2005
Annual Compliance Report

OPERATION AND MAINTENANCE OF SHEGUIANDAH WATER SYSTEM HOWLAND TOWNSHIP THE TOWN OF NORTHEASTERN MANITOULIN AND THE ISLANDS

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1.0 INTRODUCTION

The Sheguiandah water treatment plant , is owned by the Town of Northeastern Manitoulin and the Islands and is located at part of Lots 18, 19, 21 and 22, north side of Metcalf Street, Sheguiandah, former Township of Howland.

The Sheguiandah water treatment plant receives its water from Sheguiandah Bay in Lake Huron. This facility meets the definition of a "Small Municipal, Residential Drinking Water System" serving the community. The Town of Northeastern Manitoulin and the Islands retained the services of Oweson Water Services (OWS), a Division of Oweson Ltd, to prepare the Annual Compliance Report for the Sheguiandah Water Treatment Plant. The Water Works number is 220009112 and the water treatment plant as of November 26, 2005 is operated by Oweson Water Services licensed operators.

The objective of this report is to comply with the mandatory requirements for an Annual Report under Section 11.0 and a Summary Report under Schedule 22 of Ontario Regulation 253/05. The annual report covers the period from January 1, 2005 to December 31, 2005.

This report, which outlines the recommendations that the owner/operating authority should undertake to comply with the regulations and continue to provide a safe drinking water quality to the community, includes the following:

- Brief description of the water treatment system
- Summary of the reports and notices submitted to the Ministry of the Environment (MOE)
- Summary of the treated water quality monitoring
- Summary of chemicals used
- Summary of water usage
- Summary of any corrective actions for adverse results
- Water treatment system repairs and improvements on the water treatment system

2.0 DESCRIPTION OF WATER WORKS

The Sheguiandah Water Treatment Plant Water Works consists of a 650 m long 150 mm diameter raw water intake pipe and intake structure equipped with sodium hypochlorite injection for zebra mussel control located at the bottom of Sheguiandah Bay in Lake Huron. The intake has a capacity of 666 m^3/day. The intake comes complete with a 100 mm diameter intake pipe flush line connected from the high lift pump discharge header to the raw watermain. The zebra mussel control system is operated seasonally from May to December inclusive when the raw water temperature is >8°C. Located in the low lift pumping station is a 200 L solution tank for sodium hypochlorite and two (2) metering pumps (one duty, one standby) supplying the sodium hypochlorite solution from the low lift pumping station to a diffuser located inside the intake crib.

The low lift dry well pumping station is located on the right-of-way from River Street and has a firm capacity of 639.4 m^3/day. The building has approximate dimensions of 15 m X 12 m and houses three (3) low lift submersible vertical turbine pumps. One pump has a rated capacity of 2,756.5 m^3/day while the other two (2) each have a rated capacity of 535.7 m^3/day which are manually throttled to operate at 362 m^3/day.

From the lowlift pumping station there is approximately 200 m of 150 mm diameter raw watermain connecting the lowlift pumping station to the water treatment plant. This facility comes complete with a 0.25 m^3 capacity cray fish stilling tank which is divided into two (2) compartments by a stainless steel screen.

The Sheguiandah Water Treatment Plant is located at 48 Lemon Street in the hamlet of Sheguiandah. The building is approximately 15 m X 12 m and houses the treatment and pumping facilities, as well as a small laboratory and a washroom.

The treatment consists of a 1.6 m X 1.6 m X 2.44 m high flocculation tank. Prior to the flocculator there is a 100 mm diameter inline static mixer installed on the raw watermain at a location immediately downstream of the chemical dosing point prior to the flocculator. There are two (2) multi media filters installed in parallel comprised of 450 mm anthracite, 300 mm of silica sand and 450 mm of gravel supporting media. This is all supported by an under drain system with the filtered water being discharged to clearwell #1. There are two (2) backwash pumps each having a rated capacity of 22.7 L/hr and discharge the filter backwash water to the surge tank.

