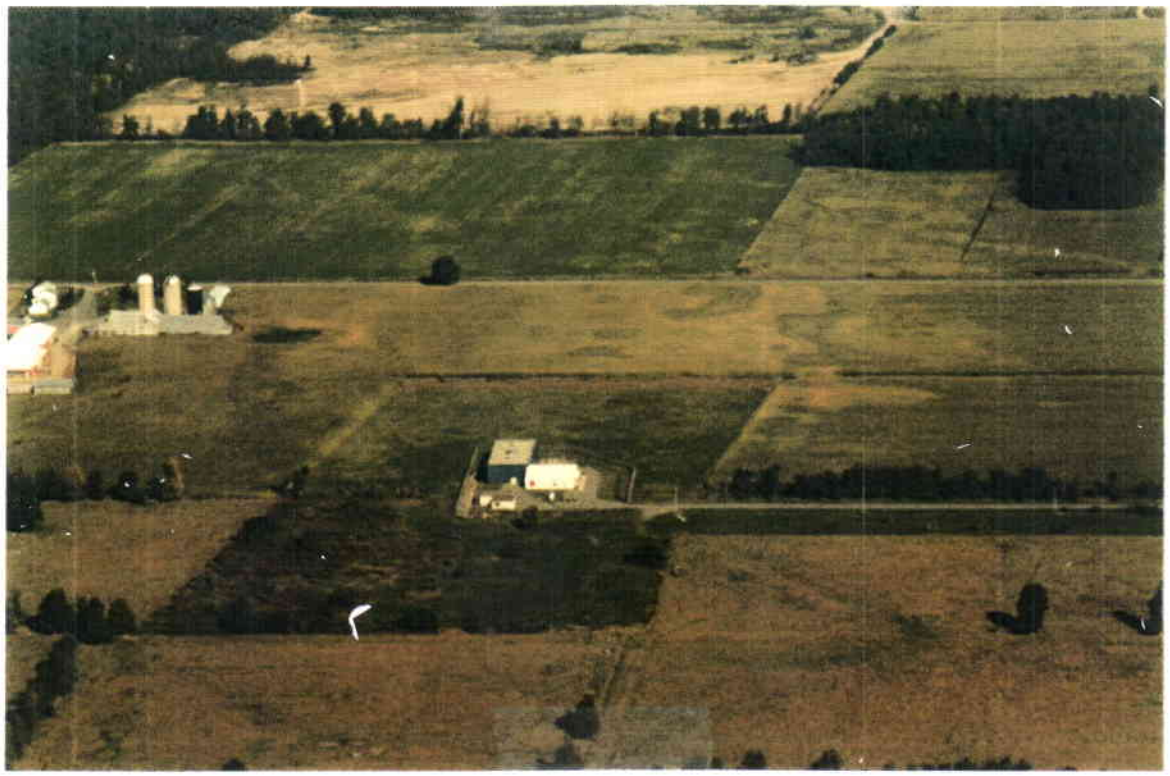
HYDROGEOLOGICAL ASSESSMENT

EMBRUN WELL MONITORING PROGRAM

2003 ANNUAL REPORT



Report prepared for the Township of Russell
Prepared by Sauriol Environmental Inc.
Dated: January 2004
Our File: P03-02B

SAURIOL
ENVIRONMENTAL Inc.

SAURIOL
ENVIRONNEMENT

GROUNDWATER IMPACT ASSESSMENT SPECIALIST
Helping society find solutions to environmental problems

SPÉCIALISTE DE L'ÉVALUATION D'IMPACT
SUR LES EAUX SOUTERRAINES
Contribuant à l'élaboration de solutions
aux problèmes environnementaux

January 30, 2004

Township of Russell
717 Notre Dame Street
Embrun, ON
K0A 1W1

Attention: Mr. Craig Cullen

Re: Hydrogeological Assessment
Embrun Well Monitoring Program
Annual Report 2003
Our file P03-02B

Dear Sir:

The following report contains the Hydrogeological Assessment of the Embrun Well Monitoring Program for the Year 2003.

The report includes a brief review of past studies, a summary of the environmental liabilities associated with the site, results from water level measurements and water samples taken in the spring and fall of 2003, and results from the Township's average monthly surveys. Conclusions and recommendations for future monitoring and hydrogeological works are also contained within, and a proposed work plan for 2004 is provided in Appendix C.

We bring to the Township's immediate attention the need to confirm by the Township Staff the absence of BTEX components in the production well water, since some elevated ethylbenzene was detected in the nearby PZ16. The potential contamination of groundwater around PZ16 should be further investigated.

Trusting that the above is satisfactory.

Yours Truly,
Sauriol Environmental Inc.

Jacques Sauriol M. Sc., P.Geo.
President

Circulation:
Township of Russell 4 copies
SEI file 1 copy

P.O. Box 7181, Station Vanier OTTAWA, ONTARIO K1L 8E3; (613) 749-6066 FAX / TÉLÉC.: (613) 749-6349
Casier postal 7181, Succ Vanier OTAWA (ONTARIO) K1L 8E3; E-MAIL: jacques@sauriolenvironmental.com

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2003 ANNUAL REPORT

1.0 INTRODUCTION

The following document presents a Hydrogeological Assessment of the Embrun Well Head Monitoring Program for the year of 2003. The program consisted of both sampling by the Township and bi-annual sampling by Sauriol Environmental Ltd.

The Embrun well site is located on Part Lot A, Concession 4 in Township of Russell is operated under the Certificate of Approval # 7-0226-93-958. The study site for 2003 consists of one production well, eight monitoring wells, and two residential wells. The photo on the cover page shows the site as flown over by the author on September 10, 2003.

1.1 Objectives

The primary objective of the year 2003 Hydrogeological Assessment of the Embrun Well Monitoring Program is to ensure the productivity and protection of the production well and of the aquifer. Specifically, this is done by providing an interpretation of the monitoring data collected in 2003, including a detailed review of aquifer hydraulics and an assessment of the transient and spatial changes to the well water quality.

1.2 Review of Past Surveys and Environmental Liabilities

The following subsection provides a brief review of the history and any environmental liabilities attached to the Embrun Wells, based on previous hydrogeological assessments (i.e. Robinson Consultants Inc. 2001 & 2002 Annual Reports). A map of the study site, showing the relation of the study site to the village of Russell, is provided in Figure 1. The site plan, showing the locations of the current production well, monitoring piezometers, and residential wells as of the time of this reporting is illustrated in Figure 2.

The Embrun production well is situated in an aquifer that consists of a buried glacio-fluvial deposit (buried esker core) made of granular materials and flanked by outwash sands and marine clays. The buried deposit is indicated in Figure 2 by the light grey shaded area. Groundwater velocities in previous reports were estimated to be 4m/yr; however more recent estimates indicated a range of groundwater velocities at about 20 m/yr in the outwash sands and 125 m/yr along the buried esker core (ref. Landfill Leachate Management Strategies – Preliminary Estimates – Russell WDS by Sauriol Environmental, 2003).

The Russell WDS is located to the Northwest of the Embrun production well and aquifer. The direction of groundwater flow from the landfill is to the East i.e. towards the aquifer. The Landfill is monitored by the Township and annual reports are produced to monitor the impact of the landfill groundwater (separate report). The landfill is noted to currently be impacting the groundwater in the localized area of the landfill and the current impact on the aquifer is minimal. Continued monitoring of the groundwater from the landfill site is recommended.

The Dore pit is located to the Southeast of the Embrun production well. The activities at the pit consist of sand and gravel extraction business that requires the use of heavy equipment. Two 500 gal fuel tanks within a concrete spill containment area are located onsite to fuel the heavy equipment. The 2002 annual report noted some 50 gal drums with contents unknown and some derelict equipment. The ongoing activities and storage of fuel at this site remain of concern should there be an accident due to the proximity of the pit to the production well and the high groundwater flows in the aquifer.

Other environmental concerns for this site include a manure pit to the South of the production well and the application of road salt by the Township. The nearby manure pit is reported to be concrete lined to prevent leakage. The current status of operation of the manure pit is unknown. Past estimates of the impacts of the road salts on the local groundwater showed low concentrations of Sodium, Chloride, and Calcium.

Past reports compared measured concentrations to Ontario Drinking Water Standards (ODWS) and some parameters such as Aluminium, Hardness, Manganese, Iron, TDS, and Sulphate were noted to exceed the ODWS. The highest concentrations have tended to be at monitoring piezometers PZ13 and PZ16. No concentrations of petroleum hydrocarbons were detected above the laboratory detection limits in 2002.

2.0 ACTIVITIES (2003)

A number of activities were undertaken in 2003 to address the hydrogeological items of concern for the Embrun Well Monitoring Program. SEI field staff measured static water levels and collected groundwater samples in the spring and fall at monitoring piezometers (PZ8, PZ13, PZ16, PZ18, PZ28, PZ29, and PZ30) and two residential wells (Patenaude and Schoeni). Township staff collected samples from the primary production well. Subsections 2.1 – 2.3 provide a summary of monitoring activities undertaken in 2003 at the Embrun Wells.

2.1 Hydraulic Monitoring by SEI

SEI personnel measured static water levels at groundwater monitoring piezometers for both sampling runs in spring and fall 2003. The spring monitoring event took place on the July 9 and 10, 2003 and the fall monitoring event took place on the October 6 and 7, 2003. The water levels of the eight monitoring piezometers were measured. From the water level measurements and top of well casing elevations, groundwater table elevations were calculated for all stations (Table 1). Also included in Table 1 are water level measurements for spring and fall in 1998, 2000, 2001 and 2002.

2.2 Groundwater Quality Monitoring by SEI

SEI staff conducted two groundwater monitoring events, in spring and fall of 2003 at the Embrun Well Site. Samples were collected from the eight monitoring piezometers (PZ8, PZ13, PZ16, PZ18, PZ28, PZ29, and PZ30) and two residential wells (Schoeni and Patenaude).

The monitoring piezometers sampled after water level measurements were made. Water level measurements were not made at the residential wells. The stations were pumped with a portable submersible pump at about 19 litres per minute (5 gal/min) for 30 minutes, yielding an approximate pumped volume of 570 liters. The samples were then collected in supplied bottles from Accutest Laboratories Ltd. All samples were subsequently submitted to Accutest Labs for analysis.

Samples were analyzed for pre-specified parameters given in Tables B, C, and D of the Ontario Drinking Water Protection Regulation 459/00, as per the contents of the Terms of Reference. The laboratory results from Accutest Labs are included in Appendix A. It is noted that common groundwater quality parameters of Chloride, Calcium, Sodium, and Total Dissolved Solids (TDS) were not included in the analysis of groundwater samples at this site. It is recommended that the analysis of these parameters be included in future monitoring programs.

Figure 2 illustrates the location of production well, monitoring piezometers, and residential wells that located at the Embrun Well site.

2.3 Township Monitoring

Township personnel collected water samples from the Embrun production well throughout 2003. Only a limited amount of data was made available by the Township for the production of this report. The data supplied by the Township at the time of writing this report is presented Appendix B. Data was submitted for the parameters of Colour, pH, Temperature, Iron, Manganese, Turbidity, and Hydrogen Sulphide for the 12 months of 2003. The average monthly raw water flows for 2003 were also provided by the Township.

3.0 INTERPRETATION

3.1 Hydraulic Monitoring by SEI

A summary of the Potentiometric Elevations (P.E.) calculated for all measured wells is provided in Table 1. Figure 3 presents the transient trends observed from water table elevation data for the monitored piezometers. Water levels in 2003 were similar to levels measured in 2001 and lower than those measured in 2000 and 2002. The spring groundwater recharge effect can be seen from the elevated water levels measured in the spring of each year when compared to levels measured in the fall. The measured seasonal water levels at each well have generally fluctuated over a range of 1.5 m over the last 5 years, and the measured potentiometric elevations fall between the elevations of 67 m and 71 m.

Conceptual models of the spatial differences of groundwater levels and hydraulic gradients measured in the spring and fall of 2003 are presented in Figures 4A and 4B. The conceptual model displayed is only an estimate of possible gradients based on the data collected and may not represent the actual gradients present at the site. The depressed potentiometric elevation of the water table around the production well is attributed to pumping activities at the production well.

3.2 Groundwater Quality of PW-1 by Township

Limited chemical data was made available for the sampling of the Embrun production well in 2003 and is provided in Appendix B with the monthly average water flows. The data was compared to the Drinking Water Standards (DWS; Reg 169/03) and the following parameters were noted to exceed the Standards: Iron and Manganese. It is noted that these parameters have only Aesthetic Objectives (AO) under DWS. Both Iron and Manganese exceeded the DWS for every month. Iron and Manganese concentrations measured at the production well in 2003 are similar to past concentrations measured at the production well and nearby piezometers PZ16 and PZ18.

The Annual Summary of Raw Water Flows for 2003 was compared to the same from 2002. The total amount of water used in 2003 increased approximately 7 % compared to 2002 and is attributed to an increase of 359 in the serviced population of the water system. The average water used per person per day decreased slightly in 2003 with respect to 2002.

3.3 Groundwater Quality by SEI

3.3.1 Comparison to DWS

In the spring of 2003, several monitoring stations (PZ13, PZ16, PZ18, and PZ29) were found to exceed the Drinking Water Standards (DWS; Reg 169/03) for Iron and Manganese. It is noted that these parameters have only Aesthetic Objectives (AO) under DWS. The concentrations of other metals and inorganic parameters are either below the detection limit of the laboratory or well below the Maximum Acceptable Concentration (MAC) specified in the DWS, and are not of concern. All concentrations of Volatile Organic Compounds (VOC's), PCB's, herbicides, and pesticides were below the detection limit of the laboratory in the spring of 2003, with the exception of ethylbenzene at PZ16. Elevated concentration of ethylbenzene was noted at 3.2 ug/L for July, above the DWS of 2.4 ug/L.

In the fall of 2003, several monitoring stations (PZ13, PZ16, PZ18, and PZ29) were found to exceed the Drinking Water Standards (DWS) for Iron and Manganese. An elevated concentration of ethylbenzene (2.9 ug/L) was again noted at PZ16 that was above the DWS (2.4 ug/L). It is noted that these parameters have only Aesthetic Objectives (AO) under DWS. The concentrations of other metals and inorganic parameters are either below the detection limit of the laboratory or well below the Maximum Acceptable Concentration (MAC) specified in the DWS, and should not be of concern. All concentrations of Volatile Organic Compounds (VOC's), PCB's, herbicides, and pesticides were below the detection limit of the laboratory in the fall of 2003, with the exception of ethylbenzene at PZ16.

The observed concentrations of ethylbenzene at PZ16 in both the spring and fall of 2003 may indicate some form of contamination. PZ16 is directly down-gradient of the Dore pit where fuel and petroleum hydrocarbons are stored in tanks. This should be monitored closely in the future.

The monitoring piezometers PZ28 and PZ29 appear to be slightly impacted by surface runoff in the spring of 2003. This is evidenced by the slightly elevated concentration of Nitrate (0.16 mg/L) in the spring and fall 2003 samples (see Appendix A). It should be noted that the observed concentrations of Nitrate at PZ28 and PZ29 in the spring of 2003 are well below the MAC specified by DWS (10 mg/L).

3.3.2 Transient and Spatial Analysis of OB-1 & OB-2 Water Quality

The concentrations of Barium, Boron, Iron, and Manganese at the production well, the eight monitoring piezometers, and the two residential wells in the spring and fall from 2000 to 2003 are given Tables 2A to 2K.

The transient trends of the selected parameter concentrations vs. time are presented in Figures 5A to 5D.

The concentrations of Barium as presented in Figure 5A show that the well at the Patenaude residence had the highest measured concentrations in 2003, and historically has had some of the highest concentrations. Additionally the residence Schoeni and the monitoring piezometers PZ08, PZ27, PZ29, and PZ30 have displayed higher concentrations than monitoring piezometers PZ13, PZ16, PZ 18, and PZ28.

The concentrations of Boron as presented in Figure 5B show that the two residential wells (Patenaude and Schoeni) and piezometer PZ30 had the highest Boron concentrations when compared to the rest of the monitored stations, both in 2003 and historically. Concentrations of Boron measured in 2003 remain consistent with concentrations of Boron measured in the past.

The concentrations of Iron as presented in Figure 5C show the piezometers PZ16, PZ18, and PZ29 had the highest Iron concentrations when compared to the rest of the monitored stations, both in 2003 and historically. Concentrations of Iron measured in 2003 remain consistent with concentrations of Iron measured in the past.

The concentrations of Manganese as presented in Figure 5D show the piezometers PZ16, PZ18, and PZ29 had the highest Manganese concentrations when compared to the rest of the monitored stations, both in 2003 and historically. Concentrations of Manganese measured in 2003 remain consistent with concentrations of Iron measured in the past.

The spatial distribution of concentrations of Barium, Boron, Iron, and Manganese are expressed as conceptual models of concentration gradients in Figures 6 to 9. In Figures 6 and 7, it can be seen that Barium and Boron concentrations are highest to the Northwest of the production well towards the landfill. In Figures 8 to 9, it can be seen that the highest concentrations of Iron and Manganese are located around the production well and the Dore Pit.

4.0 CONCLUSIONS

Overall the water quality measured at the site was good and the results of the samples do not suggest significant imminent threat to the production or quality of the water from the Embrun production well.

