

PORT ELGIN WATER TREATMENT PLANT

Annual Report
January 1 to December 31, 2001

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Overview

The Port Elgin Water Treatment Plant provided effective treatment of water for the Town of Port Elgin and a portion of Saugeen Township during 2001. The annual average daily flow was 2,449 m³ per day or 31% of its present approved capacity of 7,864 m³ per day. The design capacity was not exceeded during any time in 2001. Peak day flow was 4,669 m³ in August, with high flows experienced in May to September due to the increased seasonal population.

Project Description

The Port Elgin Water Treatment Plant is a conventional water treatment plant with a capacity of 7,864 m³ per day. The raw water from Lake Huron is supplied by a 508 mm diameter intake pipe to the low lift pump station which is equipped with manual screens and two vertical turbine electric pumps. Zebra mussel control is carried out when the raw water temperature exceeds 12° C. The water is pumped to the water treatment plant to one square upflow clarifier which utilizes aluminum sulphate and polyelectrolyte filter aid. The water then discharges to dual media high rate sand and anthracite filters which remove the fine particles and turbidity. The water then passes to a combination chlorine contact chamber, clearwell storage and backwash water storage tank having a capacity of 230 m³.

At this point chlorine is added to the clearwell to kill any harmful bacteria before it is pumped out of the clearwell by two electric high lift electric pumps and one diesel driven pumps. The diesel pump is used in cases of power failure or emergency conditions. This water is pumped to the distribution system and to the 2,045 m³ standpipe and to the 4,545 m³ storage reservoir. Continuous water supply is guaranteed by a 115 kW diesel generator which automatically will come online if a power failure occurs.

Plant Facts

Facilities➤ Water Treatment Plant and Distribution System

Present Capacity ➤ 7,855 m³ per day

Design Capacity➤ 7,855m³ per day

Average Daily Flow➤ 2,209 m³ per day

Population➤ 6,800

Water Source➤ Lake Huron

Certificates of Approval➤ 7-0726-91-006

7-1161-94-956

Plant Classification➤ WTIII

Works Number➤ 220012707

Project Number➤ n/a

Organization Code➤ 5068

Sampling Procedures

Sampling is carried out as per C of A requirements and the Ontario Drinking Water Objectives and the Ontario Drinking Water Regulations. THM sampling is performed quarterly except during the Zebra Mussel Control System operation period. Sampling is then bi-weekly.

Clostridium Perfringens testing was performed during 2001 as an indicator of Cryptosporidium infestation. All samples in the treated water were 0 mg/l. A copy of the 2001 Zebra Mussel Control System report that was sent to the Ministry of Environment is found in Appendix B. This report is a requirement of the C of A.

Additional sampling was performed on-site at the plant twice daily. These samples are required by the C of A and all monthly results are contained in the Performance Assessment Report in Appendix A.

Plant Performance & Effluent Quality

Daily plant records are available at the Southampton Hub office. Monthly and annual reports are included in Appendix A.

The plant performed within requirements of the C of A, ODWO and ODWR during 2001. There were no major upsets or breakdowns that affected water quality or quantity. The Zebra Mussel Control system is providing adequate protection to the intake and water wells.

Abnormal Conditions

There were no abnormal operating conditions experienced in 2001.

Maintenance and Calibration Activities

Maintenance of equipment was performed and completed as per OCWA's preventative maintenance system and as per equipment manuals. All equipment, components and valves have been identified and input into OCWA's computerized maintenance and inventory control program.

Calibrations of all flow metering equipment was performed by Bruce Control Systems Ltd. Flow meter calibration sheets and results are enclosed in Appendix C.

Discussion

Containments for the alum tank, polymer tank and diesel fuel tank will be constructed and completed as required following an inspection by Ministry of Environment. There were no operational problems that affected the quality of the water supplied to the water distribution system during 2001.

During the summer months there were no major complaints in regard to taste and odour problems that have been experienced by other water supplies along Lake Huron to the south of Port Elgin.

The components of the water supply and treatment facilities performed well during 2001 with no major problems experienced that affected quantity or quality of water within the system served by the Port Elgin WTP.

Repairs to concrete components, as well as some upgrades to building components were started as planned for 2001 and will continue throughout 2002., as well as some upgrades to building components. Replacement of valves, controllers, PLC components will continue in 2002 to bring obsolete equipment up to current standards.

Change of location of the existing fluoride system within the plant is planned to assure safety to the plant employees and consumers. The system is currently not in operation as it was deemed unsafe by OCWA. Existing equipment and point of applications will not change, on being relocated.



