



WELL WATER MANAGEMENT PLAN

*September, 2000
Revised: September 2005*

TABLE OF CONTENTS

	Page
1.0 Scope	1
2.0 Introduction	1
3.0 Responsibilities	2
Appendix 1 Schools/Facilities Under Ontario Regulation 170/03	3
Appendix 2 Well Head Inspection	4
Appendix 3 UV and Chlorinator Maintenance	5
Appendix 4 Internal Adverse Water Result Procedure	7
Appendix 5 Adverse Water Result - Notification Procedure	9
Appendix 6 Internal Procedure - UV Malfunction	11
Appendix 7 Treatment System - Schematic	12

1.0 SCOPE

This procedure applies to schools and facilities owned or operated by the Durham District School Board to which the Ministry of Environment Drinking Water Systems Regulation (Ontario Regulation 170/03) under the Safe Drinking Water Act applies.

These facilities are served by a water system defined by the Ministry of Environment as ***Small Non-Municipal Non-Residential*** i.e., a system that is not capable of producing 2.9 L of drinking water per second (250,000 L/day).

2.0 INTRODUCTION

The Durham District School Board is committed in providing a healthy and safe environment for its staff and students. Well water safety is one example of this commitment.

Historically, well water safety was provided with chlorination and a testing program administered by the Durham Region Health Department. In 2000, these measures were augmented with enhanced sampling/monitoring, a notification protocol, and training.

This plan is fully compliant with the new Ministry of Environment Drinking Water Systems Regulation (Ontario Regulation 170/03).

3.0 RESPONSIBILITIES

Ontario Regulation 170/03 contains 16 sections and 24 schedules. The sections and schedules that apply directly to the Durham District School Board and the department responsible for compliance is listed below.

Section/Schedule	Description	Departmental Responsibilities
<i>Maintenance Department</i>		
Schedule 2	Treatment Equipment	Installation and maintenance of wells and disinfection systems. Note: Please refer to Appendix 2 & 3 for Bi-Annual Well Head Inspection and Bi-Annual UV and Chlorinator Maintenance.
<i>Health & Safety Department</i>		
Schedule 21	Engineering Evaluation Reports/Notice of Compliance	For new and existing systems.
Schedule 15	Chemical Sampling	Annual sampling.
Schedule 16	Notice of Problems	Adverse Water Notification.
Schedule 18	Corrective Action	As prescribed.
Section 13	Retention of Documents	As prescribed.
Section 12	Information to be available	All prescribed reports.
Section 11	Annual Report	As prescribed.
Section 1	Certification Training - Newly Allocated Custodians/Outdoor Education Facilitators	Arrange for a MOE approved training course upon notification from Manager of Custodial Services
<i>Chief Custodian</i>		
O.Reg. 173/03	Weekly Flushing	Monday flush and log.
Schedule 9	Operational Checks	Weekly equipment check and log (Operational procedures to ensure compliance posted at each treatment site).
<i>Custodial Supervisor</i>		
Schedule 12	Microbiological Sampling	Bi-weekly distribution microbiological. Monthly raw microbiological.
Section 1	Training - Operation of Treatment Equipment	Review operation of treatment system with new Chief Custodians/Outdoor Education Facilitators
<i>Manager of Custodial Services</i>		
Section 1	Training of new Custodians	Notify Health & Safety of new custodian allocation.

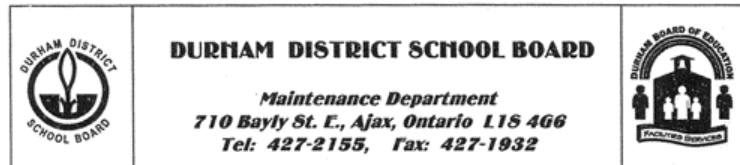
SCHOOLS/FACILITIES UNDER ONTARIO REGULATION 170/03

Schools

- | | | |
|----------------------------------------------------------------------------|----------------------|-----------------------|
| É Claremont P.S. | É Epsom P.S. | É Goodwood P.S. |
| É McCaskills Mills (Rural)
P.S.
(Note: Transported
water) | É Scott Central P.S. | É Thorah Central P.S. |
| É Valley View P.S. | | |

Outdoor Environmental Education Facilities

- É Nonquon - Pheasant
Pen
**(Note: Transported
water)**
- É Nonquon - David Carrol
Room
- É Duffins Creek
- É Durham Forest