Clearwell #1 has approximate dimensions of 6.15 m X 7.5 m X 3.1 m static water depth (SWD) underground concrete tank with a capacity of 142 m^3. Clearwell #2 consists of two (2) sections with dimensions of 5.25

m X 6.25 m X 3.1 m SWD and 5.25 m X 3 m X 4.75 m deep with a capacity of 176 m^3. Following the clearwell there is a high lift pump well having a volume of 119.7 m^3 connected to clearwell #2. There are three (3) vertical high lift turbine pumps (2 duty, one standby) two (2) located at the end of clearwell #2 and one located in the high lift pump well. Each pump has a rated capacity of 9.9 L/sec at a TDH of 86.75 m with a discharge pipe connected a high lift pump discharge header.

The high lift pump well comes complete with one (1) fire pump which has a rated capacity of 24 L/s at a TDH of 120 m with a discharge pipe connected to the distribution main down stream of the pressure tanks. Included is a pressure relief valve discharging back to clearwell #2.

There is treated water supply main connecting the high lift pump discharge header to the water distribution header. Additionally, there are two (2) hydrodematic pressure tanks connected to the 100 mm diameter high lift pump discharge header.

When a filter is backwashed, the waste is initially sent to the surge tank which is equipped with a submersible pump having a rated capacity of 1L/s. This pump discharges the backwash water into the settling tank which is equipped with a submersible pump having a rated capacity of 5.8 L/s and is used for transferring backwash sludge to a tank truck. The supernatant is discharged into a ditch flowing into Sheguiandah Bay.

Disinfection is achieved by the use of sodium hypochlorite. There is a 200 L solution tank in the low lift pumping station that is used for zebra mussel control which comes complete with two (2) metering pumps each having a capacity of 2.3 L/hr. The disinfection is comprised of both prechlorination and post chlorination. There is a 200 L solution tank and two (2) positive displacement metering pumps (one duty and one standby) each having a rated capacity of 2.3 L/hr. The discharge for the prechlorination of sodium hypochlorite is into the raw watermain between the flow meter and the inline static mixer. Post chlorination of sodium hypochlorite is injected into the treated water header downstream of the duel media filters prior to entering the clearwell.

Coagulation is achieved by the use of aluminum sulphate (alum) which is injected at a point upstream of the inline static mixer. There is a 200 L solution tank which comes complete with two (2) electric agitators (one duty and one standby) and two (2) positive displacement pumps each having a rated capacity of 2.3 L/hr. Soda ash is injected into the filtered water line leading to the clearwell. The feed system consists of a 200 L tank and one (1) positive displacement metering pump rated at a capacity of 3.7 L/hr.

The water treatment plant is equipped with one (1) online free chlorine residual analyser located on the high lift pump discharge header downstream of the pressure tanks. The analyser comes complete with alarms and a chart recorder. There are three (3) online turbidimeters. One is located on the raw water discharge header and is connected to a seven (7) day circular chart recorder. The other two (2) turbidimeters are connected to the filter effluent lines and are also connected to seven (7) day circular chart recorders. There is one (1) pH meter located on the raw water discharge header and two (2) flow meters.

There is a 75 mm diameter mechanical flow meter installed on the raw watermain and a 100 mm diameter turbine flow meter on the finished water line upstream of the two (2) pressure tanks. Both meters are capable of measuring flows up to 10 L/s (864 m^3/day).

The Sheguiandah Water Treatment Plant comes complete with one (1) standby diesel engine driven generator and a 750 L diesel fuel storage tank. It is capable of providing emergency power necessary to operate the water treatment plant during a power outage.

The Ministry of the Environment have issued an Amended Certificate of Approval (C of A) #3096-6BUJ4Z dated April 27, 2005. The rated capacity in the CofA is 6.3 L/s and is enclosed in **Appendix A**. A Permit to Take Water (PTTW) # 92-P-5966 was also issued by the Ministry of the Environment which expires on May 9, 2007 which allows for the taking of 546 m^3/day and is enclosed in **Appendix B**.

A schematic of the Sheguiandah Water Treatment Plant is enclosed in **Figure 1** overleaf.

3.0 LIST OF REPORTS AND NOTICES SUBMITTED TO DIRECTOR - MINISTRY OF THE ENVIRONMENT

Table 1 shows all reports and notices that were submitted to the Ministry of Environment between January 1, 2005 and December 31, 2005.