Water levels were measured in the spring and fall of 2003 at eight monitoring piezometers. Water levels of these piezometers were found to be similar to historical water level measurements and water levels at individual wells have fluctuated by about 1.5 m over the last five years. The flow of groundwater is estimated to be towards the production well due to the large drawdown in the potentiometric elevation of the water table due to pumping activities.

The total amount of raw water used in 2003 was greater than the amount used in 2002. This increased usage was attributed to a rise in the serviced population of the water system. It is noted that the average amount of water used per person per day in 2003 decreased slightly when compared to 2002.

Limited data was provided for the sampling of the production well PW-1 by the Township in time for the writing of this report. The parameters of Iron and Manganese were noted to exceed the Aesthetic Objectives of the DWS, similar to previous testing.

SEI staff sampled eight monitoring piezometers and two residential wells in the spring and fall of 2003. The samples were analyzed for the parameters specified in Tables B, C, and D of the Drinking Water Protection Regulation 459/00, as per Terms of Reference. There were no health related exceedences of the ODWS noted in any of the samples in 2003. There were several exceedences of Aesthetic Objectives of DWS by the parameters of Iron and Manganese, primarily from PZ13, PZ16, PZ18, and PZ29.

An elevated concentration of ethylbenzene was noted at PZ16 in both the spring and fall of 2003. It is noted that ethylbenzene is considered a Volatile Organic Compound (VOC) and is regulated by an Aesthetic Objective under the DWS (Reg 169/03). PZ16 is directly down-gradient of the Dore pit for groundwater flow. Township Staff should confirm the absence of BTEX component in the production well water. The potential contamination of groundwater around PZ16 should be further investigated.

The concentrations of many of the inorganic parameters analyzed in 2003 at the observation wells were below the detection limit of the laboratory or well below the MAC as specified by DWS. All concentrations of VOC's, PCB's, herbicides, and pesticides were below the detection limit of the laboratory in the spring and fall 2003, with the exception of reported ethylbenzene at PZ16.

It was suggested that PZ28 and PZ29 may be under the influence of surface water runoff in the spring, as shown by the slightly elevated concentrations of Nitrate in the spring of 2003. It should be noted that the observed concentrations of Nitrate in the spring are well below the MAC specified by DWS.

The standards for drinking water quality in Ontario are now prescribed in O. Reg. 169/03 under the Safe Drinking Water Act, 2002 and have replaced the Drinking Water Protection Regulation for Larger Waterworks (O. Reg. 459/00) and the Drinking Water Protection Regulation for Smaller Waterworks Serving Designated Facilities (O. Reg. 505/01).

It is noted that common groundwater parameters of Chloride, TDS, and Sodium were not analyzed in either the spring or fall of 2003 at either the eight monitoring piezometers or two residential wells. As these are common indicator parameters of groundwater quality, they should be included in the analysis in the future.

4.1 Recommendations

1. For future monitoring events, water level measurements should be made prior to any pumping activities in production well.

2. It should be investigated if there are any sources of ethylbenzene impacting the groundwater near PZ16. BTEX should be analyzed at PZ16 and Dore Lake water in 2004.

3. It should be investigated if there are any nitrate sources affecting PZ28 and PZ29. NO3 should be included in the 2004 survey to confirm the low concentration occurrence at the well head.

4. There is no technical need to run the exhaustive listing of parameters on a regular basis in the future. The sampling and analysis of the common groundwater quality indicator parameters Chloride, Total Dissolved Solids, and Sodium (plus Ba, B, Fe and Mn) should be included in future monitoring events of the well head piezometer.

TABLE 1: POTENTIOMETRIC ELEVATIONS EMBRUN WELL MONITORING PROGRAM											
Station	Top of Casing Elevation (m)	Potentiometric Elevation (m)									
		May-98	Nov-98	Jul-00	Dec-00	Jun-01	Oct-01	Jul-02	Nov-02	Jul-03	Oct-03
PZ-08	74.49	70.09	69.96	70.11	69.98	70.01	69.69	70.23	69.99	70.02	69.87
PZ-13	72.99	69.18	69.09	69.62	69.43	69.43	69.12	69.89	69.47	69.47	69.28
PZ-16	72.34	69.10	68.80	69.22	68.71	68.67	68.19	68.94	68.53	68.49	68.22
PZ-18	72.27	69.01	68.67	69.00	68.35	68.41	67.74	68.45	68.31	68.06	67.69
PZ-27	71.63	70.48	69.97	70.53	69.93	70.12	69.52	70.18	69.68	69.75	69.19
PZ-28	71.72	70.33	69.61	70.55	69.58	69.78	69.09	70.21	69.25	69.48	68.95
PZ-29	72.45	70.35	70.08	70.74	70.31	70.28	69.91	70.80	69.99	70.11	69.72
PZ-30	71.795	69.68	69.72	70.10	69.93	69.63	69.64	70.16	69.60	69.41	69.34

Notes:
- May 1998 to November 2002 data Taken from Table 1, Embrun Aquifer Monitoring , 2002 Annual Report by Robinson Consultants Inc.

TABLE 2A: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN PRODUCTION WELL (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PRODUCTION WELL							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.12	0.1	0.14	0.09	0.12	0.09		
B (mg/L)	5	0.02	0.02	0.01	0.03	<0.02	<0.05		
Fe (mg/L)	0.3	**2.36**	**2.27**	**1.94**	**2.22**	**2.39**	**2.64**	**2.55**	**2.61**
Mn (mg/L)	0.05	**0.32**	**0.29**	**0.29**	**0.32**	**0.366**	**0.321**	**0.38**	**0.376**

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2B: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-08 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-08							
		Jul-00	Nov-00	Jun-01	Oct-01	Jul-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.08	0.07	0.08	0.07	0.08	0.08	0.07	0.07
B (mg/L)	5	0.02	0.02	0.01	0.03	<0.02	<0.05	<0.05	0.01
Fe (mg/L)	0.3	0.11	0.1	0.06	0.07	0.05	0.08	0.08	0.07
Mn (mg/L)	0.05	0.03	0.03	0.02	0.03	0.025	0.026	0.027	0.026

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2C: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-13 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-13							
		Jul-00	Nov-00	Jun-01	Oct-01	Jul-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.04	0.03	0.03	0.02	0.03	0.03	0.02	0.03
B (mg/L)	5	0.02	0.02	0.01	0.03	<0.02	<0.05	<0.05	0.01
Fe (mg/L)	0.3	**0.82**	**0.61**	**0.5**	**0.55**	**0.56**	**0.61**	**0.77**	**0.79**
Mn (mg/L)	0.05	**0.06**	**0.05**	**0.05**	0.04	0.046	0.048	0.048	0.047

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2D: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-16 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-16							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.05	0.03	0.03	0.05	0.05	0.03	0.03	0.03
B (mg/L)	5	<0.01	0.02	0.01	0.03	<0.02	<0.05	<0.05	0.02
Fe (mg/L)	0.3	**12.8**	**4.62**	**3.08**	**4.56**	**8.02**	**3.54**	**3.26**	**2.84**
Mn (mg/L)	0.05	**0.74**	**0.44**	**0.46**	**0.37**	**0.724**	**0.437**	**0.406**	**0.351**

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2E: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-18 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-18							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.06	0.03	0.04	0.05	0.05	0.03	0.04	0.03
B (mg/L)	5	<0.01	0.02	<0.01	0.03	<0.02	<0.05	<0.05	0.01
Fe (mg/L)	0.3	**17.6**	**2.84**	**1.34**	**1.93**	**2.69**	**1.96**	**1.44**	**1.83**
Mn (mg/L)	0.05	**1.46**	**0.5**	**0.62**	**0.48**	**0.697**	**0.408**	**0.494**	**0.28**

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2F: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-27 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-27							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.11	0.11	0.13	0.11	0.12	0.11	0.11	0.1
B (mg/L)	5	0.07	0.07	0.06	0.07	<0.02	<0.05	<0.05	0.06
Fe (mg/L)	0.3	0.23	0.05	0.03	**0.31**	0.01	0.06	0.02	0.17
Mn (mg/L)	0.05	0.02	0.02	0.02	0.03	0.019	0.019	0.015	0.037

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2G: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-28 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-28							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.04	0.04	0.15	0.03	0.04	0.03	0.03	0.02
B (mg/L)	5	0.03	0.04	0.03	0.04	<0.02	<0.05	<0.05	0.02
Fe (mg/L)	0.3	0.25	0.07	0.03	**0.49**	0.07	<0.01	<0.01	0.07
Mn (mg/L)	0.05	0.02	0.01	0.02	0.03	0.021	0.011	0.009	0.018

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2H: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-29 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-29							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.05	0.11	0.11	0.13	0.09	0.09	0.08	0.12
B (mg/L)	5	0.02	0.01	<0.01	0.03	<0.02	<0.05	<0.05	0.01
Fe (mg/L)	0.3	0.05	0.12	**1.06**	**1.93**	**1.06**	**1.45**	**0.96**	**1.44**
Mn (mg/L)	0.05	0.04	**0.05**	**0.09**	**0.13**	**0.125**	**0.11**	**0.148**	**0.15**

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2I: CONCENTRATIONS OF SELECTED PARAMETERS EMBRUN WELL PZ-30 (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PZ-30							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.08	0.11	0.08	0.13	0.1	0.12	0.08	0.1
B (mg/L)	5	0.14	0.12	0.13	0.12	0.06	0.13	0.1	0.12
Fe (mg/L)	0.3	0.21	0.15	0.02	0.29	<0.01	0.03	**0.75**	0.04
Mn (mg/L)	0.05	0.01	0.03	0.01	0.04	0.012	0.038	**0.063**	0.025

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2J: CONCENTRATIONS OF SELECTED PARAMETERS PATENAUDE RESIDENCE (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	PATENAUDE							
		Jul-00	Dec-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.13	0.14	0.14	0.12	0.15	-	0.13	0.13
B (mg/L)	5	0.11	0.11	0.11	0.11	0.04	-	0.09	0.1
Fe (mg/L)	0.3	0.12	0.07	0.12	0.07	0.23	-	0.12	0.12
Mn (mg/L)	0.05	<0.01	<0.01	<0.01	<0.01	0.013	-	0.011	0.008

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

TABLE 2K: CONCENTRATIONS OF SELECTED PARAMETERS SCHOENI RESIDENCE (2000 - 2003) EMBRUN WELL MONITORING PROGRAM

Parameter	ODWS	SCHOENI							
		Jul-00	Nov-00	Jun-01	Oct-01	Jun-02	Nov-02	Jul-03	Oct-03
Ba (mg/L)	1	0.11	0.11	0.12	0.1	0.1	-	0.09	0.09
B (mg/L)	5	0.15	0.15	0.14	0.15	0.08	-	0.12	0.14
Fe (mg/L)	0.3	0.26	0.14	0.23	0.17	0.09	-	0.15	0.1
Mn (mg/L)	0.05	<0.01	<0.01	<0.01	<0.01	0.008	-	0.009	0.008

Notes:
- 2000 to 2002 data taken from Tables, Embrun Well Monitoring Program, 2002 Annual Report by Robinson Consultants Inc.
- Bold indicates that measured parameters exceeds Ontario Drinking Water Standard (ODWS)

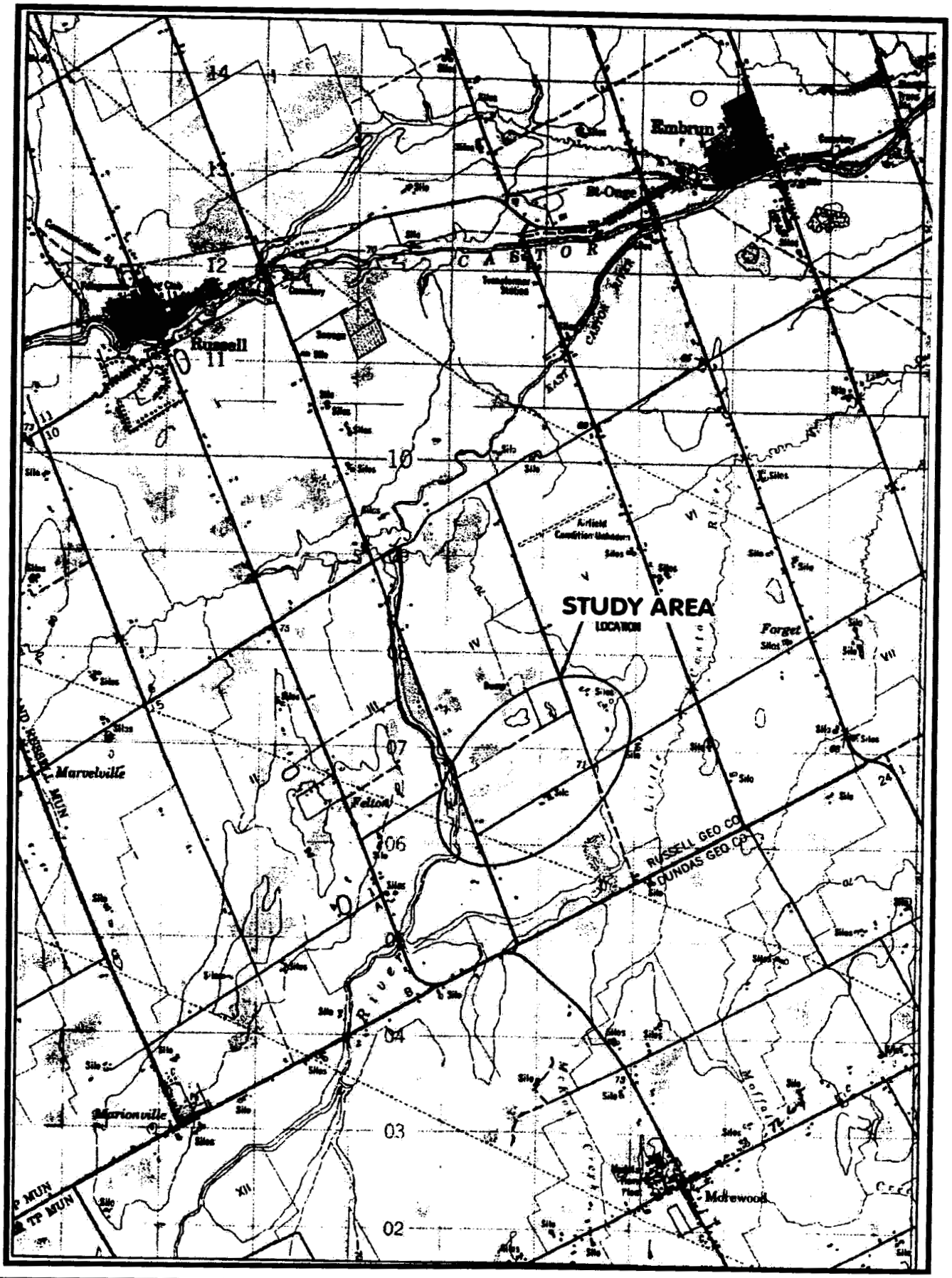


Figure 1

EMBRUN WATER SUPPLY STUDY SITE

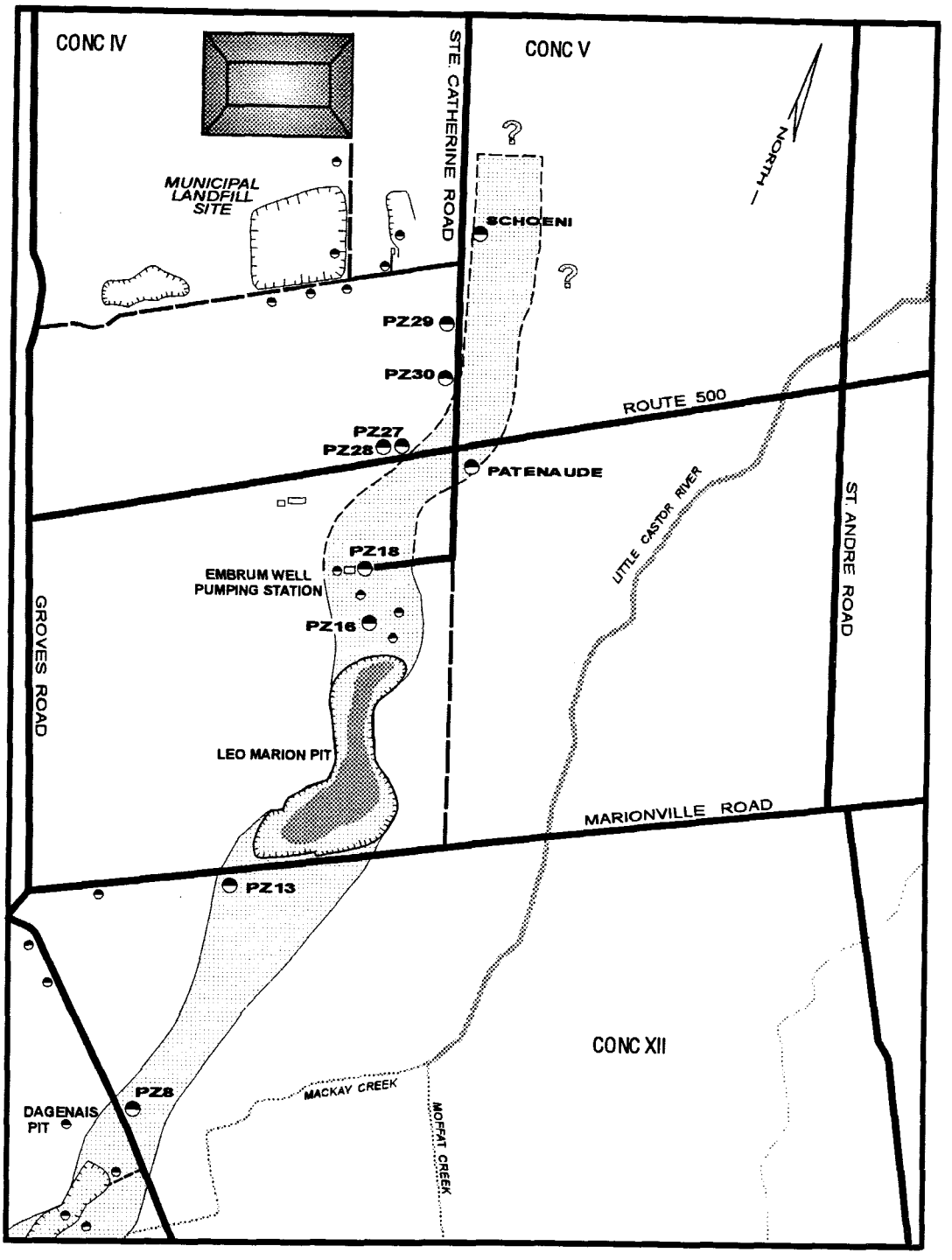
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICSG 0303 - JAN 2004