BI-ANNUAL WELL HEAD INSPECTION

School Name: _____ School No. _____

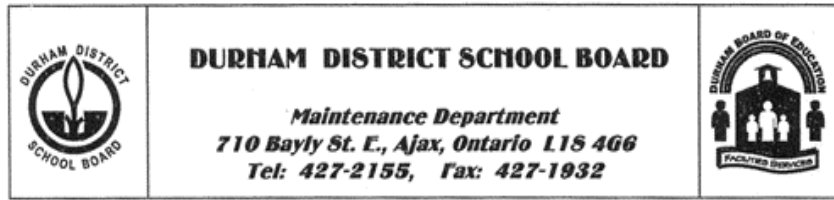
Township: _____

Date: _____ Inspected By: _____

Well Location: _____

T	Well Inspection Checklist
9	The sanitary well seal or well cap is securely in place and water tight.
9	No openings have developed in the well casing due to corrosion or other damage which could allow surface water or debris to enter the well.
9	The annular space around the well casing is filled with cement grout, concrete, bentonite or other suitable material to prevent water from seeping around the casing into the well.
9	The surface water drainage near the well flows away from the well.
9	The sanitary well seal or well cap is at least 30 cm (1 foot) above the ground surface and the well casing is not cut off or buried.
9	The air vent is not obstructed.
9	The discharge line is properly sealed at the well casing.
9	The pit is properly sealed and drained.
9	Debris is not floating on the surface of the well water.
9	The well is not located near a source of potential pollution (i.e., garbage, chemicals, salt, septic systems, gasoline, compost, recycling, etc.).
9	The pump has been maintained as per owners manual.
9	No wires are exposed or frayed or allowed to be submerged in water.
Comments:	

Note: Checklist adopted from *Small Seasonal Drinking Water Systems: A Correspondence Course For Campground and Resort Operators*, Ontario Ministry of the Environment, January 1998.



BI-ANNUAL UV AND CHLORINATOR MAINTENANCE

SCHOOL NAME: _____

SCHOOL NUMBER: _____

SCHOOL ADDRESS: _____

9 Dug 9 Bored 9 Drilled

Summer Cleaning 9 (Must replace UV Lights)

Winter Cleaning 9

UV Light Information

Chlorinator Information

Make: _____

Make: _____

Model: _____

Model: _____

Voltage: _____

Voltage: _____

Capacity: _____

Capacity: _____

Pre-Filter Size: _____

Solution Tank: _____

Pre-Filter Model: _____

Filter Housing: _____

Inspected By: _____

Please Print

Signature

Date Completed _____

DD/MM/YY

Hours of Operation

Comments: _____

BI-ANNUAL UV AND CHLORINATOR MAINTENANCE**UV Check List**

<u>Parts Serviced</u>	<u>Cleaned</u>	<u>Replaced</u>	<u>Checked</u>	<u>Tested</u>	<u>Comments</u>
UV Intensity Before Service					
General Appearance					
UV Bulb					
UV Sensor					
Quartz Sleeve					
O Ring Seals					
Audible Alarm					
Visual Alarm					
Reactor Chamber					
5 micron Cartridge					
Filter Housing					
Housing Gasket					
UV Intensity After Service					
DAQ Recorder					
Meter Reading on UV Panel					

Chlorine Check List

<u>Parts Serviced</u>	<u>Cleaned</u>	<u>Replaced</u>	<u>Checked</u>	<u>Tested</u>	<u>Comments</u>
Solution Tank					
Chlorinator					
Lower Check Valve					
Upper Check Valve					
Foot Valve					
Injector Valve					
Injection Point At Water Main					
Suction Line					
Discharge Line					
Pump Head					
Pump Diaphragm					
Test Kit					
DPD Free Chlorine Reagent					
Chlorine Adjustment					
Chlorine Reading					

INTERNAL ADVERSE WATER RESULT PROCEDURE

1. Adverse Water Result - Regular Maintenance Hours

a) Heterotrophic Plate Count, Total Coliform

- Health and Safety receives notification from Regional Lab
- Health and Safety contacts Maintenance
- Maintenance makes arrangements for plumber to inspect equipment and superchlorinate the system (after school dismissal)
- Plumber reports back to Health and Safety who will conduct the resample

b) E. Coli

- Health and Safety receives notification from Regional Lab
- Health and Safety informs school to stop water use
- Health and Safety contacts Maintenance
- Maintenance makes arrangements for plumber to inspect equipment and superchlorinate immediately. Maintenance makes arrangements for bottled water through a local supplier (coolers available at the pumphouses of Durham Forest and Nonquon David Carrol). "Unsafe Drinking Water" posters, supplied by the Ministry of the Environment, will also be stored in the pumphouse of Nonquon and David Carrol. These posters are to be displayed in prominent locations where they can be seen by those using the water (i.e. drinking fountains).
- Plumber reports back to Health and Safety who will conduct the resample
- Health and Safety, in consultation with Durham Region Health Department, will notify the school to resume water consumption.