TABLE 1

List of Reports and Notices Submitted to the Ministry of the Environment Sheguiandah Water Treatment Plant

Title of Report or Notice	Date of Submission
Part II [B] [D]	November 28, 2005
Part III Form 2	February 28, 2006

Part III Form 2 titled “Annual Report” is submitted electronically to the Ministry of the Environment. Refer to **Appendix F**. Refer to **Appendix G** for further selected correspondence.

4.0 SUMMARY OF WATER QUALITY MONITORING

4.1 Water Treatment Equipment Operation & Monitoring as per Schedule 7 of O. Reg. 253/05

4.1.1 Chlorine Residual - POE

In the year 2005 (from January 1, 2005 to December 31, 2005), a total of 365 samples were collected and analyzed for free chlorine residual at the Point of Entry. **Table 2** below shows the monthly Minimum and Maximum Free Chlorine Residuals. The chlorine residuals ranged from a low value of 0.50 mg/L to a high value of 1.34 mg/L which is within compliance.

Table 2
Summary of Water Quality - Free Chlorine (POE)
Sheguiandah Water Treatment Plant

Date	No. of Samples	Chlorine Residual - Distribution (mg/L)	
		Minimum (mg/L)	Maximum (mg/L)
January	31	0.51	0.72
February	28	0.60	1.10
March	31	0.56	1.13
April	30	0.68	1.06
May	30	0.56	1.09
June	31	0.58	1.13
July	30	0.52	1.25
August	31	0.50	1.25
September	30	0.54	1.01
October	31	0.74	0.98
November	30	0.85	0.95
December	31	0.97	1.34
Total	364		
Min. (mg/L)		0.50	
Max. (mg/L)			1.34

4.1.2 Chlorine Residual - Distribution

In the year 2005 (from January 1, 2005 to December 31, 2005), a total of 356 samples were collected in the distribution system. **Table 3** below shows the monthly minimum and maximum free chlorine residual values. The free chlorine residuals ranged from a low value of 0.15 mg/L to a high value of 1.04 mg/L which is within compliance.

Table 3
Summary of Water Quality - Chlorine Residual (Distribution)
Sheguiandah Water Treatment Plant

Month	No. of Samples	Minimum (mg/L)	Maximum (mg/L)
January	29	0.20	0.58
February	28	0.22	0.66
March	31	0.33	0.86
April	29	0.37	0.78
May	29	0.26	0.94
June	29	0.26	0.64
July	30	0.25	0.98
August	31	0.20	0.78
September	28	0.15	0.74
October	31	0.39	0.57
November	30	0.38	0.72
December	31	0.48	1.04
Total	356		
Min. (mg/L)		0.15	
Max. (mg/L)			1.04

The log sheet has been revised such that there is a column for each day in the month to record all accumulated data.

4.1.3 Turbidity

At the Sheguiandah Water Treatment Plant, there is one (1) raw water and two (2) filter effluent online continuous analysers for turbidity. In the year 2005, a total of 365 samples were collected and analysed. **Table 4** below shows the minimum and maximum turbidity values for raw water and filter effluent water.

Table 4
Summary of Water Quality - Turbidity (NTU)
Sheguiandah Water Treatment Plant

Month	# of Samples	Raw Result		Filter Effluent Turbidity NTU	
		Min.	Max.	Min.	Max
January	31	0.30	0.94	0.01	0.12
February	28	0.31	7.40	0.02	0.10
March	31	0.21	1.40	0.01	0.09
April	30	0.31	8.30	0.03	0.30
May	31	0.62	5.50	0.03	0.15
June	30	0.94	3.00	0.06	0.35
July	31	0.64	2.69	0.01	0.28
August	31	0.63	3.10	0.02	0.13
September	30	0.85	3.10	0.01	0.12
October	31	0.59	2.50	0.01	0.10
November	30	0.51	6.50	0.01	0.12
December	31	0.25	0.98	0.02	0.10
Total	365				
Min. (mg/L)		0.21		0.01	
Max. (mg/L)			8.30		0.35

* On May 3, 2005 there was no treated water turbidity recorded.