Ontario Clean Water Agency
Performance Assessment Report - Surface Water Treatment Plant

Municipality: TOWN OF SAUGEEN SHORES
Project: [5068] - Port Eglon Water Supply System
Project Number: 220002707
Works Number:
Description: Water Treatment Facility

Year: 2001
Water Source: Lake Huron
Design Avg Day Flow(m³):
Effluent Group Selected:

| Month | Total Flow m ³ | Avg Day m ³ | Max Day m ³ | Effluent Physical/Chemical Parameters | | | | | | | | | | Bact. (# of Samples) | |
|-----------|------------------------------|---------------------------|---------------------------|---------------------------------------|---------------------|----------------------|---------------|--|---|--|---|-------|------|----------------------|------|
| | | | | Avg Turb. (NTU) | Avg Colour (TCU) | Alum Resid (mg/L) | THM (ug/L) | Avg Free CL2 Resid. Treat (mg/L) | Avg Total CL2 Resid. Treat (mg/L) | Min Free CL2 Resid. Dist. (mg/L) | Min Total CL2 Resid. Dist. (mg/L) | Treat | Dist | Treat | Dist |
| JAN | 54,881 | 1,770 | 2,573 | 0.09 | 0.04 | 0.007 | 6.3 | 0.64 | 0.73 | 0.32 | 0.25 | 5 | 30 | 0 | 0 |
| FEB | 62,494 | 2,232 | 2,873 | 0.10 | 0.00 | 0.011 | 8.0 | 0.64 | 0.71 | 0.32 | 0.33 | 4 | 24 | 0 | 0 |
| MAR | 67,281 | 2,170 | 3,591 | 0.12 | 0.10 | 0.009 | 8.0 | 0.68 | 0.76 | 0.32 | 0.32 | 4 | 24 | 0 | 0 |
| APR | 62,803 | 2,087 | 2,646 | 0.08 | 0.06 | 0.011 | 5.8 | 0.64 | 0.72 | 0.32 | 0.32 | 3 | 18 | 0 | 0 |
| MAY | 85,274 | 2,751 | 4,073 | 0.09 | 0.10 | 0.020 | 2.7 | 0.62 | 0.71 | 0.14 | 0.32 | 5 | 30 | 0 | 0 |
| JUN | 87,360 | 2,912 | 4,614 | 0.09 | 0.10 | 0.059 | 14.5 | 0.66 | 0.75 | 0.14 | 0.32 | 4 | 24 | 0 | 0 |
| JUL | 106,354 | 3,431 | 4,541 | 0.09 | 0.30 | 0.079 | 7.2 | 0.74 | 0.84 | 0.18 | 0.20 | 5 | 30 | 0 | 0 |
| AUG | 102,540 | 3,308 | 4,669 | 0.09 | 0.45 | 0.078 | 5.0 | 0.81 | 0.91 | 0.20 | 0.18 | 4 | 23 | 0 | 0 |
| SEP | 70,904 | 2,363 | 3,109 | 0.11 | 0.18 | 0.052 | 4.8 | 0.78 | 0.87 | 0.18 | 0.18 | 4 | 25 | 0 | 0 |
| OCT | 70,813 | 2,284 | 2,855 | 0.09 | 0.07 | 0.032 | 4.5 | 0.77 | 0.86 | 0.28 | 0.28 | 5 | 30 | 0 | 0 |
| NOV | 61,852 | 2,062 | 2,873 | 0.09 | 0.01 | 0.018 | 4.5 | 0.75 | 0.85 | 0.30 | 0.30 | 4 | 24 | 0 | 0 |
| DEC | 62,698 | 2,023 | 2,459 | 0.13 | 0.04 | 0.014 | 4.3 | 0.83 | 0.92 | 0.48 | 0.48 | 4 | 24 | 0 | 0 |
| TOTAL | 895,054 | | | | | | | | | | | 51 | 306 | 0 | 0 |
| AVG: | | 2,449 | | 0.10 | 0.12 | 0.033 | 6.3 | 0.71 | 0.80 | 0.28 | 0.28 | 4 | 26 | 0 | 0 |
| MAX: | | | 4,669 | 0.13 | 0.45 | 0.079 | 14.5 | 0.83 | 0.92 | 0.48 | 0.48 | 5 | 30 | 0 | 0 |
| Criteria: | | | | 1.00 | | | | | | | | | | | |

LEGEND:
Effluent Group Selected:

NOTE: -1 Analyser result less than detectable limit



Annual Summary - Distribution System Microbiological Data

Facility Name: [5068] - Port Egin Water Supply System

Distribution Group Selected:

Year: 2001

Served Population: 6,800

Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| Month | << | | Total Coliform | | | >> | | Fecal Coliform/ <i>Escherichia coli</i> | | > | | << | | HPC or MF | | >> | |
|--------------|--------------------------|---------------------|------------------------|------------------------------|--------------------------|---------------------|------------------------|---|------------------------|--------------------------|---------------------|--------------------------|---------------------|------------------------------|----------|----------|----------|
| | No. of samples Collected | No. of samples Safe | No. of samples Adverse | No. of samples Deteriorating | No. of samples Collected | No. of samples Safe | No. of samples Adverse | No. of samples Collected | No. of samples Adverse | No. of samples Collected | No. of samples Safe | No. of samples Collected | No. of samples Safe | No. of samples Deteriorating | | | |
| JAN | 30 | 30 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FEB | 24 | 24 | 0 | 0 | 24 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAR | 24 | 24 | 0 | 0 | 24 | 24 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| APR | 18 | 18 | 0 | 0 | 18 | 18 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MAY | 30 | 30 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUN | 24 | 24 | 0 | 0 | 24 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| JUL | 30 | 30 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| AUG | 23 | 23 | 0 | 0 | 23 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| SEP | 25 | 25 | 0 | 0 | 25 | 25 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| OCT | 30 | 30 | 0 | 0 | 30 | 30 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NOV | 24 | 24 | 0 | 0 | 24 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| DEC | 24 | 24 | 0 | 0 | 24 | 24 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Total | 306 | 306 | 0 | 0 | 306 | 306 | 0 | 0 | 6 | 6 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Indicators of adverse water quality:

If any of the following conditions exist, the drinking water is judged adverse:

1. *Escherichia coli* and/or fecal coliforms are detected in any required sample other than a raw water sample.
2. Total coliforms are detected in any required sample other than raw water sample.
3. Unchlorinated water is directed to the distribution system, where chlorination is used or required. This includes water in the distribution system, which has less than 0.05 mg/L of free chlorine residual when tested.
4. Samples, other than raw water samples, containing more than 500 colonies per mL on a HPC analysis.
5. Samples, other than raw water samples, containing more than 200 background colonies on a total coliform membrane filter analysis.
6. *Aeromonas* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Clostridium* spp. or fecal streptococci (Group D Streptococci) are detected in samples, other than raw water samples.

From Section 4.2.2 of the Ontario Drinking Water Standards, 2000

If the water contains any indicators of adverse water quality for any of the reasons outlined above, the laboratory will immediately notify the MOE District Officer and/or SAC and the Medical Officer of Health and the operating authority(owner) to initiate collection of special samples and/or take corrective action. In addition, the waterworks owner/operator must immediately notify the MOE Spills Action Centre(SAC) and the local Medical Officer of Health when they become aware of an adverse water quality condition.

LEGEND:

Distribution Group Selected:



Annual Summary - Treated Water Microbiological Data

Facility Name: [5069] - Port Elgin Water Supply System
Treated Water Group Selected:

Year: 2001
Served Population: 6,800
Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| Month | Total Coliform | | Fecal Coliform/Escherichia coli | | HPC or MF | | |
|--------------|--------------------------|---------------------|---------------------------------|------------------------------|--------------------------|---------------------|------------------------------|
| | No. of samples Collected | No. of samples Safe | No. of samples Adverse | No. of samples Deteriorating | No. of samples Collected | No. of samples Safe | No. of samples Deteriorating |
| JAN | 5 | 5 | 0 | 0 | 5 | 5 | 0 |
| FEB | 4 | 4 | 0 | 0 | 4 | 4 | 0 |
| MAR | 4 | 4 | 0 | 0 | 4 | 4 | 0 |
| APR | 3 | 3 | 0 | 0 | 3 | 3 | 0 |
| MAY | 5 | 5 | 0 | 0 | 5 | 5 | 0 |
| JUN | 4 | 4 | 0 | 0 | 4 | 4 | 0 |
| JUL | 5 | 5 | 0 | 0 | 5 | 5 | 0 |
| AUG | 4 | 3 | 0 | 0 | 4 | 4 | 0 |
| SEP | 4 | 4 | 0 | 0 | 4 | 4 | 0 |
| OCT | 5 | 5 | 0 | 0 | 5 | 5 | 0 |
| NOV | 4 | 4 | 0 | 0 | 4 | 4 | 0 |
| DEC | 4 | 4 | 0 | 0 | 4 | 4 | 0 |
| Total | 51 | 50 | 0 | 0 | 51 | 51 | 0 |

Indicators of adverse water quality:

If any of the following conditions exist, the drinking water is judged adverse:

1. *Escherichia coli* and/or fecal coliforms are detected in any required sample other than a raw water sample.
2. Total coliforms are detected in any required sample other than a raw water sample.
3. Unchlorinated water is directed to the distribution system, where chlorination is used or required. This includes water in the distribution system, which has less than 0.05 mg/L of free chlorine residual when tested.
4. Samples, other than raw water samples, containing more than 500 colonies per mL on a HPC analysis.
5. Samples, other than raw water samples, containing more than 200 background colonies on a total coliform membrane filter analysis.
6. *Aeromonas* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Clostridium* spp. or fecal streptococci (Group D Streptococci) are detected in samples, other than raw water samples.