DATE: JANUARY 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 2

SITE PLAN

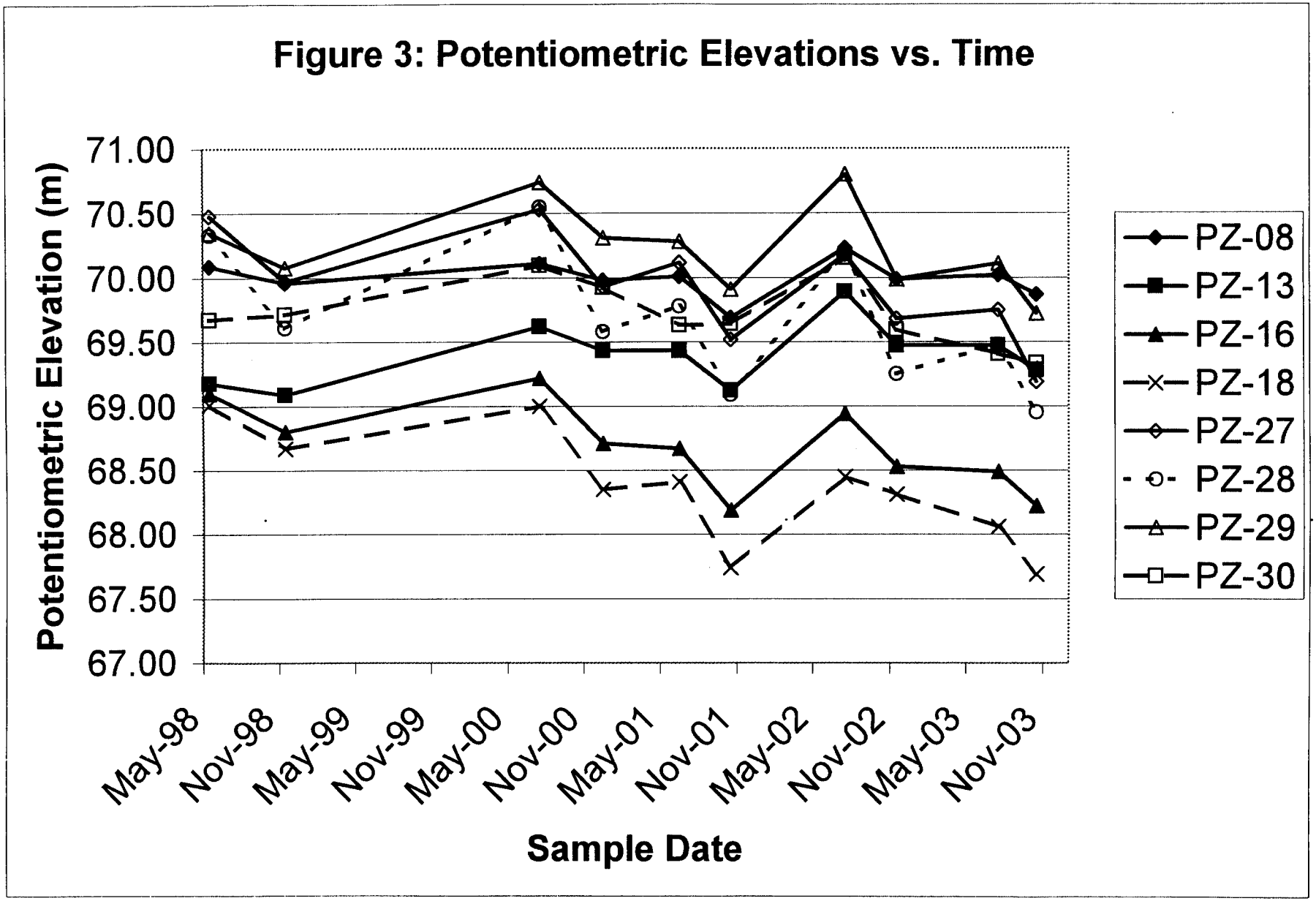
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

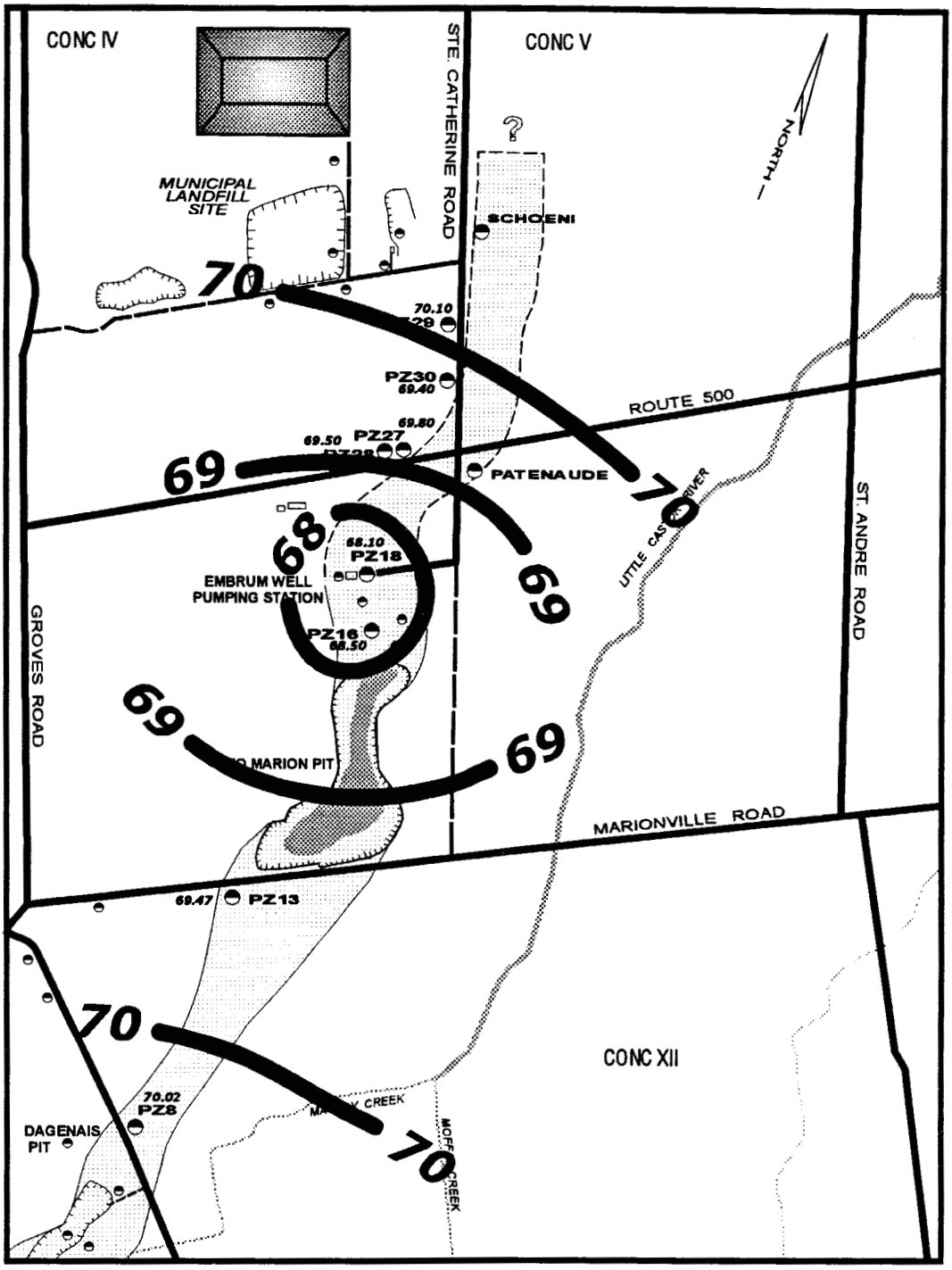
MAP FILE : GEOPICS G03 03_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

Figure 3: Potentiometric Elevations vs. Time



EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 4A

POTENTIOMETRIC ELEVATIONS (masl) (Spring, 2003)

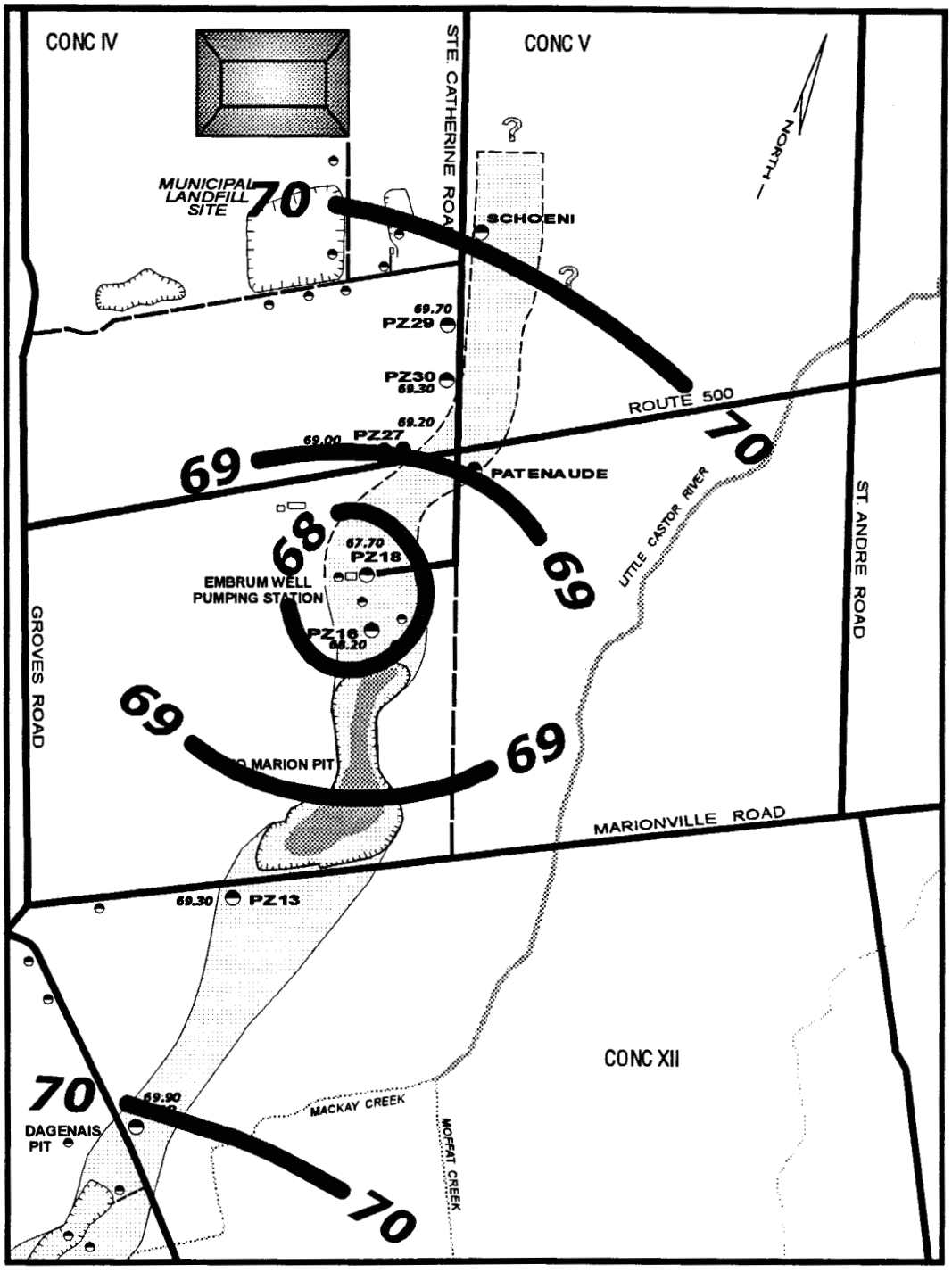
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAPFILE: GEOPICSG0303_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

- PZ28 MONITORED STATION
- STATION NOT MONITORED
- CORE OF ICE CONTACT DEPOSIT
- Inferred / assumed

0 200 400m

Figure 4B

POTENTIOMETRIC ELEVATIONS (masl) (Fall, 2003)

TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS G0303_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

