

PETERBOROUGH UTILITIES COMMISSION

ANNUAL REPORT

FOR

LAKEFIELD WATERWORKS

PERIOD: January 1, 2010 – December 31, 2010



MOE Waterworks # 220000488



| | |
|--|---------------------------------------|
| Drinking-Water System Number: | 220000488 |
| Drinking-Water System Name: | Lakefield Water Treatment Plant |
| Drinking-Water System Owner: | Township of Smith-Ennismore-Lakefield |
| Drinking-Water System Category: | WT Class 2 |
| Period being reported: | January 1, 2010 to December 31, 2010 |

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|--|--|
| <p><u>Complete if your Category is Large Municipal Residential or Small Municipal Residential</u></p> <p>Does your Drinking-Water System serve more than 10,000 people? Yes [] No [X]</p> <p>Is your annual report available to the public at no charge on a web site on the Internet? Yes [X] No []</p> <p>Location where Summary Report required under O. Reg. 170/03 Schedule 22 will be available for inspection.</p> <div style="border: 1px solid black; padding: 5px;"> Township of Smith-Ennismore-Lakefield Office 1310 Centerline Intersection of County Road 18 and the Centerline of Smith Township Bridgenorth, ON K0L 1H0 </div> | <p><u>Complete for all other Categories.</u></p> <p>Number of Designated Facilities served: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Designated Facilities you serve? Yes [] No []</p> <p>Number of Interested Authorities you report to: <input style="width: 100px; height: 20px;" type="text"/></p> <p>Did you provide a copy of your annual report to all Interested Authorities you report to for each Designated Facility? Yes [] No []</p> |
|--|--|

Note: For the following tables below, additional rows or columns may be added or an appendix may be attached to the report

List all Drinking-Water Systems (if any), which receive all of their drinking water from your system:

| Drinking Water System Name | Drinking Water System Number |
|----------------------------|------------------------------|
| | |

Did you provide a copy of your annual report to all Drinking-Water System owners that are connected to you and to whom you provide all of its drinking water?

Yes [] No []



Indicate how you notified system users that your annual report is available, and is free of charge.

- Public access/notice via the web
- Public access/notice via Government Office
- Public access/notice via a newspaper
- Public access/notice via Public Request
- Public access/notice via a Public Library
- Public access/notice via other method Bill Stuffer

Describe your Drinking-Water System

The Lakefield Water Treatment Plant and distribution system is operated by Peterborough Utilities Services Inc. under contract with the Township of Smith-Ennismore-Lakefield.

Lakefield municipal water system generally consists of five elements:

1) Raw Water Source

The source of raw (untreated) water for Lakefield’s drinking water is the Otonabee River. The Otonabee River water is of good quality and can be described as a moderately coloured water of low turbidity. The river water temperature ranges from 0°C (winter) to approximately 29°C (summer). The raw river water is a surface water supply, which means that raw water always required full treatment at the Lakefield Water Treatment Plant to make it drinkable or potable.

The river water quality is monitored by staff at the plant as well as the Otonabee Region Conservation Authority (ORCA) and the Peterborough County-City Health Unit (beaches only). The watershed is protected by planning and approvals processes through the Township of Smith-Ennsimore-Lakefield and ORCA. Since 1998, ORCA has monitored water quality in the Otonabee watershed under the Watershed 2000 Program and the Provincial Water Quality Monitoring Network.

2) Water Treatment Plant

The Lakefield plant is located at 13 Water Street North and consists of an intake from the Otonabee River, a low lift pumping system located within the water treatment plant, a treatment plant employing the process of chemical coagulation, ballasted flocculation/sedimentation (Actiflo®), dual media filtration and disinfection. The filters and low lifts have a capacity of 3,700 m³/d. The Actiflo® units have a capacity of 4,500 m³/d. The plant has a two-celled baffled clearwell with a total capacity of 1,000 m³ and a high lift pumping facility discharging to the distribution system. There is a washwater surge tank and a wastewater clarifier to treat all clarifier and filter washwater discharges.



3) Water Storage Tanks & Reservoirs

Treated water is stored at the elevated storage tank on Strickland Street, east of Rolliston Street. Storage is used to supplement supply during times of high water demand and in emergency situations such as firefighting. The water storage capacity in the tank is 900 m³ (effective).

4) Water Pumping Stations

There are two individual pressure zones in Lakefield. Water supply is pumped directly from the highlift pumping facility at the plant to serve most of Lakefield. There is one water booster pumping station at Strickland Street and Rolliston Street which pumps water from the lower pressure zone to the higher pressure zone.

5) Water Distribution Piping System

The water distribution system consists of approximately 22,000 metres of underground pipes (water mains), 110 hydrants and 1,100 individual water services.

List all water treatment chemicals used over this reporting period

Alum (Aluminum Sulphate)
Sodium Hypochlorite (Chlorine)
MagnaFloc LT22S& LT22 Polymer
Caustic Soda 25%
Sodium sulphite dechlorination pucks

Were any significant expenses incurred to?