From Section 4.2.2 of the Ontario Drinking Water Standards, 2000

If the water contains any indicators of unsafe water quality for any of the reasons outlined above, the laboratory will immediately notify the MOE District Officer and/or SAC and the Medical Officer of Health and the operating authority(owner) to initiate collection of special samples and/or take corrective action. In addition, the waterworks owner/operator must immediately notify the MOE Spills Action Centre(SAC) and the local Medical Officer of Health when they become aware of an adverse water quality condition.

LEGEND:

Treated Water Group Selected:



Annual Summary - Raw Water Microbiological Data

Facility Name: [5068] - Port Elgin Water Supply System
 Raw Water Group Selected:

Year: 2001
 Served Population: 6,800
 Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| Month | No. of samples Collected | Total Coliform | | | Fecal Coliform/Escherichia coli | | |
|--------------|--------------------------|--------------------------|--------------------------------------|---------------------------------|---------------------------------|-------------------------------|----------------------------------|
| | | No. of samples Collected | No. of samples > 101-50000org./100ml | No. of samples > 5000org./100ml | No. of samples Collected | No. of samples 0-10org./100ml | No. of samples 11-5000org./100ml |
| JAN | 5 | 5 | 0 | 0 | 5 | 0 | 0 |
| FEB | 4 | 4 | 0 | 0 | 4 | 0 | 0 |
| MAR | 4 | 4 | 0 | 0 | 4 | 0 | 1 |
| APR | 3 | 3 | 0 | 0 | 3 | 0 | 0 |
| MAY | 5 | 5 | 0 | 0 | 5 | 0 | 0 |
| JUN | 4 | 4 | 0 | 0 | 4 | 0 | 0 |
| JUL | 5 | 5 | 0 | 0 | 5 | 0 | 0 |
| AUG | 4 | 4 | 0 | 0 | 4 | 2 | 0 |
| SEP | 4 | 3 | 1 | 0 | 4 | 1 | 3 |
| OCT | 5 | 5 | 0 | 0 | 5 | 0 | 0 |
| NOV | 4 | 4 | 0 | 0 | 4 | 0 | 0 |
| DEC | 4 | 4 | 0 | 0 | 4 | 0 | 0 |
| Total | 51 | 50 | 1 | 0 | 51 | 46 | 5 |

"In systems treating surface water or ground water, samples must be taken at least weekly from the raw water source (in a ground water source this means each well) and at the point the treated water enters the distribution system. From Table 5 (Section 4.3.1 of the ODWS, 2000), up to 100,000 population, a minimum of 8 samples plus an additional 1 sample per 1,000 population, shall be taken monthly in the distribution system, with at least one such sample taken every week. Over 100,000 population, a minimum of 100 samples plus an additional 1 sample per 10,000 population, shall be taken monthly in the distribution system, with at least 3 such samples taken every week.

In addition, the operator must ensure that the disinfection process is functioning properly at all times. In ground water systems that only disinfect, water samples shall be taken and examined not less than once per week from the source and all points at which water enters the distribution system."

LEGEND:
 Raw Water Group Selected:



Annual Summary Treated Water and Wastewater Flows, Turbidity, and Disinfectant Residual Bacteriological Data

Facility Name: [5068] - Port Elgin Water Supply System

Treated Water Group Selected:

Year: 2001

Serviced Population: 6,800

Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| Month | Average Day Treated Water Flow m ³ | Maximum Day Treated Water Flow m ³ | Monthly Total m ³ | Process Wastewater Monthly Total m ³ | < No. of samples Collected | Treated Water Turbidity No. of samples > 1 NTU | > Average Turbidity NTU | << Treated Disinfectant No. of samples Collected | >> Average Residual (mg/L) | < No. of dist. samples Collected | > No. of samples with Detectable Res. |
|-------|---|---|------------------------------|---|----------------------------|--|-------------------------|--|----------------------------|----------------------------------|---------------------------------------|
| JAN | 1,770 | 2,573 | 54,881 | | 31 | 0 | 0.1 | 31 | 0.6 | 30 | 30 |
| FEB | 2,232 | 2,873 | 62,494 | | 28 | 0 | 0.1 | 28 | 0.5 | 24 | 24 |
| MAR | 2,170 | 3,591 | 67,281 | | 31 | 0 | 0.1 | 31 | 0.5 | 24 | 24 |
| APR | 2,087 | 2,646 | 62,603 | | 30 | 0 | 0.1 | 30 | 0.5 | 24 | 24 |
| MAY | 2,751 | 4,073 | 85,274 | | 31 | 0 | 0.1 | 31 | 0.5 | 30 | 30 |
| JUN | 2,912 | 4,614 | 87,360 | | 30 | 0 | 0.1 | 30 | 0.4 | 24 | 24 |
| JUL | 3,431 | 4,541 | 106,354 | | 31 | 0 | 0.1 | 31 | 0.4 | 30 | 30 |
| AUG | 3,308 | 4,669 | 102,540 | | 31 | 0 | 0.1 | 31 | 0.5 | 23 | 23 |
| SEP | 2,363 | 3,109 | 70,904 | | 30 | 0 | 0.1 | 30 | 0.4 | 19 | 19 |
| OCT | 2,284 | 2,855 | 70,813 | | 31 | 0 | 0.1 | 31 | 0.5 | 30 | 30 |
| NOV | 451 | 638 | 13,541 | | 30 | 0 | 0.1 | 30 | 0.5 | 24 | 24 |
| DEC | 2,023 | 2,459 | 62,698 | | 31 | 0 | 0.1 | 31 | | 24 | 24 |
| Total | | | 846,743 | | | 0 | | | | | |
| Avg | 2,315 | | | | 365 | | 0.1 | 365 | 0.5 | 306 | 306 |
| Max | | 4,669 | | | | | | | | | |

Disinfectant compound used: NaOCl
(Eg. Chlorine gas, NaOCl, etc.)

Form of residual displayed on above table: Free/Total
(i.e. Free, combined, or total)

LEGEND:

Treated Water Group Selected:



Annual Summary - Treated Water Volatile Organic, Schedule 2, Table B

Facility Name: [5068] - Port Elgin Water Supply System

Treated Flow Group Selected:

Year: 2001

Served Population: 6,800

Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | MAC/IMAC |
|-----------------------------|-------|-------|-------|-------|-------|--------|-------|-------|-------|-------|-------|-------|----------|
| Benzene (ug/L) | 0.000 | 0.400 | 0.400 | 0.200 | | | 0.360 | | | 0.360 | 0.000 | | 5.000 |
| Carbon Tetrachloride (ug/L) | 0.000 | 0.400 | 0.400 | 0.200 | | | 0.340 | | | 0.340 | 0.000 | | 5.000 |
| 1,2-Dichlorobenzene (ug/L) | 0.000 | 0.100 | 0.100 | 0.500 | | | 0.560 | | | 0.560 | 0.000 | | 200.000 |
| 1,4-Dichlorobenzene (ug/L) | 0.000 | 0.400 | 0.400 | 0.200 | | | 0.250 | | | 0.250 | 0.000 | | 5.000 |
| 1,2-Dichloroethane (ug/L) | 0.000 | 0.400 | 0.400 | 0.200 | | | 0.320 | | | 0.320 | 0.000 | | 5.000 |
| 1,1-Dichloroethylene (ug/L) | 0.000 | 0.500 | 0.500 | 0.250 | | | 0.520 | | | 0.520 | 0.000 | | 14.000 |
| Dichloromethane (ug/L) | 0.000 | 3.000 | 3.000 | 1.500 | | | 1.170 | | | 1.170 | 0.000 | | 50.000 |
| Ethylbenzene (ug/L) | 0.000 | 1.000 | 1.000 | 0.500 | | | 0.470 | | | 0.470 | 0.000 | | 80.000 |
| Monochlorobenzene (ug/L) | | | 5.000 | 5.000 | | | 0.460 | | | 0.460 | | | 80.000 |
| Tetrachloroethylene (ug/L) | | | 1.000 | 1.000 | | | 0.480 | | | 0.480 | | | 30.000 |
| Toluene (ug/L) | 0.000 | 1.000 | 1.000 | 0.500 | | | 0.580 | | | 0.580 | 0.000 | | |
| Total Trihalomethane (ug/L) | 6.250 | 8.000 | 8.000 | 5.750 | 2.700 | 14.450 | 7.150 | 5.000 | 4.800 | 4.500 | | 4.300 | |
| Vinyl Chloride (ug/L) | | 0.100 | 0.100 | 0.100 | | | 0.080 | | | 0.080 | | | 2.000 |
| Xylene (total) (ug/L) | 0.000 | 5.000 | 5.000 | 5.000 | | | 0.580 | | | 0.580 | | | |

LEGEND:

Treated Flow Group Selected:

Note: -1 Analysis result less than detectable limit



Annual Summary - Treated Water Inorganic, Schedule 2, Table C

Facility Name: [5068] - Port Elgin Water Supply System

Treated Flow Group Selected: 1

Year: 2001

Service Population: 6,800

Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | MAC/IMAC |
|------------------|--------|-----|-------|--------|-----|-----|-----|-----|-----|-----|--------|-----|-----------|
| Arsenic (ug/L) | 0.200 | | | 1.350 | | | | | | | 0.300 | | 25.000 |
| Barium (ug/L) | 11.800 | | | 11.750 | | | | | | | 12.300 | | 1,000,000 |
| Boron (ug/L) | 14.000 | | | 13.500 | | | | | | | 11.000 | | 5,000,000 |
| Cadmium (ug/L) | 0.010 | | | 0.505 | | | | | | | 0.040 | | 5,000 |
| Chromium (ug/L) | 0.700 | | | 1.150 | | | | | | | 0.400 | | 50,000 |
| Copper (ug/L) | 0.500 | | | 1.200 | | | | | | | 0.500 | | |
| Iron (ug/L) | 15.000 | | | 33.000 | | | | | | | 3.000 | | |
| Lead (ug/L) | 15.000 | | | 0.500 | | | | | | | 0.400 | | 10,000 |
| Manganese (ug/L) | 0.740 | | | 0.845 | | | | | | | 1.420 | | |
| Mercury (ug/L) | | | | 0.100 | | | | | | | | | 1,000 |
| Nitrate (mg/L) | 0.471 | | 0.410 | 0.382 | | | | | | | 0.412 | | 10,000 |
| Nitrite (mg/L) | 0.001 | | 0.060 | 0.031 | | | | | | | 0.001 | | 1,000 |
| Selenium (ug/L) | 0.000 | | | 2.500 | | | | | | | 0.000 | | 10,000 |
| Uranium (ug/L) | 0.020 | | | 0.510 | | | | | | | 0.030 | | 100,000 |

LEGEND:

Treated Flow Group Selected:

Note: -1 Analysis result less than detectable limit



Annual Summary - Treated Water Pesticides and PCB, Schedule 2, Table D

Facility Name: [5058] - Port Elgin Water Supply System

Treated Flow Group Selected:

Year: 2001

Design Avg Day Flow(m³): 6,800

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | MAC/IMAC |
|---|-------|-----|-----|--------|-----|-----|-------|-----|-----|-------|-----|-----|----------|
| 2,3,4,6-Tetrachlorophend (ug/L) | | | | | | | | | | 0.200 | | | 100.000 |
| 2,4,5-T (ug/L) | | | | | | | | | | 0.470 | | | 280.000 |
| 2,4,6-Trichlorophend (ug/L) | | | | | | | | | | 0.590 | | | 5.000 |
| 2,4-Dichlorophend (ug/L) | | | | | | | | | | 0.140 | | | 900.000 |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | | | | | | | 0.330 | | | 0.330 | | | 100.000 |
| Alachlor (ug/L) | | | | 0.100 | | | 0.090 | | | 0.090 | | | 5.000 |
| Aldicarb (ug/L) | 0.000 | | | 5.000 | | | 0.760 | | | 0.760 | | | 9.000 |
| Aldrin+Dieldrin (ug/L) | | | | 0.050 | | | 0.050 | | | 0.050 | | | 0.700 |
| Atrazine (ug/L) | | | | | | | | | | | | | |
| Azinphos-methyl (ug/L) | | | | 1.000 | | | 0.590 | | | 0.590 | | | 20.000 |
| Bendiocarb (ug/L) | | | | 1.000 | | | 0.270 | | | 0.270 | | | 40.000 |
| Bromoxynil (ug/L) | | | | 0.200 | | | 0.060 | | | 0.060 | | | 5.000 |
| Carbaryl (ug/L) | | | | 1.000 | | | 0.140 | | | 0.140 | | | 90.000 |
| Carbofuran (ug/L) | | | | 5.000 | | | 0.140 | | | 0.140 | | | 90.000 |
| Chlordane(T dal) (ug/L) | | | | 0.200 | | | 0.200 | | | 0.200 | | | 7.000 |
| Chlorpyrifos (ug/L) | | | | 5.000 | | | 1.200 | | | 1.200 | | | 90.000 |
| Cyanazine (ug/L) | | | | 0.500 | | | 0.079 | | | 0.079 | | | 10.000 |
| DDT (ug/L) | | | | | | | | | | | | | |
| Diazinon (ug/L) | | | | 1.000 | | | 0.410 | | | 0.410 | | | 20.000 |
| Dicamba (ug/L) | | | | 5.000 | | | 0.900 | | | 0.900 | | | 120.000 |
| Dicofop-methyl (ug/L) | | | | 0.200 | | | 0.840 | | | 0.840 | | | 9.000 |
| Dimethoate (ug/L) | | | | 1.000 | | | 0.100 | | | 0.100 | | | 20.000 |
| Dinoseb (ug/L) | | | | | | | | | | 0.420 | | | 10.000 |
| Diquat (ug/L) | | | | 30.000 | | | 1.000 | | | 1.000 | | | 70.000 |
| Diuron (ug/L) | | | | 0.250 | | | 0.660 | | | 0.660 | | | 150.000 |
| Glyphosate (ug/L) | | | | 5.000 | | | 6.000 | | | 6.000 | | | 280.000 |
| Hepclachlor+hepachlor epoxide (ug/L) | | | | 0.300 | | | 0.200 | | | 0.200 | | | 3.000 |
| Lindane (ug/L) | | | | 0.200 | | | 0.130 | | | 0.130 | | | 4.000 |
| Malathion (ug/L) | | | | 5.000 | | | 0.370 | | | 0.370 | | | 190.000 |
| Methoxychlor (ug/L) | | | | 5.000 | | | 0.640 | | | 0.640 | | | 900.000 |
| Metolachlor (ug/L) | | | | 1.000 | | | 0.580 | | | 0.580 | | | 50.000 |
| Metribuzin (ug/L) | | | | 5.000 | | | 0.500 | | | 0.500 | | | 80.000 |
| Paraquat (ug/L) | | | | 9.000 | | | 1.000 | | | 1.000 | | | 10.000 |
| Parathion (ug/L) | | | | 1.000 | | | 1.200 | | | 1.200 | | | 50.000 |
| PCB (ug/L) | | | | 0.100 | | | 0.040 | | | 0.040 | | | 60.000 |
| Pentachlorophend (ug/L) | | | | | | | | | | 0.310 | | | |