Figure 5A: Barium Concentrations vs. Time

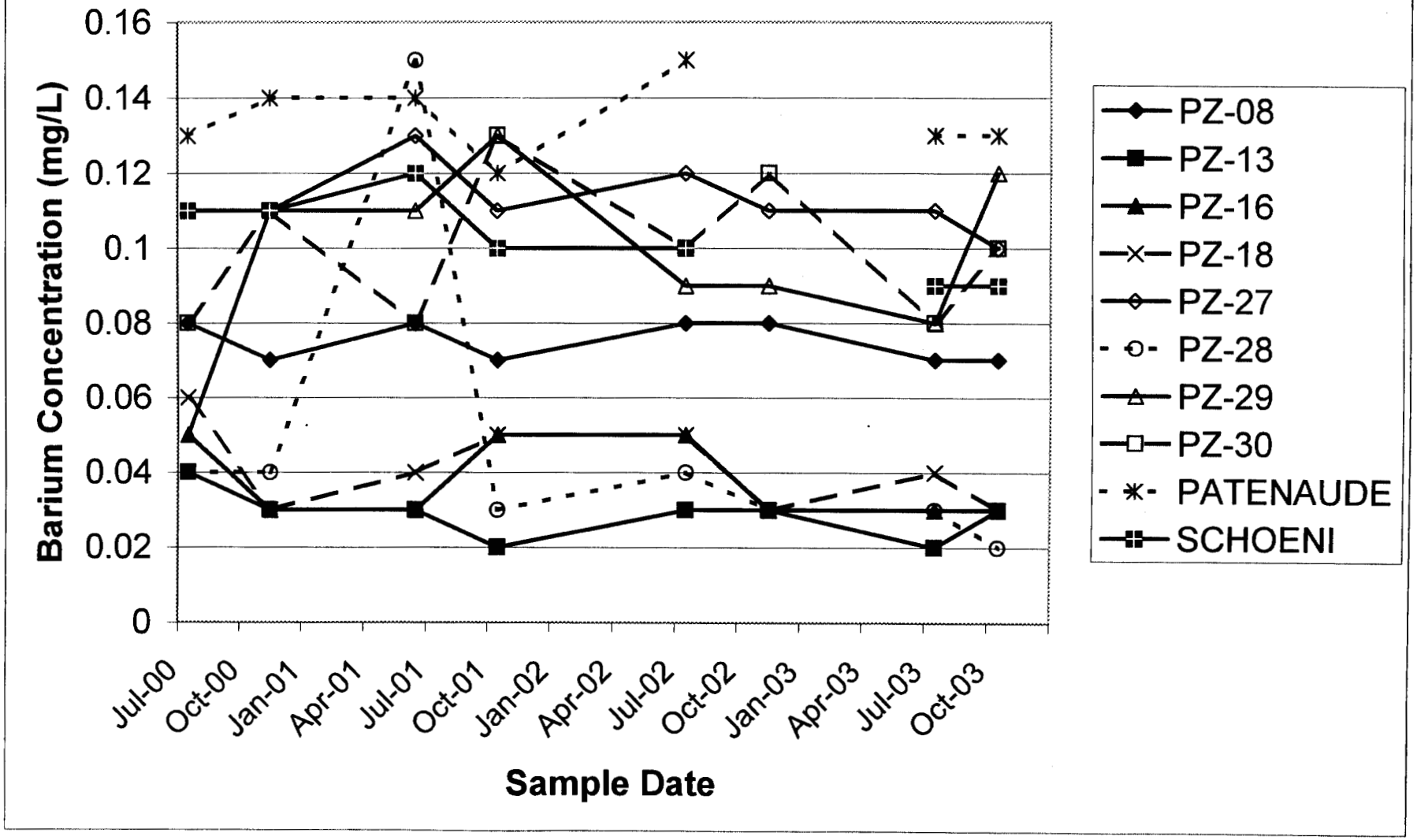


Figure 5B: Boron Concentrations vs. Time

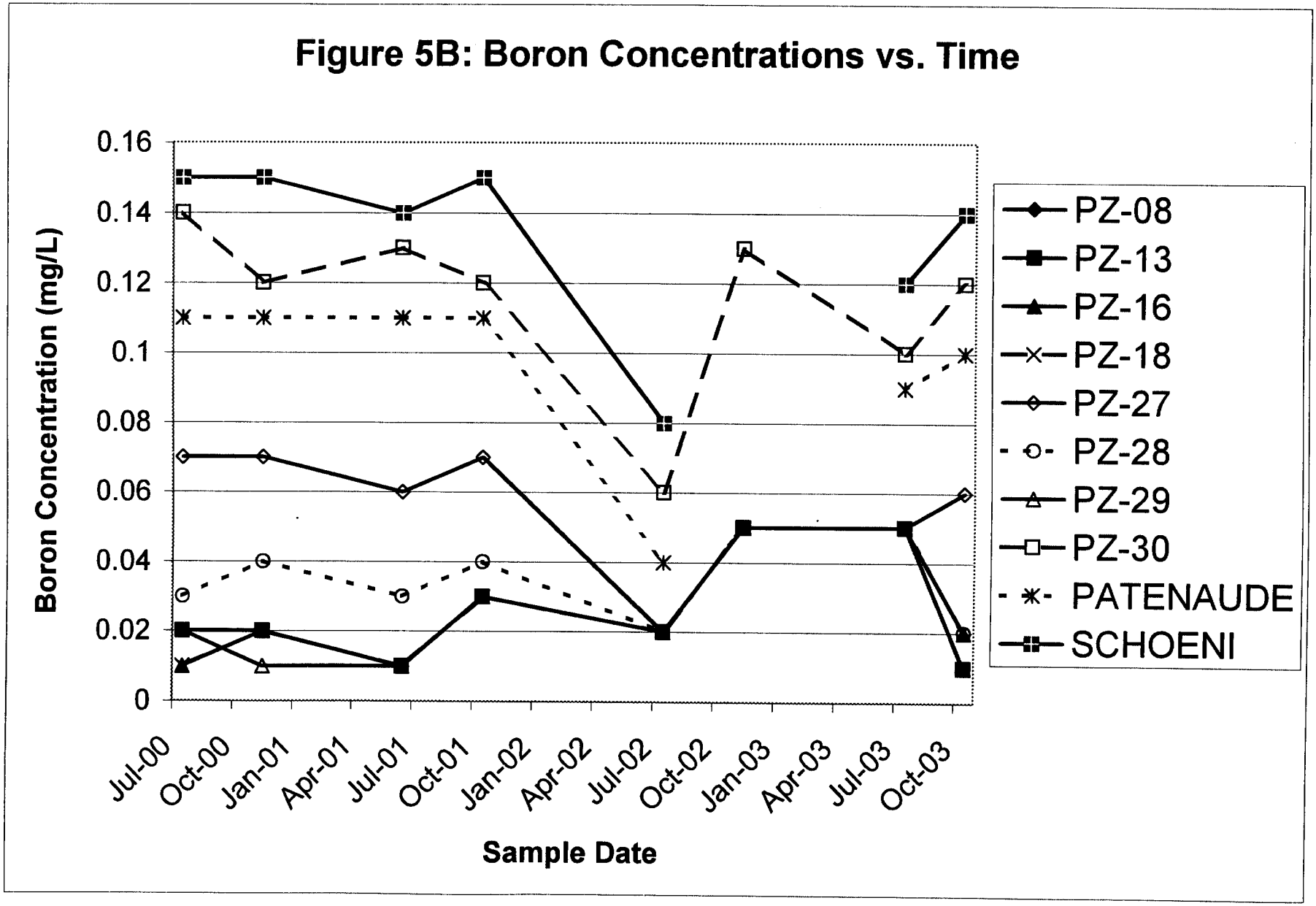


Figure 5C: Iron Concentrations vs. Time

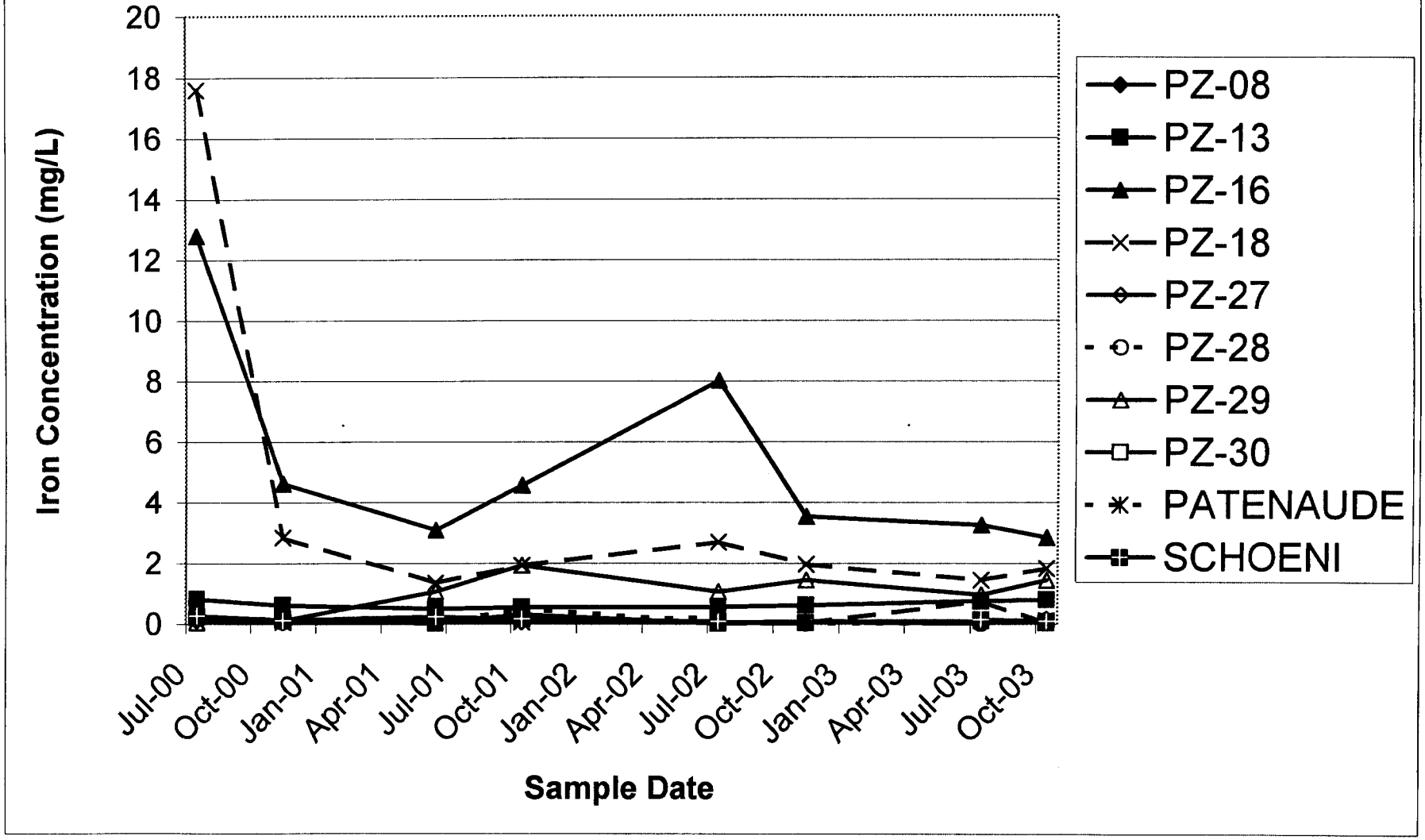
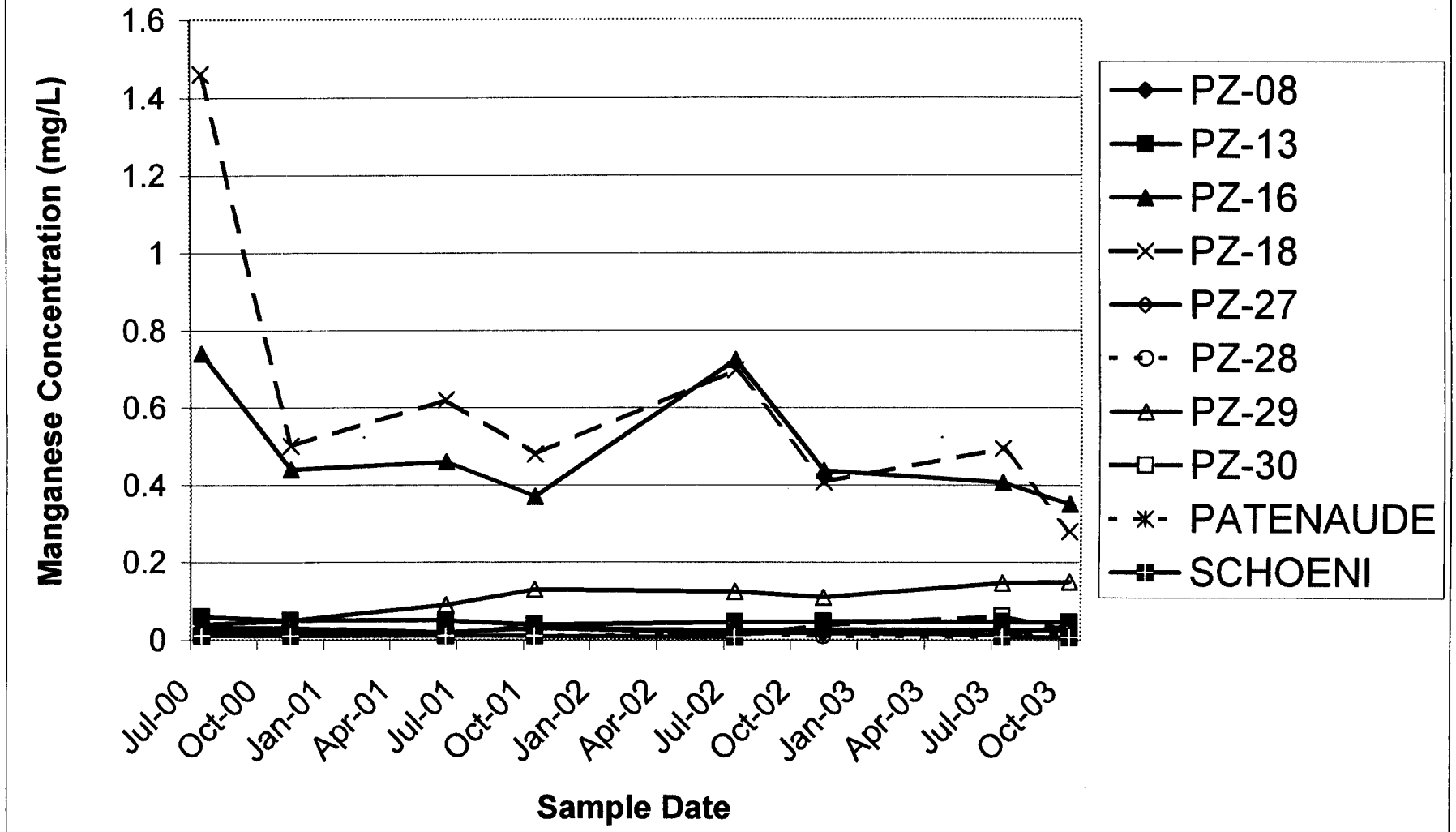
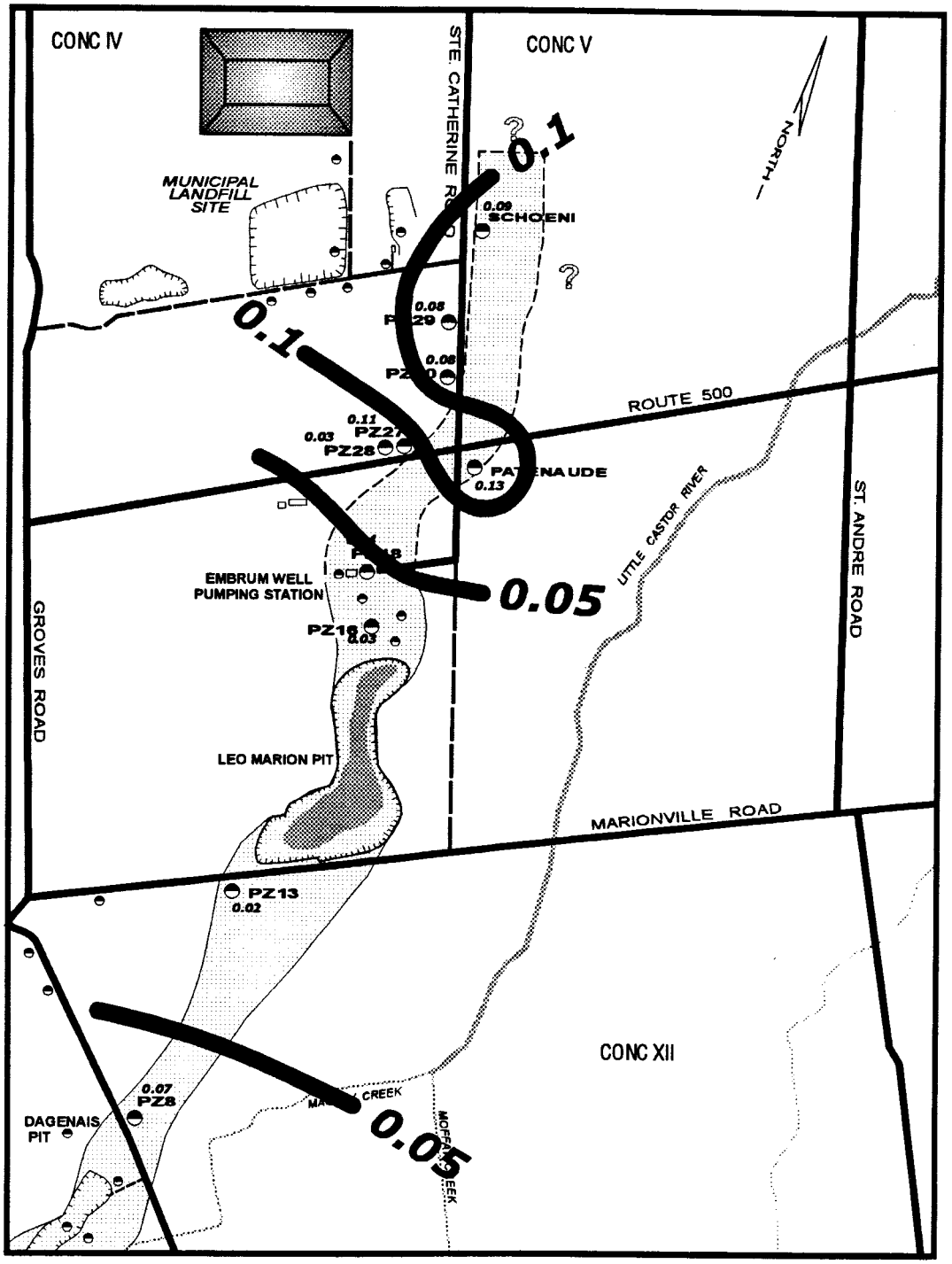


Figure 5D: Manganese Concentrations vs. Time



EMBRUN WATER SUPPLY



Legend

- PZ28 — MONITORED STATION
- STATION NOT MONITORED
- CORE OF ICE CONTACT DEPOSIT (inferred / assumed)

0 200 400m

Figure 6A

Barium (mg/L) (Spring, 2003)