The turbidity for the filter effluent ranged from a low value of 0.01 NTU to a high value of 0.35 NTU, and for the raw water the turbidity ranged from 0.21 NTU to 8.30 NTU.

The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Acceptable Concentration (MAC) of 1 NTU for filter effluent.

NTU for treated water in the distribution system. No exceedance in treated water turbidity were reported in the year 2005 at the Sheguiandah Water Treatment Plant.

4.2 Microbiological Sampling as per Schedule 11 of O. Reg. 253/05

4.2.1 Distribution System

Schedule 11-2 of Ontario Regulation 253/05 requires that at least one (1) distribution sample is collected weekly and tested for E.Coli, Total Coliform and general bacteria population expressed as Heterotrophic Plate Count (HPC). In the year 2005, a total of 52 distribution samples were collected and analysed. All were within compliance. Refer to **Table 5** and **Appendix C** for a summary of microbiological water quality results for the year 2005.

4.2.2 Raw Water Samples

Schedule 11-3 of Ontario Regulation 253/05 requires that at least one (1) raw water sample be collected every month and tested for E.Coli and Total Coliforms. In 2005, 52 raw water samples were collected and analysed weekly for a total of 52 samples. Refer to **Appendix C** for a summary of analysis results.

4.2.3 Point of Entry Samples

Even though Ontario Regulation 253/05 does not specify or require Microbiological analysis for treated water collected from the POE prior to entering the distribution system, a total of 52 samples were collected and analyzed for E.Coli and Total Coliform. All analysis results were within compliance.Refer to **Table 5** and **Appendix C** which summarizes the results.

All Microbiological sampling results for the distribution, raw and treated water are summarized in **Table 5**. All samples were analysed by SGS Lakefield which is an accredited lab.

TABLE 5
Summary of Water Quality: Microbiological
Sheguiandah Water Treatment System

Water Type	Total Coliform Examination Results			E.Coli Examination Results			HPC Examination Results		
	Total No. of Samples	>0 Adv.	0 Safe	Total No. of Samples	>0 Adv.	0 Safe	Total No. of Samples	≥500 Adv.	<500 Safe
Distribution Water	52	0	52	52	0	52	52	0	52
Raw Water	52	10	42	52	6	46	2	1	1
Point of Entry Water	52	0	52	52	0	52	52	0	52

E.Coli Escherichia coli (fecal coliform) HPC Heterotrophic Plate Count

4.3 Chemical Sampling and Testing as per Schedule 13 of O. Reg. 253/05

During 2005, the Town of Northeastern Manitoulin and the Islands, attempted to negotiate a new contract with the Municipal staff. Unfortunately they were not successful and a significant number of the Municipal employees went on strike in the fall of 2005. This included the Operator In Charge for the Municipality. Due to the extremely heavy work load of the remaining staff, all regulated sampling was collected but unfortunately some samples were collected outside of the time frames as stipulated in Schedule 13. Therefore Section 4.3 has been structured to double as the sampling program for 2006 for the Sheguiandah Water Treatment Plant

4.3.1 Inorganics

Schedule 13-2 of Ontario Regulation 253/05 requires that at least one water sample is taken every twelve months, if the system obtains water from a raw water supply that is surface water. Since the Sheguiandah Water Treatment Plant receives its raw water from Sheguiandah Bay in Lake Huron (surface water), a treated water sample was collected on November 28, 2005 and submitted to SGS Lakefield for analysis of all the inorganics as listed in Schedule 23. All parameters were found to be within compliance. Inorganics are required to be sampled and analysed again before November 28, 2006. Refer to **Appendix D** for analysis results.

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4.3.2 Lead

Schedule 13-3 of Ontario Regulation 253/05 requires that at least one distribution sample be taken every 12 months from a point in the distribution system and tested for lead. A water sample was collected from the Sheguiandah distribution system on November 28, 2005 and analyzed for lead by SGS Lakefield. The concentration of lead was found to be 0.6 µg/L which is within compliance. This parameter is required to be sampled and analyzed before November 28, 2006. Refer to **Appendix D** for analysis results.