Annual Summary - Treated Water Pesticides and PCB, Schedule 2, Table D

Facility Name: [5068] - Port Elgin Water Supply System

Treated Flow Group Selected:

Year: 2001

Served Population: 6,800

Design Avg Day Flow(m³):

Laboratories Which Performed Analyses: LAKEFIELD, GAP

| | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | MAC/MMAC |
|--------------------|-----|-----|-----|--------|-----|-----|-------|-----|-----|-------|-----|-----|----------|
| Phorate (ug/L) | | | | 0.200 | | | 0.730 | | | 0.730 | | | 2.000 |
| Picloram (ug/L) | | | | 5.000 | | | 0.190 | | | 0.190 | | | 190.000 |
| Promethyne (ug/L) | | | | | | | | | | 0.160 | | | 1.000 |
| Simazine (ug/L) | | | | 0.500 | | | 0.180 | | | 0.180 | | | 10.000 |
| Terbufos (ug/L) | | | | 15.000 | | | 0.250 | | | 0.250 | | | 280.000 |
| Terbufos (ug/L) | | | | 0.500 | | | 0.730 | | | 0.730 | | | 1.000 |
| Triallate (ug/L) | | | | 5.000 | | | 0.140 | | | 0.140 | | | 230.000 |
| Trifluralin (ug/L) | | | | 1.000 | | | 0.350 | | | 0.350 | | | 45.000 |

LEGEND:

Treated Flow Group Selected:

Note: -1 Analysis result less than detectable limit

APPENDIX A
Plant Performance Summary

APPENDIX B
Zebra Mussels Report



**Ontario Clean Water Agency
Agence Ontarienne Des Eaux**

P.O. Box 760, Anglesia St. N.
Southampton, Ontario
Canada N0H 2L0

TEL: 519 797 2561
FAX: 519 797 3080

January 31, 2002

Ministry of Environment
Owen Sound District Office
1180 - 20th Street East
Owen Sound, Ontario
N4K 6H6

FILE COPY

Attention: Phil Bye, District Supervisor

SUBJECT: 2001 ZEBRA MUSSEL CONTROL SYSTEM - PORT ELGIN WTP

The Zebra Mussel Control System was put into operation at the Port Elgin Water Treatment Plant intake facility on June 09, 2001 and October 29, 2001. A visual inspection of the raw water well was done in the late spring of 2001 and no indication of zebra mussels. A visual inspection of the raw water intake crib was performed by Groundhog Divers in late June 2001 and zebra mussels were present on the exterior and in the area. An inspection on the internal piping of the crib indicated nothing below the diffuser ring. The control system appears to be operating satisfactory. The control system was shut off on October 29, 2001.

| Month | #Days | Total kg | Avg. Kg per day | CI Residual | THM's mg per |
|-----------|-------|----------|--------------------|-------------|-----------------|
| June | 20 | 42.26 | 2.01 | 0.187 | 0.0145 |
| July | 26 | 56.18 | 2.25 | 0.140 | 0.0072 |
| August | 25 | 57.41 | 2.30 | 0.140 | 0.0050 |
| September | 25 | 39.74 | 1.59 | 0.164 | 0.0048 |
| October | 23 | 34.77 | 1.45 | 0.123 | 0.0045 |

The results received and recorded during the operating period are consistent and well within regulations. If there are any questions in regard to this report, please call.