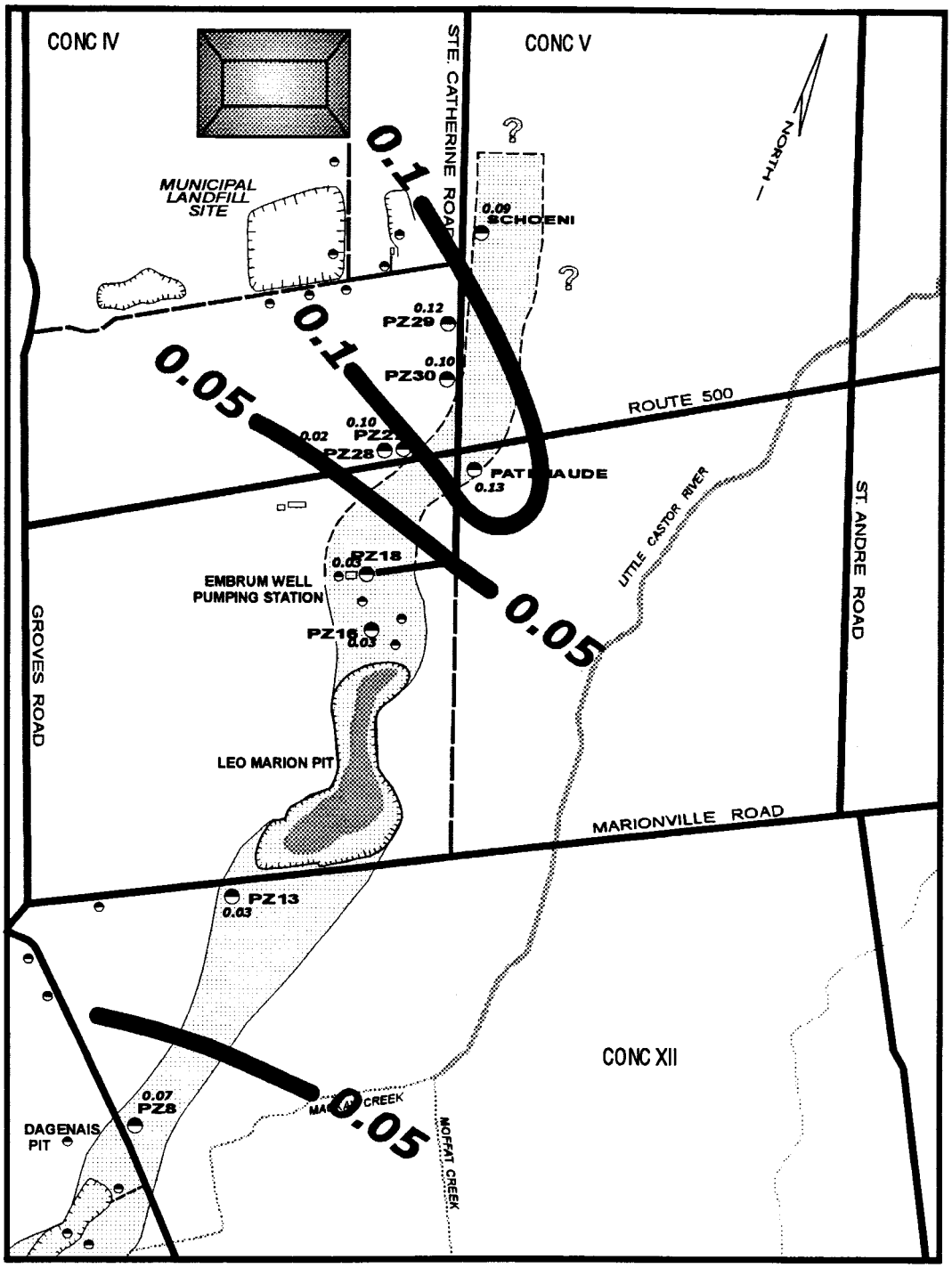
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS G 03 03_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

inferred / assumed

0 200 400m

Figure 6B

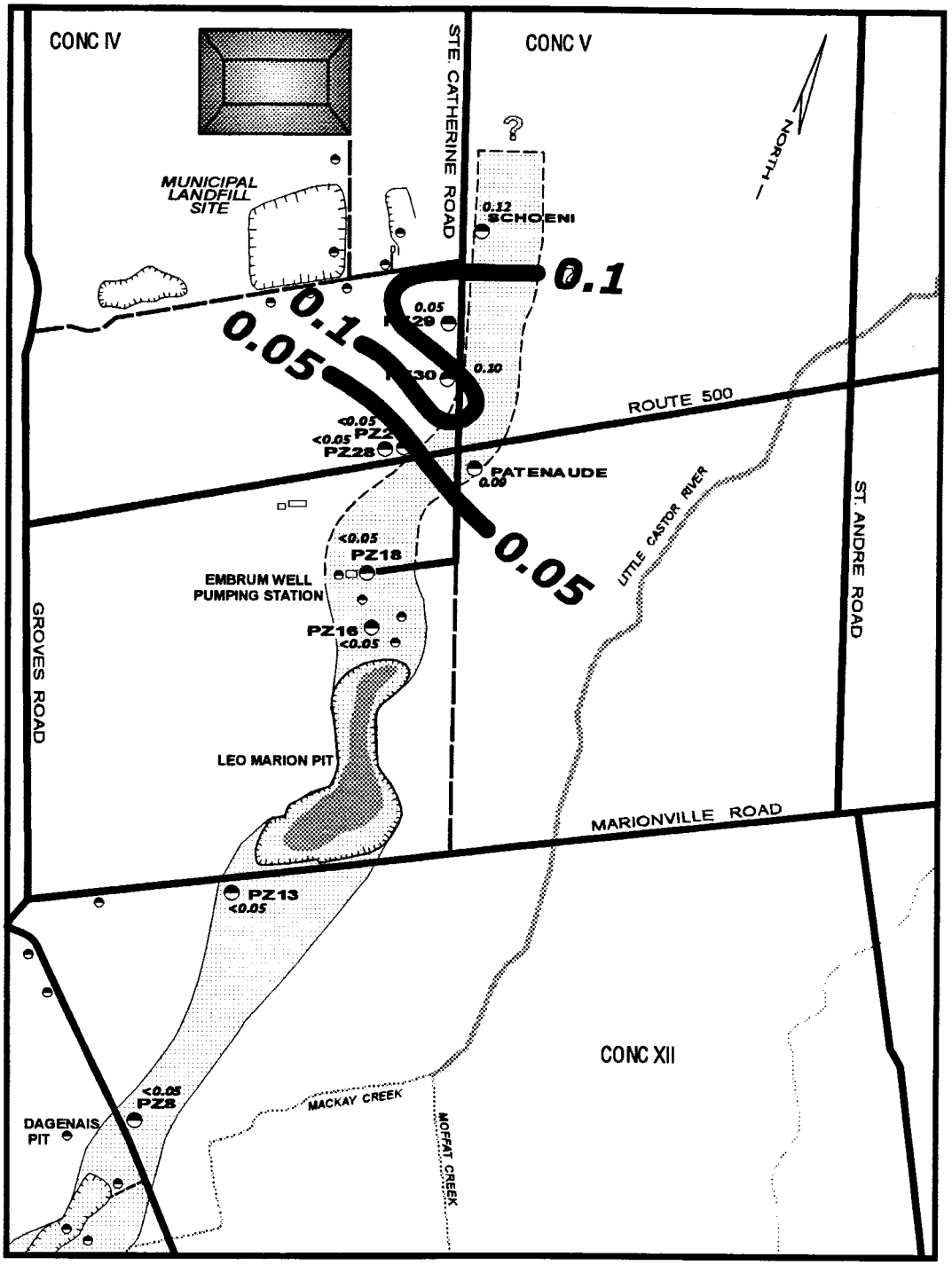
Barium (mg/L)
(Fall, 2003)
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS G 03 03_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 7A

Boron (mg/L) (Spring 2003)

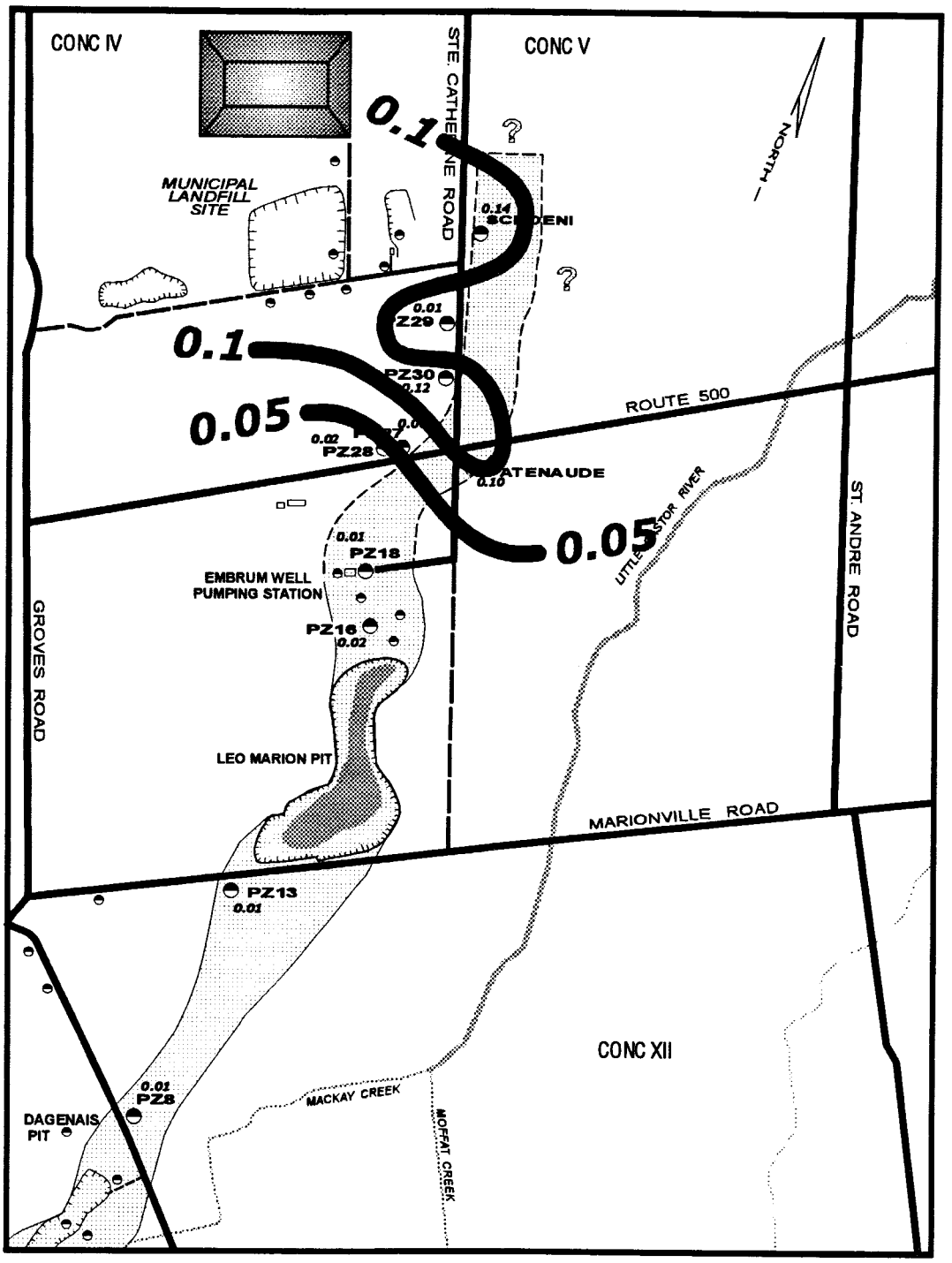
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS G 03 03_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 7B

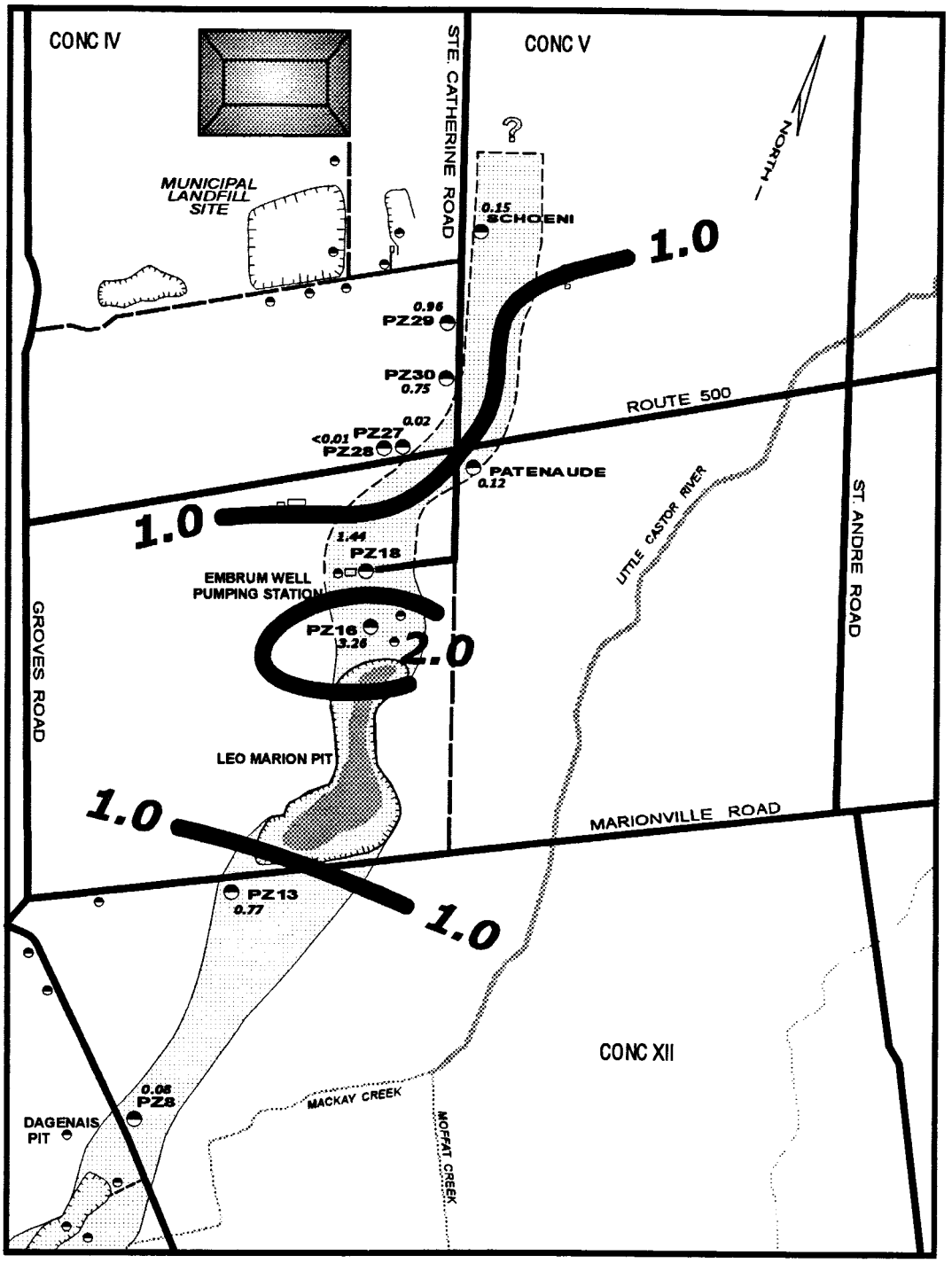
Boron (mg/L)
(Fall 2003)
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS G0303_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 8a

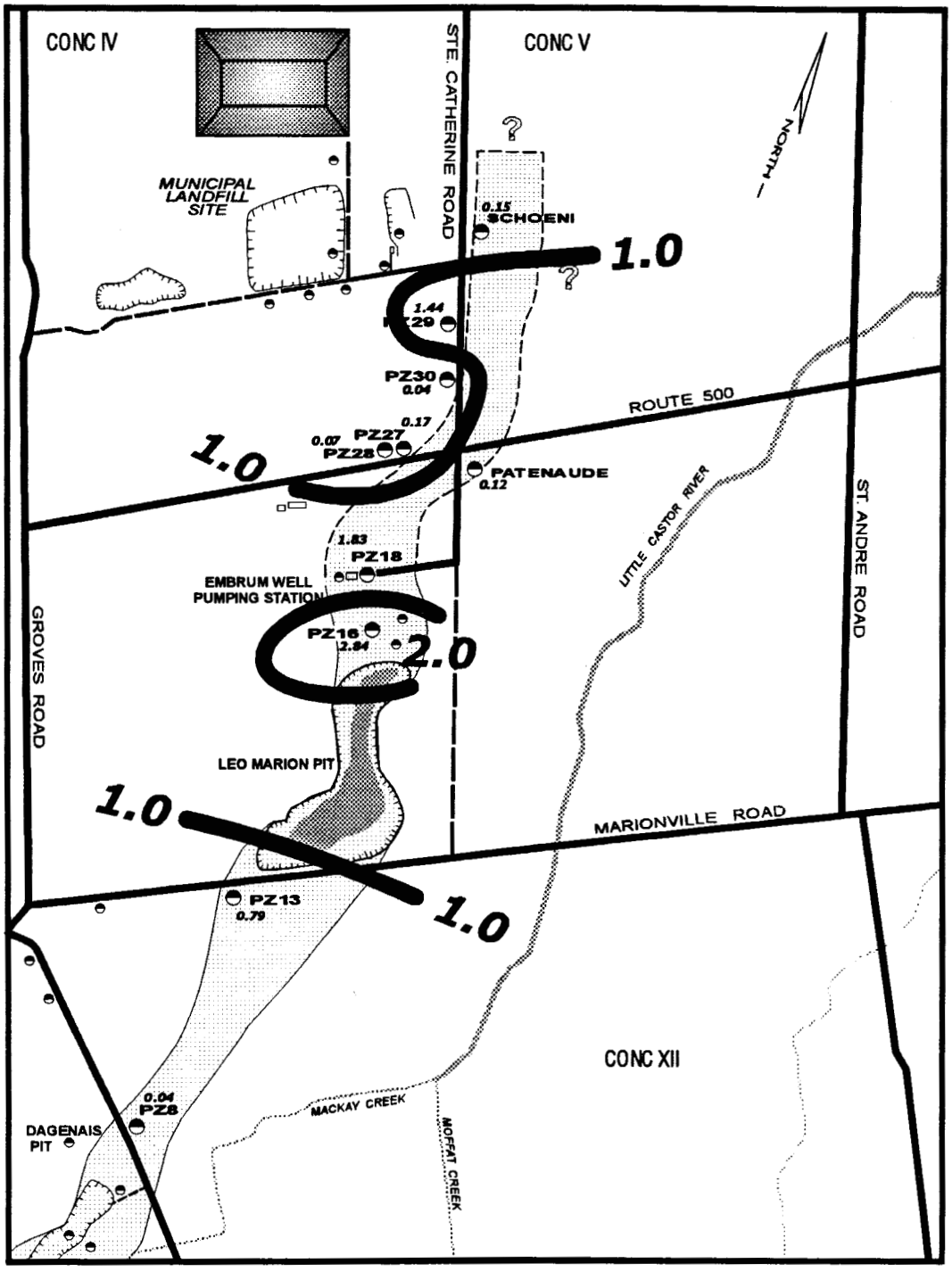
Iron (mg/L)
(Spring, 2003)
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE: GEOPICS G0303_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 8b