4.3.3 Organics

Schedule 13-4 of Ontario Regulation 253/05 requires that at least one water sample is taken every 12 months if the raw water source is a surface water. All organic parameters, as per Schedule 24, were sampled and analyzed on November 28, 2005 and were found to be within compliance. Organics are required to be sampled and analysed again before November 28, 2006. Refer to **Appendix D** for analysis results.

4.3.4 Trihalomethanes (THMs)

Schedule 13-6 of Ontario Regulation 253/05 requires that at least one distribution sample is taken every three months from a point in the drinking water system's distribution system and tested for Trihalomethanes (THMs). In the year 2005, samples were collected during the months of February, May, November and December. The Ontario Drinking Water Quality Standard (ODWQS) have set a Maximum Allowable Concentration (MAC) of 100 µg/L for this parameter and is expressed as a running annual average. In the year 2005, the average THM was found to be 33 µg/L. Please refer to the **Table 6** below on the Summary of Trihalomethanes and **Appendix D** for analytical results.

Table 6
Summary of Trihalomethanes (THMs) - 2005
Sheguiandah Water Treatment Plant

Sample Date	Result (µg/L)
February 7, 2005	26
May 31, 2005	40
November 28, 2005	34
December 12, 2005	30
Annual Average	**33**

In 2006, THM's should be collected in March, June, September and December from remote locations within the distribution centre.

4.3.5 Nitrate and Nitrite

Schedule 13-7 of Ontario Regulation 253/05 requires that at least one water sample is taken every three months and tested for nitrate and nitrite. Samples were collected during the months of February, May, November and December. The analytical results were found to be in compliance. Refer to **Appendix D** for analysis results. In 2006, samples should be collected in March, June, September and December.

4.3.6 Sodium

Schedule 13-8 of Ontario Regulation 253/05 requires that at least one water sample is collected every 60 months and tested for sodium. The Ontario Drinking Water Quality Standards (ODWQS) have set a Maximum Acceptable Concentration (MAC) of 200 mg/L for sodium and requires the Medical Officer of Health be notified if the concentration exceeds 20 mg/L. A sample was collected and analysed for sodium on February 26, 2003 and was found to have a concentration of 6.3 mg/L which is within compliance. A sample is not required to be collected again until February 26, 2008. Refer to **Appendix D**.

4.3.7 Fluoride

Schedule 13-9 of Ontario Regulation 253/05 requires that a water sample be collected at least once in every 60 months and tested for fluoride. The ODWQS have set a MAC of 1.5 mg/L for fluoride. A sample was collected on May 31, 2005 and was found to have a concentration of 0.06 mg/L which is in compliance. This sample is not required to be collected again until May 31, 2010. Refer to **Appendix D** for analysis results.

All samples were analysed by SGS Lakefield which is an accredited laboratory.

4.4 CHEMICAL SAMPLING AND TESTING AS PER THE CERTIFICATE OF APPROVAL

4.4.1 Total Suspended Solids

Section 5.5 of the Certificate of Approval requires sampling and analysis of Suspended Solids monthly from the point of discharge of the settling tank prior to entering Lake Huron. Section 4.4 of the Certificate of Approval requires the annual average concentration of Suspended Solids in the effluent to not exceed 25 mg/L. **Table 7** provides a summary of Backwash Effluent Wastewater Quality for 2005. It can be seen from **Table 7** that the annual TSS average concentration was 9 mg/L which is within compliance. Refer to **Appendix E** for analysis results.

Table 7
Summary of Effluent Wastewater Quality - 2005
Sheguiandah Water Treatment Plant

Month	Total Suspended Solids mg/L
January	9
February	<2
March	3
April	4
May	2
June	29
July	<2
August	15
September	<2
November	19
November	2
December	14
Annual Average (mg/L)	9

For the purpose of calculating the Annual Average, the results in January and July of <2 mg/L were assumed to be 2 mg/L. During 2006, TSS samples are to be collected and sent to the lab monthly for analysis.