Sincerely yours,

Henry Rouw
Act. Operations Manager
Central/Western Area
Southampton/Owen Sound Hubs

APPENDIX C
Calibration Report

March 25, 2002

Ministry of Environment
1580 - 20th Street East, Box 967
Owen Sound, Ontario
N4K 6H6

FILE COPY

Attention: Mr. Ron Burrell

SUBJECT: PORT ELGIN WATER SYSTEM INSPECTION

Dear Mr. Burrell:

This letter is the follow up of my February 10, 2002 letter to you in regard to the Ministry of Environment (MOE) inspection of the Port Eglin Water Treatment Plant for December 3, 2001.

SECTION 5.0 - Action Required

1. Attached are the calibration reports for the chlorine analyser and turbidity meter.
2. The containments for the alum tank, polymer tank and diesel fuel tank have been constructed and completed as required.

If you have any questions, or concerns please contact me.

Sincerely yours,



Henry Row
Act. Operations Manager
Southampton/Owen Sound Hub

Enclosure

C.c. Town of Saugeen Shores, Attn: Gord Eagles
OCWA - London, Attn: Rick Turnbull

BRUCE CONTROL SYSTEMS LTD.

4876 Hwy. 9
R.R.#4
Kincardine On
N2Z 2X5
(519)-395-2455
Fax (519)-395-4767

Nov.23/01

Ontario Clean Water Agency
P.O. 760
Southampton On.
Att'n. Mr. G. Eagles

Flow Calibration: Port Elgin Water Plant

Dear Gord:

The following is flow calibration check for the water plant.

Raw water flow

Bristol 2408-30B flow meter range - 0 to 38"wc. output - 4 to 20ma.

| Input | Output | |
|-------|--------|-------------------|
| 0 | 4 | |
| 20% | 4.64 | |
| 40% | 6.56 | |
| 70% | 11.84 | |
| 100% | 20 | No changes req'd. |

Flow Integrator 0 to 1800c/hr factor X100

| | |
|-----|-------------------|
| 20% | had 3% high count |
| 80% | had 2% high count |
| 20% | 6c.m |
| 60% | 18c.m |
| 80% | 24c.m |

Treated Water Flow

Bristol 2408-33B flow meter range - 0 to 197.5"wc. output - 4 to 20ma.

| Input | Output | |
|-------|--------|-------------------|
| 0 | 4 | |
| 20% | 7.2 | |
| 40% | 10.4 | |
| 70% | 15.2 | |
| 100% | 20 | No changes req'd. |

Flow Integrator 0 to 1500c/hr factor X100

| | | |
|------|-------|-------------------|
| 20% | 5c/m | |
| 60% | 15c/m | |
| 100% | 25c/m | No changes req'd. |

Yours Truly
Bob Percival
Bruce Control Systems Ltd

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Fax (519)-395-4767

Dec. 21/01

O.C.W.A.
P.O. Box 760, Anglesia St.
Southampton On.
N0H 2L0

Chlorine Residual Meter Check – Port Elgin Water Plant

Free Chlorine

Model – GLI Accu Chlor PC1000P1
Ser. 1239930016
0 to 2 PPM free chlorine
cleaned copper electrode and reset zero
Standardized at .76ppm

Total Chlorine

Model - ProMinent Dulcometer DICAW1C1001Q000E
Ser. 2000053116
Output from the probe was at minimum current/ppm cl
Cleaned and shocked the probe and checked the electrolyte level.
Reset zero
Standardized at .84ppm.

Standardized readings done with a HACH portable chlorine residual meter

Bob Percival
Bruce Control Systems Ltd.



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Dec. 20/01

O.C.W.A.
Anglesia St. N
Southampton On.

Port Elgin Filtration Plant Effluent Turbidity Meter Calibration

Measuring Device: HACH 1720C Turbidity Meter Range: 0 to 2 NTU
Recorder: Honeywell Circular Chart 7 day

| Calibration Point | Actual Reading | Corrected To |
|-------------------|----------------|--------------|
| 0 NTU Solution | .105 NTU | 0.0 NTU |
| 20 NTU Solution | 23.98 NTU | 20.0 NTU |

Recorder operation satisfactory
Meter placed back in operation

Bob Percival
Bruce Control Systems Ltd.

BRUCE CONTROL SYSTEMS LTD.

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Yours Truly
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 Bruce Control Systems Ltd.

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Dec. 20/01

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Southampton On.

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Bob Percival
Bruce Control Systems Ltd.



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