- Install required equipment
- Repair required equipment
- Replace required equipment

Please provide a brief description and a breakdown of monetary expenses incurred

Provide details on the notices submitted in accordance with subsection 18(1) of the Safe Drinking-Water Act or section 16-4 of Schedule 16 of O.Reg.170/03 and reported to Spills Action Centre

| Incident Date | Parameter | Result | Unit of Measure | Corrective Action | Corrective Action Date |
|---------------|-----------------------------------|--------|-----------------|-------------------|------------------------|
| May 25 | Low Chlorine residual (in plant) | 0.28 | mg/l | Flush & Sample | May 25-26 |



Microbiological testing done under the Schedule 10, 11 or 12 of Regulation 170/03, during this reporting period.

| | Number of Samples | Range of E.Coli Or Fecal Results (min #)-(max #) | Range of Total Coliform Results (min #)-(max #) | Number of HPC Samples | Range of HPC Results (min #)-(max #) |
|--------------|-------------------|--|---|-----------------------|--------------------------------------|
| Raw | 53 | 0-16 | 6-88 | | |
| Treated | 52 | 0 | 0 | 52 | 0-13 |
| Distribution | 260 | 0 | 0 | 104 | 0-63 |

Operational testing done under Schedule 7, 8 or 9 of Regulation 170/03 during the period covered by this Annual Report.

| | Number of Grab Samples | Range of Results (min #)-(max #) |
|---|------------------------|----------------------------------|
| Turbidity | 8760 | 0.08 – 0.38NTU |
| Chlorine | 8760 | 1.31 – 2.83mg/L |
| Fluoride (If the DWS provides fluoridation) | | |

NOTE: For continuous monitors use 8760 as the number of samples.

NOTE: Record the unit of measure if it is not milligrams per litre.

Summary of additional testing and sampling carried out in accordance with the requirement of an approval, order or other legal instrument.

| Date of legal instrument issued | Parameter | Date Sampled | Result | Unit of Measure |
|---------------------------------|--------------------------------|--------------|--------|-----------------|
| Nov 30, 2005 | Suspended Solids waste process | monthly | 15 | mg/L |

Summary of Inorganic parameters tested during this reporting period or the most recent sample results

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|-----------|-------------|--------------|-----------------|------------|
| Antimony | Aug 17 | 0.04 | µg/L | No |
| Arsenic | Aug 17 | 0.4 | µg/L | No |
| Barium | Aug 17 | 30.9 | µg/L | No |
| Boron | Aug 17 | 8.3 | µg/L | No |
| Cadmium | Aug 17 | 0.003<MDL | µg/L | No |
| Chromium | Aug 17 | 0.9 | µg /L | No |
| *Lead | Aug 17 | 0.12 | µg /L | No |
| Mercury | Aug 17 | 0.02<MDL | µg/L | No |



| | | | | |
|-----------------|--------|-------------|------|----|
| Selenium | Aug 17 | 1 < MDL | µg/L | No |
| Sodium | Feb 9 | 14.4 | mg/L | No |
| | May 18 | 14.6 | | |
| | Aug 24 | 16.5 | | |
| | Nov 30 | 5.2 | | |
| Uranium | Aug 17 | 0.013 | µg/L | No |
| Fluoride | Aug 17 | 0.005 < MDL | mg/L | No |
| Nitrite | Feb 9 | 0.005 < MDL | mg/L | No |
| | May 18 | 0.005 < MDL | | |
| | Aug 24 | 0.005 < MDL | | |
| | Nov 30 | 0.005 < MDL | | |
| Nitrate | Feb 9 | 0.105 | mg/L | No |
| | May 18 | 0.050 | | |
| | Aug 24 | 0.046 | | |
| | Nov 30 | 0.027 | | |

*only for drinking water systems testing under Schedule 15.2; this includes large municipal non-residential systems, small municipal non-residential systems, non-municipal seasonal residential systems, large non-municipal non-residential systems, and small non-municipal non-residential systems

Summary of lead testing under Schedule 15.1 during this reporting period

(applicable to the following drinking water systems; large municipal residential systems, small municipal residential systems, and non-municipal year-round residential systems)

| Location Type | Number of Samples | Range of Lead Results (min#) – (max #) | Number of Exceedances |
|---------------------|-------------------|--|-----------------------|
| Plumbing | none | | 0 |
| Distribution | none | | 0 |

Summary of Organic parameters sampled during this reporting period or the most recent sample results