5.0 WATER USAGE

The Certificate of Approval issued by the Ministry of the Environment specifies that the Sheguiandah Water Treatment Plant has a rated capacity of 6.3 L/sec or (544 m^3/day) which is consistent with the Permit to Take Water (PTTW). **Table 8** below shows the summary of water usage for 2005 recorded by the raw and treated flow meters installed at this facility. This table also includes monthly total, average day and maximum day flows. From the table it can be seen that the maximum daily volume did not exceed the maximum rated capacity in the Certificate of Approval for the maximum allowed permitted by the PTTW. The raw water maximum daily volume occurred in July 2005 and was observed to be 228 m^3. The average day flow for the year was 86 m^3.

TABLE 8
Summary of Water Usage
January 1, 2005 to December 31, 2005
Sheguiandah Water Treatment Plant

Month	Raw			Treated		
	Quantity of Water (m^3)	Average Day (m^3)	Maximum Day (m^3)	Quantity of Water (m^3)	Average Day (m^3)	Maximum Day (m^3)
January	2,294	74	109	1913	62	104
February	2,124	76	131	1788	64	103
March	2,319	75	124	2206	71	112
April	2,271	76	115	2292	76	117
May	2,892	93	182	2849	92	162
June	3,577	119	169	3277	109	163
July	4,261	137	228	4121	133	218
August	3,128	101	177	3025	98	150
September	2,296	77	145	2303	77	128
October	2,077	67	104	2182	70	102
November	2,142	71	192	2078	69	164
December	2,012	65	103	2057	66	109
Total (m^3)	**31,393**			**30091**		
Average Day		**86**			**82**	
Maximum Day			**228**			**218**

The water meters were calibrated by Summa Engineering on July 7,2005 and were found to have an error of less then 5% which is acceptable. Refer to **Appendix I** for the water meter calibration report.

6.0 MONTHLY MONITORING OF CHEMICALS

The chemicals used in the Sheguiandah Water Treatment Plant includes sodium hypochlorite (NaOCl), alum and soda ash. The sodium hydrochlorite is used for disinfection, alum is used for coagulation while the soda ash is used for pH correction. All chemicals are NSF 60 approved. Refer to **Appendix H**.

Table 9 below summarizes the monthly use of sodium hydrochlorite, alum and soda ash used along with average dosages.

Table 9
Summary of Disinfectant Chemicals Used
January 1, 2005 to December 31, 2005
Sheguiandah Water Treatment Plant

Month	Sodium Hydrochlorite		Alum		Soda Ash		Quantity of Water (m^3)
	Volume Used (kg)	Average Dosage (mg/L)	Volume Used (kg)	Average Dosage (mg/L)	Volume Used (kg)	Average Dosage (mg/L)	
January	4.20	2.20	38.96	20.37	4.98	2.60	1913
February	4.50	2.52	33.47	18.72	4.79	2.68	1788
March	3.81	1.73	32.14	14.57	4.87	2.21	2206
April	4.34	1.89	35.25	15.38	8.14	3.55	2292
May	4.75	1.67	58.24	20.44	13.18	4.63	2849
June	6.67	2.04	54.47	16.62	10.89	3.32	3277
July	11.59	2.81	64.96	15.76	11.26	2.73	4121
August	8.61	2.85	43.79	14.48	6.41	2.12	3025
September	6.74	2.93	31.15	13.53	3.67	1.59	2303
October	6.56	3.01	30.92	14.17	2.84	1.30	2182
November	6.02	2.90	34.86	16.78	2.24	1.08	2078
December	3.67	1.78	29.62	14.40	1.37	0.67	2057
Total	**71.46**		**487.83**		**74.64**		**30091**
Average		**2.36**		**16.27**		**2.37**	

During 2005 a total of 71.46 kg of NaOCl was used with an average dosage of 2.36 mg/L, a total of 487.83 kg of Alum was used with an average dosage of 16.27 mg/L and a total of 74.64 kg of Soda Ash was used with an average dosage of 2.37 mg/L. The volumes and average dosages of each chemical used is reasonable considering the volume of water treated.