2. Adverse Water Result - After Maintenance Hours

a) Heterotrophic Plate Count, Total Coliform

- Health and Safety receives notification from Regional Lab
- Health and Safety contacts Monitoring Station (888) 264-1224 or (905) 665-8932
- Monitoring station contacts plumber directly and arranges for superchlorination and inspection of the equipment
- Plumber reports back to Health and Safety who will conduct the resample.

b) E. Coli

- Health and Safety receives notification from Regional Lab

- Health and Safety contacts Monitoring Station (888) 264-1224 or (905) 665-8932
- Monitoring Station contacts plumber and arranges for superchlorination and inspection of equipment
- Health and Safety instructs school not to consume drinking water; arrangements for bottled water are made through a local supplier (coolers available at the pumphouses Durham Forest and Nonquon David Carrol Room). "Unsafe Drinking Water" posters, supplied by the Ministry of the Environment, will also be stored in the pumphouse of Nonquon and David Carrol. These posters are to be displayed in prominent locations where they can be seen by those using the water (i.e., drinking fountains)
- Plumber reports back to Health and Safety who will conduct the resample
- Health and Safety, in consultation with Durham Region Health Department, will notify the school to resume water consumption.

ADVERSE WATER RESULT - NOTIFICATION PROCEDURE

The following notification must be made in the event of adverse water quality.

Indicators of adverse water quality include and other problems include:

- A result that exceeds any of the standards listed in Schedules 1, 2, or 3 of the Ontario Drinking-Water Quality Standards Regulation (O. Reg. 169/03);
- A result indicating the presence of *Aeromonas* spp., *Pseudomonas aeruginosa*, *Staphylococcus aureus*, *Clostridium* spp., or fecal *streptococci* in a sample of drinking water;
- A pesticide NOT listed in Schedule 2 is detected in a sample of drinking water;
- Sodium concentration exceeds 20 mg/mL (Note: Notification is only required once every 5 years);
- Fluoride concentration exceeds 1.5 mg/L (Note: Notification is only required once every 5 years);
- Any observation that indicates that drinking water is not being properly disinfected.

1. Immediately notify the following by speaking to a “live person”:

- a) Health Department, *after hours leave a message with the emergency line*
- b) MOE Spills Action Centre
- c) School Principal or O.E.E.C. Facilitator

Refer to Ontario Regulation 170/03 (Schedule 18) for the appropriate corrective action.

2. Within 24 hours of giving the immediate verbal notice, deliver a written notice using the provided form “Written Notice of Adverse Test Results and Other Problems” (Section 2a) subject to O. Reg. 170/03. Send written notice to:

- a) Health Department
- b) MOE Spill Action Centre
- c) School Principal or O.E.E.C. Facilitator
- d) Ministry of Education

3. Within 7 days of resolving the issue that gave rise to the first notice, deliver a written notice summarizing the action taken and the results achieved. Use the provided form “Written Notice of Adverse Test Results and Other Problems” (Section 2b) subject to O.Reg. 170/03. Send written notice to:

- a) Health Department

- b) MOE Spill Action Centre and local MOE office
- c) School Principal or O.E.E.C. Facilitator

4. Deliver, within 30 days, a follow-up written notice summarizing the action taken and results achieved to the Ministry of Education.

INTERNAL PROCEDURE - UV MALFUNCTION

1. **UV Alarm - Regular Maintenance Hours**

- UV alarms at 50%
- Well pump will shut off (non disinfected water is not directed to users)
- If alarm is not false (e.g., brief power outage), Monitoring Station contacts Maintenance. Maintenance arranges for a plumber to inspect and repair equipment (Note: Plumber must be on site within 4 hours)
- Plumber reports back to maintenance if equipment cannot immediately be repaired

2. **UV Alarm - After Maintenance Hours**

- UV alarms at 50%
- Well pump will shut off (non disinfected water is not directed to users)
- Monitoring Station contacts plumber and arranges for inspection of equipment (Note: Plumber must be on site within 4 hours)
- Plumber reports back to Maintenance if equipment cannot be immediately repaired

NOTE: Contact Monitoring Station prior to routine cleaning of UV systems.

TYPICAL POTABLE WATER TREATMENT SYSTEM - SCHEMATIC