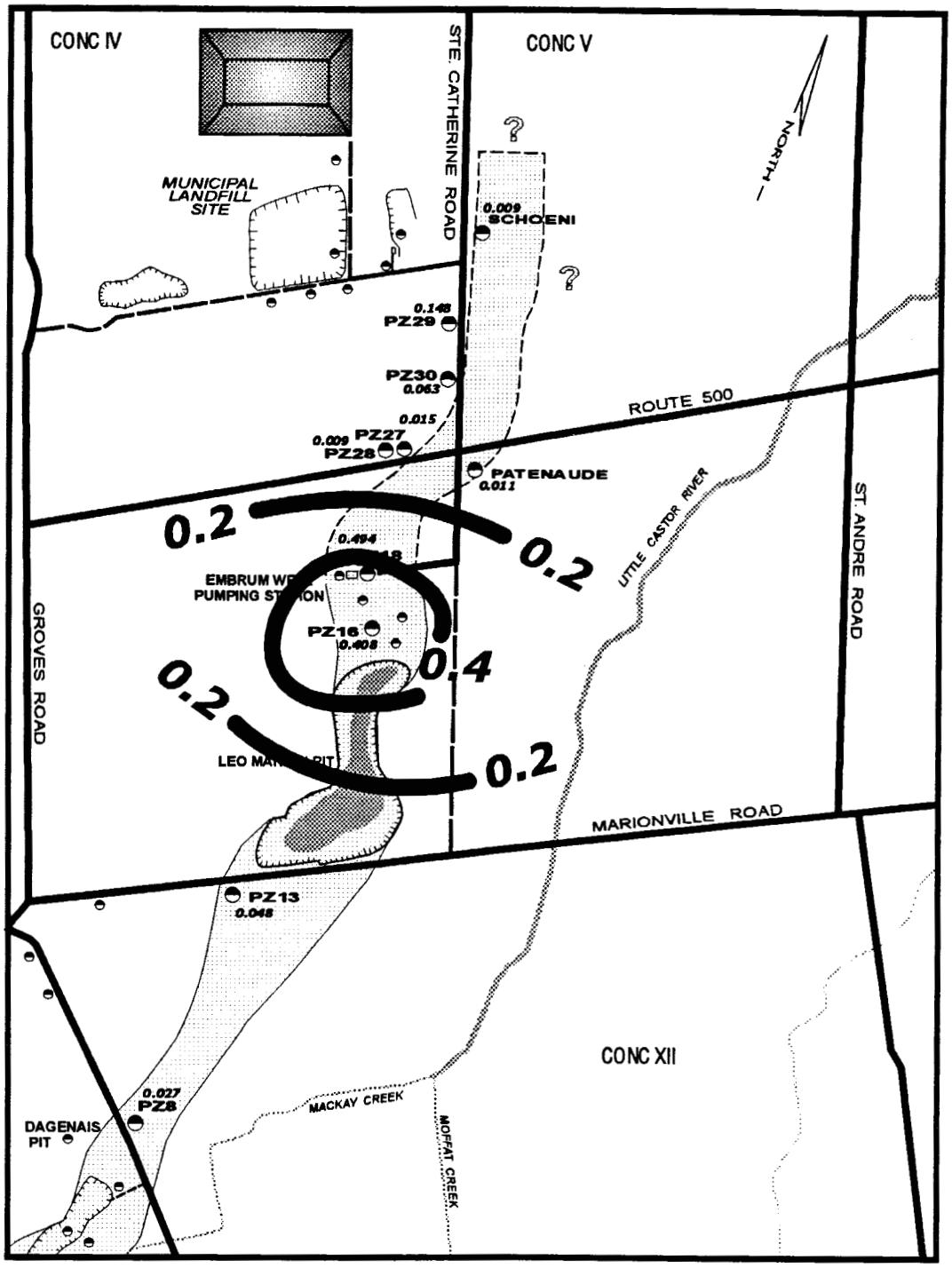
Iron (mg/L)
(Fall, 2003)
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS 0303_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 9A

Manganese (mg/L) (Spring, 2003)

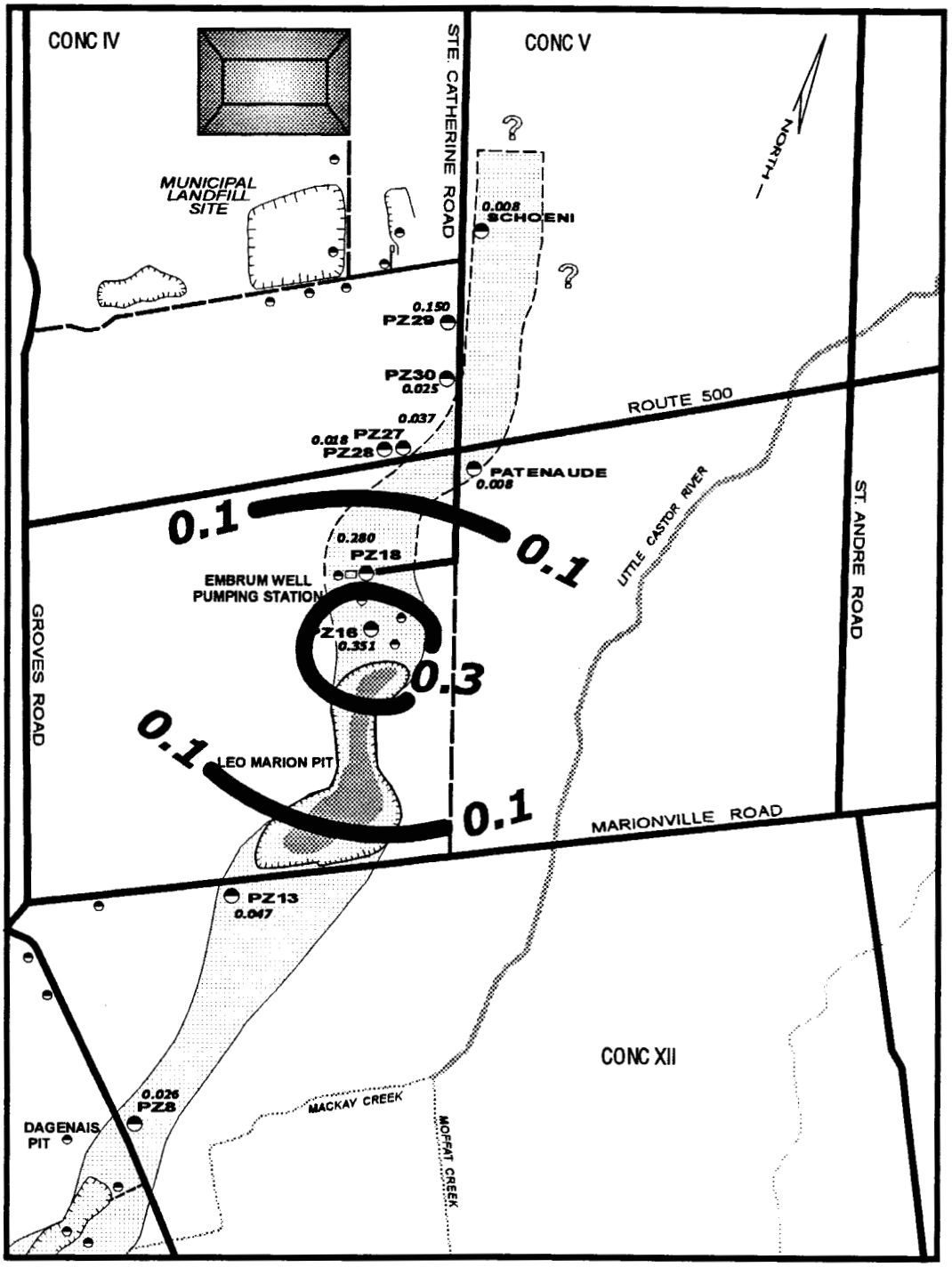
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAP FILE : GEOPICS G 03 03_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

EMBRUN WATER SUPPLY



Legend

PZ28 MONITORED STATION

STATION NOT MONITORED

CORE OF ICE CONTACT DEPOSIT

Inferred / assumed

0 200 400m

Figure 9B

Manganese (mg/L)
(Fall, 2003)
TOWNSHIP OF RUSSELL

SAURIOL ENVIRONMENTAL Inc.

MAPFILE : GEOPICS 03 03_EMBRUM - JAN 2004

DATE: Jan. 2004 PROJECT No. P03-02b

APPENDIX A

LABORATORY RESULTS
EMBRUN WELL MONITORING PROGRAM

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310519
Date: 2003-07-22
Date Submitted: 2003-07-10

Project: P03-02 Embrum

P.O. Number:
Matrix: Water

			LAB ID:	259853	259854	259855	259856	259857	GUIDELINE		
			Sample Date:	2003-07-10	2003-07-10	2003-07-10	2003-07-10	2003-07-10			
			Sample ID:	PZ-28	PZ-27	PZ-13	PZ-8	Schoeni			
PARAMETER	UNITS	MDL							TYPE	LIMIT	UNITS
N-NO2 (Nitrite)	mg/L	0.10		<0.10	<0.10	<0.10	<0.10	<0.10			
N-NO3 (Nitrate)	mg/L	0.10		0.17	<0.10	<0.10	<0.10	<0.10			
Arsenic	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Barium	mg/L	0.01		0.03	0.11	0.02	0.07	0.09			
Boron	mg/L	0.05		<0.05	<0.05	<0.05	<0.05	0.12			
Cadmium	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium	mg/L	0.001		<0.001	<0.001	0.003	0.002	0.001			
Copper	mg/L	0.001		<0.001	<0.001	0.001	<0.001	<0.001			
Iron	mg/L	0.01		<0.01	0.02	0.77	0.08	0.15			
Lead	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Manganese	mg/L	0.005		0.009	0.015	0.048	0.027	0.009			
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Selenium	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Uranium	mg/L	0.001		<0.001	<0.001	0.001	0.004	<0.001			
Antimony	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Ewan McRobbie
Inorganic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310519
Date: 2003-07-22
Date Submitted: 2003-07-10

Project: P03-02 Embrum

P.O. Number:
Matrix: Water

			LAB ID:	259853	259854	259855	259856	259857	GUIDELINE		
			Sample Date:	2003-07-10	2003-07-10	2003-07-10	2003-07-10	2003-07-10			
			Sample ID:	PZ-28	PZ-27	PZ-13	PZ-8	Schoeni			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
TABLE B COMPOUNDS (VOCs)											
1,1-dichloroethylene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
1,2-dichlorobenzene	ug/L	0.4		<0.4	<0.4	<0.4	<0.4	<0.4			
1,2-dichloroethane	ug/L	0.7		<0.7	<0.7	<0.7	<0.7	<0.7			
1,4-dichlorobenzene	ug/L	0.4		<0.4	<0.4	<0.4	<0.4	<0.4			
Benzene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Carbon Tetrachloride	ug/L	0.9		<0.9	<0.9	<0.9	<0.9	<0.9			
Dichloromethane	ug/L	4.0		<4.0	<4.0	<4.0	<4.0	<4.0			
Ethylbenzene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Monochlorobenzene	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2			
Tetrachloroethylene	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Toluene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Trichloroethylene	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Vinyl Chloride	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Bromodichloromethane	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Bromoform	ug/L	0.4		<0.4	<0.4	<0.4	<0.4	<0.4			
Chloroform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Dibromochloromethane	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Trihalomethanes (total)	ug/L	2.0		<2.0	<2.0	<2.0	<2.0	<2.0			
m/p-xylene	ug/L	1.0		<1.0	<1.0	<1.0	<1.0	<1.0			
o-xylene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Xylene; total	ug/L	2.0		<2.0	<2.0	<2.0	<2.0	<2.0			
TABLE B SURROGATES											
Toluene-d8	%			99	99	98	101	97			
4-bromofluorobenzene	%			83	82	83	87	85			
1,2-dichloroethane-d4	%			98	98	98	103	100			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310519
Date: 2003-07-22
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Project: P03-02 Embrum

P.O. Number:
Matrix: Water

			LAB ID:	259853	259854	259855	259856	259857	GUIDELINE		
			Sample Date:	2003-07-10	2003-07-10	2003-07-10	2003-07-10	2003-07-10			
			Sample ID:	PZ-28	PZ-27	PZ-13	PZ-8	Schoeni			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
Organochlorine Pesticides (OCPs) & PCBs											
Aldrin	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Dieldrin	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Aldrin + Dieldrin	ug/L	0.012		<0.012	<0.012	<0.012	<0.012	<0.012			
a-chlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
g-chlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Oxychlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Chlordane (Total)	ug/L	0.015		<0.015	<0.015	<0.015	<0.015	<0.015			
op-DDT	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDD	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDE	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDT	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
(DDT) + Metabolites	ug/L	0.024		<0.024	<0.024	<0.024	<0.024	<0.024			
Heptachlor	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Heptachlor epoxide	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Heptachlor + Heptachlor Epoxide	ug/L	0.012		<0.012	<0.012	<0.012	<0.012	<0.012			
Lindane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Methoxychlor	ug/L	0.024		<0.024	<0.024	<0.024	<0.024	<0.024			
Trifluralin	ug/L	1		<1	<1	<1	<1	<1			
Polychlorinated Biphenyls (PCBs)	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
CHLOROPHENOLS											
2,3,4,6-tetrachlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
2,4,6-trichlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
2,4-dichlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Pentachlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
PHENOXYACID HERBICIDES											
2,4,5-trichlorophenoxyacetic acid (2,4,5-T)	ug/L	1		<1	<1	<1	<1	<1			
2,4-dichlorophenoxyacetic acid (2,4-D)	ug/L	1		<1	<1	<1	<1	<1			
Bromoxynil	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Dicamba	ug/L	1		<1	<1	<1	<1	<1			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310519
Date: 2003-07-22
Date Submitted: 2003-07-10

Project: P03-02 Embrum

P.O. Number:
Matrix: Water

	LAB ID:	259853	259854	259855	259856	259857	GUIDELINE		
	Sample Date:	2003-07-10	2003-07-10	2003-07-10	2003-07-10	2003-07-10			
	Sample ID:	PZ-28	PZ-27	PZ-13	PZ-8	Schoeni			
PARAMETER	**UNITS**	**MDL**					**TYPE**	**LIMIT**	**UNITS**
Diclofop-methyl	ug/L	0.9	<0.9	<0.9	<0.9	<0.9	<0.9		
Dinoseb	ug/L	1	<1	<1	<1	<1	<1		
Picloram	ug/L	5	<5	<5	<5	<5	<5		
CARBAMATES									
Aldicarb	ug/L	9	<9	<9	<9	<9	<9		
Bendiocarb	ug/L	2	<2	<2	<2	<2	<2		
Carbaryl	ug/L	5	<5	<5	<5	<5	<5		
Carbofuran	ug/L	5	<5	<5	<5	<5	<5		
Triallate	ug/L	1	<1	<1	<1	<1	<1		
TRIAZINE & RELATED HERBICIDES									
Alachlor	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Atrazine	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
De-ethylated atrazine	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Atrazine + N-dealkylated metabolites	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
Cyanazine	ug/L	1	<1	<1	<1	<1	<1		
Metolachlor	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Metribuzin	ug/L	5	<5	<5	<5	<5	<5		
Prometryne	ug/L	0.25	<0.25	<0.25	<0.25	<0.25	<0.25		
Simazine	ug/L	1	<1	<1	<1	<1	<1		
ORGANOPHOSPHOROUS PESTICIDES									
Azinphos-methyl	ug/L	2	<2	<2	<2	<2	<2		
Chlorpyrifos	ug/L	1	<1	<1	<1	<1	<1		
Diazinon	ug/L	1	<1	<1	<1	<1	<1		
Dimethoate	ug/L	2.5	<2.5	<2.5	<2.5	<2.5	<2.5		
Malathion	ug/L	5	<5	<5	<5	<5	<5		
Parathion	ug/L	1	<1	<1	<1	<1	<1		
Phorate	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Temephos	ug/L	10	<10	<10	<10	<10	<10		
Terbufos	ug/L	0.7	<0.7	<0.7	<0.7	<0.7	<0.7		

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

[redacted] REPORT OF ANALYSIS

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310519
Date: 2003-07-22
Date Submitted: 2003-07-10