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|---|-------------|--------------|-----------------|------------|
| Alachlor | Aug 17 | 0.02 < MDL | µg/L | No |
| Aldicarb | Aug 17 | 0.01 < MDL | µg/L | No |
| Aldrin + Dieldrin | Aug 17 | 0.01 < MDL | µg/L | No |
| Atrazine + N-dealkylated metabolites | Aug 17 | 0.01 < MDL | µg/L | No |
| Azinphos-methyl | Aug 17 | 0.02 < MDL | µg/L | No |
| Bendiocarb | Aug 17 | 0.01 < MDL | µg/L | No |
| Benzene | Aug 17 | 0.32 < MDL | µg/L | No |
| Benzo(a)pyrene | Aug 17 | 0.004 < MDL | µg/L | No |
| Bromoxynil | Aug 17 | 0.33 < MDL | µg/L | No |
| Carbaryl | Aug 17 | 0.01 < MDL | µg/L | No |
| Carbofuran | Aug 17 | 0.01 < MDL | µg/L | No |

| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|---|-------------|--------------|-----------------|------------|
| Carbon Tetrachloride | Aug 17 | 0.16<MDL | µg/L | No |
| Chlordane (Total) | Aug 17 | 0.01<MDL | µg/L | No |
| Chlorpyrifos | Aug 17 | 0.02<MDL | µg/L | No |
| Cyanazine | Aug 17 | 0.03<MDL | µg/L | No |
| Diazinon | Aug 17 | 0.02<MDL | µg/L | No |
| Dicamba | Aug 17 | 0.20<MDL | µg/L | No |
| 1,2-Dichlorobenzene | Aug 17 | 0.41<MDL | µg/L | No |
| 1,4-Dichlorobenzene | Aug 17 | 0.36<MDL | µg/L | No |
| Dichlorodiphenyltrichloroethane (DDT) + metabolites | Aug 17 | 0.01<MDL | µg/L | No |
| 1,2-Dichloroethane | Aug 17 | 0.35<MDL | µg/L | No |
| 1,1-Dichloroethylene (vinylidene chloride) | Aug 17 | 0.33<MDL | µg/L | No |
| Dichloromethane | Aug 17 | 0.35<MDL | µg/L | No |
| 2-4 Dichlorophenol | Aug 17 | 0.15<MDL | µg/L | No |
| 2,4-Dichlorophenoxy acetic acid (2,4-D) | Aug 17 | 0.19<MDL | µg/L | No |
| Diclofop-methyl | Aug 17 | 0.40<MDL | µg/L | No |
| Dimethoate | Aug 17 | 0.03<MDL | µg/L | No |
| Dinoseb | Aug 17 | 0.36<MDL | µg/L | No |
| Diquat | Aug 17 | 1<MDL | µg/L | No |
| Diuron | Aug 17 | 0.03<MDL | µg/L | No |
| Glyphosate | Aug 17 | 6<MDL | µg/L | No |
| Heptachlor + Heptachlor Epoxide | Aug 17 | 0.01<MDL | µg/L | No |
| Lindane (Total) | Aug 17 | 0.01<MDL | µg/L | No |
| Malathion | Aug 17 | 0.02<MDL | µg/L | No |
| Methoxychlor | Aug 17 | 0.01<MDL | µg/L | No |
| Metolachlor | Aug 17 | 0.01<MDL | µg/L | No |
| Metribuzin | Aug 17 | 0.02<MDL | µg/L | No |
| Monochlorobenzene | Aug 17 | 0.30<MDL | µg/L | No |
| Paraquat | Aug 17 | 1<MDL | µg/L | No |
| Parathion | Aug 17 | 0.02<MDL | µg/L | No |
| Pentachlorophenol | Aug 17 | 0.15<MDL | µg/L | No |
| Phorate | Aug 17 | 0.01<MDL | µg/L | No |
| Picloram | Aug 17 | 0.25<MDL | µg/L | No |
| Polychlorinated Biphenyls(PCB) | Aug 17 | 0.04<MDL | µg/L | No |
| Prometryne | Aug 17 | 0.03<MDL | µg/L | No |
| Simazine | Aug 17 | 0.01<MDL | µg/L | No |
| THM (NOTE: show latest annual average) | Aug 17 | 71 | µg/L | No |
| Temephos | Aug 17 | 0.01<MDL | µg/L | No |
| Terbufos | Aug 17 | 0.01<MDL | µg/L | No |
| Tetrachloroethylene | Aug 17 | 0.35<MDL | µg/L | No |



| Parameter | Sample Date | Result Value | Unit of Measure | Exceedance |
|--|-------------|--------------|-----------------|------------|
| 2,3,4,6-Tetrachlorophenol | Aug 17 | 0.14<MDL | µg/L | No |
| Triallate | Aug 17 | 0.01<MDL | µg/L | No |
| Trichloroethylene | Aug 17 | 0.43<MDL | µg/L | No |
| 2,4,6-Trichlorophenol | Aug 17 | 0.25<MDL | µg/L | No |
| 2,4,5-Trichlorophenoxy acetic acid (2,4,5-T) | Aug 17 | 0.22<MDL | µg/L | No |
| Trifluralin | Aug 17 | 0.02<MDL | µg/L | No |
| Vinyl Chloride | Aug 17 | 0.17<MDL | µg/L | No |

List any Inorganic or Organic parameter(s) that exceeded half the standard prescribed in Schedule 2 of Ontario Drinking Water Quality Standards.

| Parameter | Result Value | Unit of Measure | Date of Sample |
|---------------|--------------|-----------------|----------------|
| Sodium | 14.4 | mg/L | Feb 9 |
| | 14.6 | | May 18 |
| | 16.5 | | Aug 24 |
| | 5.2 | | Nov 30 |
| | | | |