7.0 COMPLIANCE OF WATER SYSTEM

During the period covered by this report, no notices were given in accordance with Schedule 16 and no corrective action was required as per Schedule 18 of Ontario Regulation 253/05.

Section 4.0 of this report has been prepared to act as a sampling program for 2006.

8.0 WATER TREATMENT SYSTEM IMPROVEMENTS AND REPAIRS

During the period covered by this report, general and routine maintenance was performed at the Sheguiandah Water Treatment Plant . This included items such as foot valves and suction and discharge lines for the metering pumps, cleaning solution tanks, cleaning injectors and calibrating analysers.

9.0 CONCLUSIONS

1. Generally the Sheguiandah Water Treatment Plant was in compliance with Regulation 253/05.

2. The average water demand in 2005 was 86 m^3/day.

3. The maximum day demand was 228 m^3 and was observed to be in July 2005.

4. The average day and the maximum day did not violate either the Certificate of Approval or the Permit to Take Water.

5. The 2005 annual average TSS concentration was 9 mg/L which is less than the annual average requirement as specified in the Certificate of Approval.

6. Calibration and routine preventive maintenance was performed on the system. The water meters were calibrated on July 7, 2005 by Summa Engineering and were found to be acceptable.

7. All bacteriological sampling was completed as per Schedule 11.

8. All physical/chemical sampling was completed as per Schedule 13, however some of the time intervals between samples was exceeded.

9. All inorganics as per Schedule 23 were analyzed on November 28, 2005.

10. Organics were sampled as per Schedule 13 and analyzed as per the parameters listed in Schedule 24 on November 28, 2005.

11. Lead was analyzed from the distribution system on November 28, 2005.

12. Trihalomethanes were analyzed a total of four (4) times over the course of 2005, however, no samples were collected between May and November and a sample was collected in November and December. The annual average concentration of THM's was found to be 33 µ/L which is reasonable.

13. Nitrate and Nitrite were analyzed four (4) times in 2005 in February, May, November and December.

14. Sodium was analyzed on February 26, 2003 and was found to have a concentration of 6.3 mg/L.

15. Fluoride was analyzed on May 31, 2005 and was found to have a concentration of 0.06 mg/L.

16. The PTTW expires on May 9, 2007.

10.0 RECOMMENDATIONS AND CONCLUSIONS

1. The Sheguiandah Water Treatment Plant should continue to be operated in compliance with the Regulation 253/05.

2. TSS samples are to be collected monthly.

3. The water meters should be calibrated before July 7, 2006 and once every 365 days afterwards.

4. All bacteriological sampling should be completed as per Schedule 11. Additionally one POE sample should be collected weekly and analyzed for E. Coli and Total Coliform as a Best Management Practice.

5. Section 4.0 of this report should be treated as a sampling program for 2006.

6. All inorganics as per Schedule 23 should be analyzed before November 28, 2006.

7. All organics as per Schedule 24 should be analyzed before November 28, 2006.

8. Lead should be analyzed from the distribution system before November 28, 2006.

9. Trihalomethanes should be collected in March, June, September and December 2006

10. Nitrate and Nitrite should be sampled and analyzed in March, June, September and December 2006.

11. Sodium needs to be sampled and analyzed before February 26, 2006.

12. Fluoride needs to be sampled and analyzed before May 31, 2010.

13. During 2006 an application for the renewal of the PTTW should be submitted by the Town.

14. The Municipality should consider installing a continuous free chlorine analyzer complete with data logger/chart recorder and alarms at a remote location in the distribution system.

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REFERENCE

1. Ontario Ministry of the Environment, Ontario Regulation 170/03 under the Safe Drinking Water Act, 2002 and as amended to O. Reg. 253/05.

2. Permit To Take Water.

3. Certificate of Approval.

4. Safe Drinking Water Act.

Appendix A

Certificate of Approval

Appendix B

Permit to Take Water

Appendix C

Summary of Water Quality - Bacteriological

Appendix D

Chemical Sampling and Testing Results

Appendix E

TSS Results

Appendix F

Part III Form 2

(submitted electronically)

Appendix G

Selected Correspondence

Appendix H

NSF 60

Appendix I

Water Meter Calibration Report