Project: P03-02 Embrum

P.O. Number:
Matrix: Water

			LAB ID:	259853	259854	259855	259856	259857	GUIDELINE		
			Sample Date:	2003-07-10	2003-07-10	2003-07-10	2003-07-10	2003-07-10			
			Sample ID:	PZ-28	PZ-27	PZ-13	PZ-8	Schoeni			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
DIURON & GLYPHOSATE											
Diuron	ug/L	10		<10	<10	<10	<10	<10			
Glyphosate	ug/L	10		<10	<10	<10	<10	<10			
DIQUAT & PARAQUAT											
Diquat	ug/L	7		<7	<7	<7	<7	<7			
Paraquat	ug/L	1		<1	<1	<1	<1	<1			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL: _____
Mina Nasirai
Organic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310437
Date: 2003-07-22
Date Submitted: 2003-07-09

Project: P03-02 Embrun

P.O. Number:
Matrix: Water

			LAB ID:	259650	259651	259652	259653	259654	GUIDELINE		
			Sample Date:	2003-07-09	2003-07-09	2003-07-09	2003-07-09	2003-07-09			
			Sample ID:	PZ-18	PZ-16	PZ-29	PZ-30	Patenaude			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
N-NO2 (Nitrite)	mg/L	0.10		<0.10	<0.10	<0.10	<0.10	<0.10			
N-NO3 (Nitrate)	mg/L	0.10		<0.10	<0.10	0.16	<0.10	<0.10			
Arsenic	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Barium	mg/L	0.01		0.04	0.03	0.08	0.08	0.13			
Boron	mg/L	0.05		<0.05	<0.05	<0.05	0.10	0.09			
Cadmium	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium	mg/L	0.001		0.001	<0.001	0.002	0.001	<0.001			
Copper	mg/L	0.001		0.001	<0.001	<0.001	0.001	0.004			
Iron	mg/L	0.01		1.44	3.26	0.96	0.75	0.12			
Lead	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Manganese	mg/L	0.005		0.494	0.406	0.148	0.063	0.011			
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Selenium	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Uranium	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Antimony	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL:
Ewan McRobbie
Inorganic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310437
Date: 2003-07-22
Date Submitted: 2003-07-09

Project: P03-02 Embrun

P.O. Number:
Matrix: Water

	LAB ID:	259650	259651	259652	259653	259654	GUIDELINE		
	Sample Date:	2003-07-09	2003-07-09	2003-07-09	2003-07-09	2003-07-09			
	Sample ID:	PZ-18	PZ-16	PZ-29	PZ-30	Patenaude			
PARAMETER	**UNITS**	**MDL**					**TYPE**	**LIMIT**	**UNITS**
TABLE B COMPOUNDS (VOCs)									
1,1-dichloroethylene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
1,2-dichlorobenzene	ug/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
1,2-dichloroethane	ug/L	0.7	<0.7	<0.7	<0.7	<0.7	<0.7		
1,4-dichlorobenzene	ug/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
Benzene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Carbon Tetrachloride	ug/L	0.9	<0.9	<0.9	<0.9	<0.9	<0.9		
Dichloromethane	ug/L	4.0	<4.0	<4.0	<4.0	<4.0	<4.0		
Ethylbenzene	ug/L	0.5	<0.5	3.2	<0.5	<0.5	<0.5		
Monochlorobenzene	ug/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2		
Tetrachloroethylene	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3		
Toluene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Trichloroethylene	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3		
Vinyl Chloride	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Bromodichloromethane	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3		
Bromoform	ug/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4		
Chloroform	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Dibromochloromethane	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3		
Trihalomethanes (total)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0		
m/p-xylene	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0		
o-xylene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Xylene; total	ug/L	2.0	<2.0	<2	<2.0	<2.0	<2.0		
TABLE B SURROGATES									
Toluene-d8	%		101	95	101	100	95		
4-bromofluorobenzene	%		89	83	85	84	81		
1,2-dichloroethane-d4	%		99	97	98	99	94		

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Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
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Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310437
Date: 2003-07-22
Date Submitted: 2003-07-09

Project: P03-02 Embrun

P.O. Number:
Matrix: Water

	LAB ID:	259650	259651	259652	259653	259654	GUIDELINE		
	Sample Date:	2003-07-09	2003-07-09	2003-07-09	2003-07-09	2003-07-09			
	Sample ID:	PZ-18	PZ-16	PZ-29	PZ-30	Patenaude			
PARAMETER	**UNITS**	**MDL**					**TYPE**	**LIMIT**	**UNITS**
Organochlorine Pesticides (OCPs) & PCBs									
Aldrin	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Dieldrin	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Aldrin + Dieldrin	ug/L	0.012	<0.012	<0.012	<0.012	<0.012	<0.012		
a-chlordane	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
g-chlordane	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Oxychlordane	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Chlordane (Total)	ug/L	0.015	<0.015	<0.015	<0.015	<0.015	<0.015		
op-DDT	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
pp-DDD	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
pp-DDE	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
pp-DDT	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
(DDT) + Metabolites	ug/L	0.024	<0.024	<0.024	<0.024	<0.024	<0.024		
Heptachlor	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Heptachlor epoxide	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Heptachlor + Heptachlor Epoxide	ug/L	0.012	<0.012	<0.012	<0.012	<0.012	<0.012		
Lindane	ug/L	0.006	<0.006	<0.006	<0.006	<0.006	<0.006		
Methoxychlor	ug/L	0.024	<0.024	<0.024	<0.024	<0.024	<0.024		
Trifluralin	ug/L	1	<1	<1	<1	<1	<1		
Polychlorinated Biphenyls (PCBs)	ug/L	0.1	<0.1	<0.1	<0.1	<0.1	<0.1		
CHLOROPHENOLS									
2,3,4,6-tetrachlorophenol	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
2,4,6-trichlorophenol	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
2,4-dichlorophenol	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Pentachlorophenol	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
PHENOXYACID HERBICIDES									
2,4,5-trichlorophenoxyacetic acid (2,4,5-T)	ug/L	1	<1	<1	<1	<1	<1		
2,4-dichlorophenoxyacetic acid (2,4-D)	ug/L	1	<1	<1	<1	<1	<1		
Bromoxynil	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5		
Dicamba	ug/L	1	<1	<1	<1	<1	<1		

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310437
Date: 2003-07-22
Date Submitted: 2003-07-09

Project: P03-02 Embrun

P.O. Number:
Matrix: Water

			LAB ID:	259650	259651	259652	259653	259654	GUIDELINE		
			Sample Date:	2003-07-09	2003-07-09	2003-07-09	2003-07-09	2003-07-09			
			Sample ID:	PZ-18	PZ-16	PZ-29	PZ-30	Patenaude			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
Diclofop-methyl	ug/L	0.9		<0.9	<0.9	<0.9	<0.9	<0.9			
Dinoseb	ug/L	1		<1	<1	<1	<1	<1			
Picloram	ug/L	5		<5	<5	<5	<5	<5			
CARBAMATES											
Aldicarb	ug/L	9		<9	<9	<9	<9	<9			
Bendiocarb	ug/L	2		<2	<2	<2	<2	<2			
Carbaryl	ug/L	5		<5	<5	<5	<5	<5			
Carbofuran	ug/L	5		<5	<5	<5	<5	<5			
Triallate	ug/L	1		<1	<1	<1	<1	<1			
TRIAZINE & RELATED HERBICIDES											
Alachlor	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Atrazine	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
De-ethylated atrazine	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Atrazine + N-dealkylated metabolites	ug/L	1.0		<1.0	<1.0	<1.0	<1.0	<1.0			
Cyanazine	ug/L	1		<1	<1	<1	<1	<1			
Metolachlor	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Metribuzin	ug/L	5		<5	<5	<5	<5	<5			
Prometryne	ug/L	0.25		<0.25	<0.25	<0.25	<0.25	<0.25			
Simazine	ug/L	1		<1	<1	<1	<1	<1			
ORGANOPHOSPHOROUS PESTICIDES											
Azinphos-methyl	ug/L	2		<2	<2	<2	<2	<2			
Chlorpyrifos	ug/L	1		<1	<1	<1	<1	<1			
Diazinon	ug/L	1		<1	<1	<1	<1	<1			
Dimethoate	ug/L	2.5		<2.5	<2.5	<2.5	<2.5	<2.5			
Malathion	ug/L	5		<5	<5	<5	<5	<5			
Parathion	ug/L	1		<1	<1	<1	<1	<1			
Phorate	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Temephos	ug/L	10		<10	<10	<10	<10	<10			
Terbufos	ug/L	0.7		<0.7	<0.7	<0.7	<0.7	<0.7			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: **Township of Russell c/o Sauriol Environmental Inc.**
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Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2310437
Date: 2003-07-22
Date Submitted: 2003-07-09

Project: P03-02 Embrun

P.O. Number:
Matrix: Water

	LAB ID:	259650	259651	259652	259653	259654	GUIDELINE		
	Sample Date:	2003-07-09	2003-07-09	2003-07-09	2003-07-09	2003-07-09			
	Sample ID:	PZ-18	PZ-16	PZ-29	PZ-30	Patenaude			
PARAMETER	**UNITS**	**MDL**					**TYPE**	**LIMIT**	**UNITS**
DIURON & GLYPHOSATE									
Diuron	ug/L	10	<10	<10	<10	<10	<10		
Glyphosate	ug/L	10	<10	<10	<10	<10	<10		
DIQUAT & PARAQUAT									
Diquat	ug/L	7	<7	<7	<7	<7	<7		
Paraquat	ug/L	1	<1	<1	<1	<1	<1		

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

[redacted]AC[redacted]TE[redacted]LA[redacted]TO[redacted]LT[redacted] [redacted]PO[redacted]OF[redacted]AL[redacted]S [redacted]

Client: **Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2316258
Date: 2003-10-21
Date Submitted: 2003-10-08

Project: P03-02

P.O. Number:
Matrix: Water

		LAB ID:	276309	276310	276311	276312	276313	**GUIDELINE**		
		Sample Date:	2003-10-07	2003-10-07	2003-10-07	2003-10-07	2003-10-07	MOE REG 170/03		
		Sample ID:	P2-16	P2-29	P2-30	Schoeni	Patenaude			
PARAMETER	**UNITS**	**MDL**						**TYPE**	**LIMIT**	**UNITS**
N-NO2 (Nitrite)	mg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	MAC	1.0	mg/L
N-NO3 (Nitrate)	mg/L	0.10	<0.10	<0.10	<0.10	<0.10	<0.10	MAC	10.0	mg/L
Antimony	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.006	mg/L
Arsenic	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.025	mg/L
Barium	mg/L	0.01	0.03	0.12	0.10	0.09	0.13	MAC	1.0	mg/L
Boron	mg/L	0.01	0.02	0.01	0.12	0.14	0.10	MAC	5.0	mg/L
Cadmium	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	MAC	0.005	mg/L
Chromium	mg/L	0.001	0.002	<0.001	0.001	0.001	0.001	MAC	0.05	mg/L
Copper	mg/L	0.001	<0.001	0.001	<0.001	<0.001	0.003	AO	1.0	mg/L
Iron	mg/L	0.01	2.84	1.44	0.04	0.10	0.12	AO	0.30	mg/L
Lead	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.01	mg/L
Manganese	mg/L	0.005	0.351	0.150	0.025	0.008	0.008	AO	0.05	mg/L
Mercury	mg/L	0.0001	<0.0001	<0.0001	<0.0001	<0.0001	<0.0001	MAC	0.001	mg/L
Selenium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.01	mg/L
Uranium	mg/L	0.001	<0.001	<0.001	<0.001	<0.001	<0.001	MAC	0.02	mg/L

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL:
Ewan McRobbie
Inorganic Lab Supervisor

Client: Sauriol Environmental Inc.
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: Mr. Jacques Sauriol

Report Number: 2316258
Date: 2003-10-21
Date Submitted: 2003-10-08

Project: P03-02

P.O. Number:
Matrix: Water

			LAB ID:	276309	276310	276311	276312	276313	GUIDELINE		
			Sample Date:	2003-10-07	2003-10-07	2003-10-07	2003-10-07	2003-10-07			
			Sample ID:	P2-16	P2-29	P2-30	Schoeni	Patenaude	MOE REG 170/03		
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
Organochlorine Pesticides (OCPs) & PCBs											
Aldrin	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Dieldrin	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Aldrin + Dieldrin	ug/L	0.012		<0.012	<0.012	<0.012	<0.012	<0.012	MAC	0.7	ug/L
a-chlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
g-chlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Oxychlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Chlordane (Total)	ug/L	0.018		<0.018	<0.018	<0.018	<0.018	<0.018	MAC	7	ug/L
op-DDT	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDD	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDE	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDT	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
(DDT) + Metabolites	ug/L	0.024		<0.024	<0.024	<0.024	<0.024	<0.024	MAC	30	ug/L
Heptachlor	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Heptachlor epoxide	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Heptachlor + Heptachlor Epoxide	ug/L	0.012		<0.012	<0.012	<0.012	<0.012	<0.012	MAC	3	ug/L
Lindane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006	MAC	4	ug/L
Methoxychlor	ug/L	0.024		<0.024	<0.024	<0.024	<0.024	<0.024	MAC	900	ug/L
Trifluralin	ug/L	1		<1	<1	<1	<1	<1	MAC	45	ug/L
Polychlorinated Biphenyls (PCBs)	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	MAC	3	ug/L
CHLOROPHENOLS											
2,3,4,6-tetrachlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	100	ug/L
2,4,6-trichlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	5	ug/L
2,4-dichlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	900	ug/L
Pentachlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	60	ug/L
PHENOXYACID HERBICIDES											
2,4,5-trichlorophenoxyacetic acid (2,4,5-T)	ug/L	1		<1	<1	<1	<1	<1	MAC	280	ug/L
2,4-dichlorophenoxyacetic acid (2,4-D)	ug/L	1		<1	<1	<1	<1	<1	MAC	100	ug/L
Bromoxynil	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	5	ug/L
Dicamba	ug/L	1		<1	<1	<1	<1	<1	MAC	120	ug/L

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: Sauriol Environmental Inc.
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: Mr. Jacques Sauriol

Report Number: 2316258
Date: 2003-10-21
Date Submitted: 2003-10-08
Project: P03-02
P.O. Number:
Matrix: Water

			LAB ID:	276309	276310	276311	276312	276313	GUIDELINE		
			Sample Date:	2003-10-07	2003-10-07	2003-10-07	2003-10-07	2003-10-07			
			Sample ID:	P2-16	P2-29	P2-30	Schoeni	Patenaude	MOE REG 170/03		
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
Diclofop-methyl	ug/L	0.9		<0.9	<0.9	<0.9	<0.9	<0.9	MAC	9	ug/L
Dinoseb	ug/L	1		<1	<1	<1	<1	<1	MAC	10	ug/L
Picloram	ug/L	5		<5	<5	<5	<5	<5	MAC	190	ug/L
CARBAMATES											
Aldicarb	ug/L	9		<9	<9	<9	<9	<9	MAC	9	ug/L
Bendiocarb	ug/L	2		<2	<2	<2	<2	<2	MAC	40	ug/L
Carbaryl	ug/L	5		<5	<5	<5	<5	<5	MAC	90	ug/L
Carbofuran	ug/L	5		<5	<5	<5	<5	<5	MAC	90	ug/L
Triallate	ug/L	1		<1	<1	<1	<1	<1	MAC	230	ug/L
TRIAZINE & RELATED HERBICIDES											
Alachlor	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	IMAC	5	ug/L
Atrazine	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
De-ethylated atrazine	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Atrazine + N-dealkylated metabolites	ug/L	1.0		<1.0	<1.0	<1.0	<1.0	<1.0	MAC	5	ug/L
Cyanazine	ug/L	1		<1	<1	<1	<1	<1	MAC	10	ug/L
Metolachlor	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	50	ug/L
Metribuzin	ug/L	5		<5	<5	<5	<5	<5	MAC	80	ug/L
Prometryne	ug/L	0.25		<0.25	<0.25	<0.25	<0.25	<0.25	MAC	1	ug/L
Simazine	ug/L	1		<1	<1	<1	<1	<1	MAC	10	ug/L
ORGANOPHOSPHOROUS PESTICIDES											
Azinphos-methyl	ug/L	2		<2	<2	<2	<2	<2	MAC	20	ug/L
Chlorpyrifos	ug/L	1		<1	<1	<1	<1	<1	MAC	90	ug/L
Diazinon	ug/L	1		<1	<1	<1	<1	<1	MAC	20	ug/L
Dimethoate	ug/L	2.5		<2.5	<2.5	<2.5	<2.5	<2.5	MAC	20	ug/L
Malathion	ug/L	5		<5	<5	<5	<5	<5	MAC	190	ug/L
Parathion	ug/L	1		<1	<1	<1	<1	<1	MAC	50	ug/L
Phorate	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5	MAC	2	ug/L
Temephos	ug/L	10		<10	<10	<10	<10	<10	MAC	280	ug/L
Terbufos	ug/L	0.7		<0.7	<0.7	<0.7	<0.7	<0.7	MAC	1	ug/L

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: **Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2316258
Date: 2003-10-21
Date Submitted: 2003-10-08
Project: P03-02
P.O. Number:
Matrix: Water

			LAB ID:	276309	276310	276311	276312	276313	GUIDELINE		
			Sample Date:	2003-10-07	2003-10-07	2003-10-07	2003-10-07	2003-10-07			
			Sample ID:	P2-16	P2-29	P2-30	Schoeni	Patenaude	MOE REG 170/03		
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
DIURON & GLYPHOSATE											
Diuron	ug/L	10		<10	<10	<10	<10	<10	MAC	150	ug/L
Glyphosate	ug/L	10		<10	<10	<10	<10	<10	MAC	280	ug/L
DIQUAT & PARAQUAT											
Diquat	ug/L	7		<7	<7	<7	<7	<7	MAC	70	ug/L
Paraquat	ug/L	1		<1	<1	<1	<1	<1	MAC	10	ug/L

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Mina Nasirai
Organic Lab Supervisor

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Matrix: Water

			LAB ID:	276309	276310	276311	276312	276313	GUIDELINE		
			Sample Date:	2003-10-07	2003-10-07	2003-10-07	2003-10-07	2003-10-07			
			Sample ID:	P2-16	P2-29	P2-30	Schoeni	Patenaude	MOE REG 170/03		
PARAMETER	UNITS	MDL							TYPE	LIMIT	UNITS
TABLE B COMPOUNDS (VOCs)											
1,1-dichloroethylene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	MAC	14	ug/L
1,2-dichlorobenzene	ug/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	MAC	200	ug/L
1,2-dichloroethane	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	MAC	5	ug/L
1,4-dichlorobenzene	ug/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	MAC	5	ug/L
Benzene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	MAC	5	ug/L
Carbon Tetrachloride	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	MAC	5	ug/L
Dichloromethane	ug/L	4.0	<4.0	<4.0	<4.0	<4.0	<4.0	MAC	50	ug/L
Ethylbenzene	ug/L	0.5	2.9	<0.5	<0.5	<0.5	<0.5	AO	2.4	ug/L
Monochlorobenzene	ug/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	MAC	80	ug/L
Tetrachloroethylene	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	MAC	30	ug/L
Toluene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	AO	24	ug/L
Trichloroethylene	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3	MAC	50	ug/L
Vinyl Chloride	ug/L	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	MAC	2	ug/L
Bromodichloromethane	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3			
Bromoform	ug/L	0.4	<0.4	<0.4	<0.4	<0.4	<0.4			
Chloroform	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Dibromochloromethane	ug/L	0.3	<0.3	<0.3	<0.3	<0.3	<0.3			
Trihalomethanes (total)	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	MAC	100	ug/L
m/p-xylene	ug/L	1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
o-xylene	ug/L	0.5	<0.5	<0.5	<0.5	<0.5	<0.5			
Xylene; total	ug/L	2.0	<2.0	<2.0	<2.0	<2.0	<2.0	AO	300	ug/L
TABLE B SURROGATES											
Toluene-d8	%		96	99	100	100	98			
4-bromofluorobenzene	%		95	96	98	97	97			
1,2-dichloroethane-d4	%		99	101	99	99	97			

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Comment:

APPROVAL:
Mina Nasirat
Organic Lab Supervisor

Client: Sauriol Environmental Inc.
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: Mr. Jacques Sauriol

Report Number: 2316152
Date: 2003-10-21
Date Submitted: 2003-10-07

Project: P03-02

P.O. Number:
Matrix: Water

			LAB ID:	276018	276019	276020	276021	276022	GUIDELINE		
			Sample Date:	2003-10-06	2003-10-06	2003-10-06	2003-10-06	2003-10-06			
			Sample ID:	P2-18	P2-13	P2-27	P2-8	P2-28			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
N-NO2 (Nitrite)	mg/L	0.10		<0.10	<0.10	<0.10	<0.10	<0.10			
N-NO3 (Nitrate)	mg/L	0.10		<0.10	<0.10	<0.10	<0.10	<0.10			
Antimony	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Arsenic	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Barium	mg/L	0.01		0.03	0.03	0.10	0.07	0.02			
Boron	mg/L	0.01		0.01	0.01	0.06	0.01	0.02			
Cadmium	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Chromium	mg/L	0.001		0.002	0.004	0.001	0.003	<0.001			
Copper	mg/L	0.001		0.001	0.001	<0.001	<0.001	<0.001			
Iron	mg/L	0.01		1.83	0.79	0.17	0.07	0.07			
Lead	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Manganese	mg/L	0.005		0.280	0.047	0.037	0.026	0.018			
Mercury	mg/L	0.0001		<0.0001	<0.0001	<0.0001	<0.0001	<0.0001			
Selenium	mg/L	0.001		<0.001	<0.001	<0.001	<0.001	<0.001			
Uranium	mg/L	0.001		<0.001	<0.001	<0.001	0.003	<0.001			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Ewan McRobbie
Inorganic Lab Supervisor

Client: **Sauriol Environmental Inc.**
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Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2316152
Date: 2003-10-21
Date Submitted: 2003-10-07

Project: P03-02

P.O. Number:
Matrix: Water

			LAB ID:	276018	276019	276020	276021	276022	GUIDELINE		
			Sample Date:	2003-10-06	2003-10-06	2003-10-06	2003-10-06	2003-10-06			
			Sample ID:	P2-18	P2-13	P2-27	P2-8	P2-28			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
Organochlorine Pesticides (OCPs) & PCBs											
Aldrin	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Dieldrin	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Aldrin + Dieldrin	ug/L	0.012		<0.012	<0.012	<0.012	<0.012	<0.012			
a-chlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
g-chlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Oxychlordane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Chlordane (Total)	ug/L	0.018		<0.018	<0.018	<0.018	<0.018	<0.018			
op-DDT	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDD	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDE	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
pp-DDT	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
(DDT) + Metabolites	ug/L	0.024		<0.024	<0.024	<0.024	<0.024	<0.024			
Heptachlor	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Heptachlor epoxide	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Heptachlor + Heptachlor Epoxide	ug/L	0.012		<0.012	<0.012	<0.012	<0.012	<0.012			
Lindane	ug/L	0.006		<0.006	<0.006	<0.006	<0.006	<0.006			
Methoxychlor	ug/L	0.024		<0.024	<0.024	<0.024	<0.024	<0.024			
Trifluralin	ug/L	1		<1	<1	<1	<1	<1			
Polychlorinated Biphenyls (PCBs)	ug/L	0.1		<0.1	<0.1	<0.1	<0.1	<0.1			
CHLOROPHENOLS											
2,3,4,6-tetrachlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
2,4,6-trichlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
2,4-dichlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Pentachlorophenol	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
PHENOXYACID HERBICIDES											
2,4,5-trichlorophenoxyacetic acid (2,4,5-T)	ug/L	1		<1	<1	<1	<1	<1			
2,4-dichlorophenoxyacetic acid (2,4-D)	ug/L	1		<1	<1	<1	<1	<1			
Bromoxynil	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Dicamba	ug/L	1		<1	<1	<1	<1	<1			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration

Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: Sauriol Environmental Inc.
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: Mr. Jacques Sauriol

Report Number: 2316152
Date: 2003-10-21
Date Submitted: 2003-10-07

Project: P03-02

P.O. Number:
Matrix: Water

			LAB ID:	276018	276019	276020	276021	276022	GUIDELINE		
			Sample Date:	2003-10-06	2003-10-06	2003-10-06	2003-10-06	2003-10-06			
			Sample ID:	P2-18	P2-13	P2-27	P2-8	P2-28			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
Diclofop-methyl	ug/L	0.9		<0.9	<0.9	<0.9	<0.9	<0.9			
Dinoseb	ug/L	1		<1	<1	<1	<1	<1			
Picloram	ug/L	5		<5	<5	<5	<5	<5			
CARBAMATES											
Aldicarb	ug/L	9		<9	<9	<9	<9	<9			
Bendiocarb	ug/L	2		<2	<2	<2	<2	<2			
Carbaryl	ug/L	5		<5	<5	<5	<5	<5			
Carbofuran	ug/L	5		<5	<5	<5	<5	<5			
Triallate	ug/L	1		<1	<1	<1	<1	<1			
TRIAZINE & RELATED HERBICIDES											
Alachlor	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Atrazine	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
De-ethylated atrazine	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Atrazine + N-dealkylated metabolites	ug/L	1.0		<1.0	<1.0	<1.0	<1.0	<1.0			
Cyanazine	ug/L	1		<1	<1	<1	<1	<1			
Metolachlor	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Metribuzin	ug/L	5		<5	<5	<5	<5	<5			
Prometryne	ug/L	0.25		<0.25	<0.25	<0.25	<0.25	<0.25			
Simazine	ug/L	1		<1	<1	<1	<1	<1			
ORGANOPHOSPHOROUS PESTICIDES											
Azinphos-methyl	ug/L	2		<2	<2	<2	<2	<2			
Chlorpyrifos	ug/L	1		<1	<1	<1	<1	<1			
Diazinon	ug/L	1		<1	<1	<1	<1	<1			
Dimethoate	ug/L	2.5		<2.5	<2.5	<2.5	<2.5	<2.5			
Malathion	ug/L	5		<5	<5	<5	<5	<5			
Parathion	ug/L	1		<1	<1	<1	<1	<1			
Phorate	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Temephos	ug/L	10		<10	<10	<10	<10	<10			
Terbufos	ug/L	0.7		<0.7	<0.7	<0.7	<0.7	<0.7			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

Client: **Sauriol Environmental Inc.**
134 St. Paul St. P.O. Box 7181
Vanier, ON
K1L 8E3
Attention: **Mr. Jacques Sauriol**

Report Number: 2316152
Date: 2003-10-21
Date Submitted: 2003-10-07

Project: P03-02

P.O. Number:
Matrix: Water

			LAB ID:	276018	276019	276020	276021	276022	GUIDELINE		
			Sample Date:	2003-10-06	2003-10-06	2003-10-06	2003-10-06	2003-10-06			
			Sample ID:	P2-18	P2-13	P2-27	P2-8	P2-28			
PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
DIURON & GLYPHOSATE											
Diuron	ug/L	10		<10	<10	<10	<10	<10			
Glyphosate	ug/L	10		<10	<10	<10	<10	<10			
DIQUAT & PARAQUAT											
Diquat	ug/L	7		<7	<7	<7	<7	<7			
Paraquat	ug/L	1		<1	<1	<1	<1	<1			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
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PARAMETER	**UNITS**	**MDL**							**TYPE**	**LIMIT**	**UNITS**
TABLE B COMPOUNDS (VOCs)											
1,1-dichloroethylene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
1,2-dichlorobenzene	ug/L	0.4		<0.4	<0.4	<0.4	<0.4	<0.4			
1,2-dichloroethane	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
1,4-dichlorobenzene	ug/L	0.4		<0.4	<0.4	<0.4	<0.4	<0.4			
Benzene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Carbon Tetrachloride	ug/L	0.9		<0.9	<0.9	<0.9	<0.9	<0.9			
Dichloromethane	ug/L	4.0		<4.0	<4.0	<4.0	<4.0	<4.0			
Ethylbenzene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Monochlorobenzene	ug/L	0.2		<0.2	<0.2	<0.2	<0.2	<0.2			
Tetrachloroethylene	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Toluene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Trichloroethylene	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Vinyl Chloride	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Bromodichloromethane	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Bromoform	ug/L	0.4		<0.4	<0.4	<0.4	<0.4	<0.4			
Chloroform	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Dibromochloromethane	ug/L	0.3		<0.3	<0.3	<0.3	<0.3	<0.3			
Trihalomethanes (total)	ug/L	2.0		<2.0	<2.0	<2.0	<2.0	<2.0			
m/p-xylene	ug/L	1.0		<1.0	<1.0	<1.0	<1.0	<1.0			
o-xylene	ug/L	0.5		<0.5	<0.5	<0.5	<0.5	<0.5			
Xylene; total	ug/L	2.0		<2.0	<2.0	<2.0	<2.0	<2.0			
TABLE B SURROGATES											
Toluene-d8	%			99	101	101	101	100			
4-bromofluorobenzene	%			96	99	100	98	98			
1,2-dichloroethane-d4	%			101	101	105	103	101			

MDL = Method Detection Limit INC = Incomplete AO = Aesthetic Objective OG = Operational Guideline MAC = Maximum Allowable Concentration IMAC = Interim Maximum Allowable Concentration
Comment:

APPROVAL:
Mina Nasirai
Organic Lab Supervisor

SEI
P03-02
Embrun

Oct 6/03

PZ-18
W.L. 4.58 m
Cond 720
Temp 11.1
P.H. 7.3

PZ-13
W.L. 3.71 m
Cond 910
Temp 9.4
P.H. 7.4

PZ-27
W.L. 2.44 m
Cond 170
Temp 11.1
P.H. 7.8

PZ-30
W.L. 2.46 m
Cond 410
Temp 10.2
P.H. 7.6

Schoeni
Cond 250
Temp 14.0
P.H. 7.7

PZ-8
W.L. 4.62 m
Cond 580
Temp 9°c
P.H. 7.4

PZ-28
W.L. 2.77 m
Cond 170
Temp 10
P.H. 8.2

Oct 7/03

PZ-16
W.L. 4.12m
Cond 650
Temp 12.0
P.H. 7.4

PZ-29
W.L. 2.73 m
Cond 1030
Temp 12.5
P.H. 7.4

Patenaude
Cond 320
Temp 11.3
P.H. 7.6

SEI
P03-02

July 9/03

P2-18 W.L. 4.21 m
Cond 940
Temp 11
P.H. 7.5

Patenaude Temp 14 °C
Cond 380
P.H. 7.7

P2-16 W.L. 3.85 m
Cond 640
Temp 14
P.H. 7.3

P2-30 W.L. 2.39 m
Cond 320
Temp 13
P.H. 7.8

July 10/03

P2-29 W.L. 2.34 m
Cond 830
Temp 12
P.H. 7.3

P2-28 W.L. 2.24 m
Cond 200
Temp 10
P.H. 7.1

P2-27 W.L. 1.88 m
Cond 270
Temp 10.5
P.H. 8.1

P2-8 W.L. 4.47 m
Cond 530
Temp 12
P.H. 7.6

PL-13 W.L. 3.52 m
Cond 920
Temp 11°C
P.H. 7.4

Schoen Cond 140
Temp 12 °C
P.H. 7.1

APPENDIX B

TOWNSHIP MONITORING RESULTS
EMBRUN WELL MONITORING PROGRAM

EMBRUN/MARIONVILLE WTP DAILY IN-HOUSE TESTING - 2003

RAW WATER		COLOUR	PH	TEMP	FE	MN	FL	TUR
JAN		4	7.4	9	2.56	0.375		0.21
FEB		3	7.4	9	2.62	0.381		0.16
MAR		4	7.4	9	2.60	0.391		0.21
APR		2	7.4	9	2.65	0.400		0.14
MAY		4	7.3	9	2.69	0.387		0.42
JUN		3	7.3	9	2.58	0.361		0.23
JUL		2	7.3	9	2.55	0.380		0.19
AUG		3	7.3	9	2.64	0.366		0.32
SEP		2	7.3	9	2.64	0.381		0.26
OCT		1	7.3	9	2.61	0.376		0.17
NOV		3	7.3	9	2.54	0.379		0.26
DEC		2	7.2	9	2.53	0.388		0.22
AVG		3	7.3	9	2.60	0.384		0.23

ANNUAL SUMMARY - RAW WATER FLOWS

WATER WORKS NAME: EMBRUN WTP
YEAR: 2003
SERVICED POPULATION: 4611
DESIGN CAPACITY: 6000

MONTH	WELL #2		
	AVERAGE DAY (1000 m3)	MAXIMUM DAY (1000 m3)	MONTHLY TOTAL (1000 m3)
JAN	2.23	3.57	69.24
FEB	2.38	2.92	66.52
MAR	2.36	2.92	73.29
APR	2.36	2.90	55.80
MAY	2.55	3.64	79.08
JUN	2.82	3.81	84.63
JUL	2.69	3.80	83.49
AUG	2.46	3.25	76.24
SEP	2.83	3.37	84.88
OCT	2.54	3.04	78.75
NOV	2.31	3.41	69.43
DEC	2.64	2.82	81.83
TOTAL			903.18
AVERAGE	2.51		75.27
MAXIMUM		3.81	84.88

WELL #1 NOT IN OPERATION

APPENDIX C

PROPOSED WORK PLAN (2004)
EMBRUN WELL MONITORING PROGRAM

YEAR 2004

Objectives:
Continued monitoring the hydraulics and water quality of aquifer with the Embrun Well Monitoring Program.

Hydraulics:

- Measure Spring (May) and Fall (October) depth to water level survey in PZ8, PZ13, PZ16, PZ 18, PZ27, PZ28, PZ29, and PZ30.
- Analyze spatial and transient water level trends

Water Quality:

- Collect water quality samples at PZ8, PZ13, PZ16, PZ 18, PZ27, PZ28, PZ29, PZ30 and both Patenaude and Schoeni residences in the spring and fall. Analyze for parameters of Cl, TDS, Ba, B, Fe, Mn and Na).
- Run BTEX + TPHs gas and diesel in PZ16 and Dore Lake water to firm up the probable source of Petroleum Hydrocarbon
- Run NO3 at PZ28 and PZ29 in 2004 to confirm the low concentration occurrence around the well head.
- Analyze spatial and transient water quality trends.