

Ministry of the Environment

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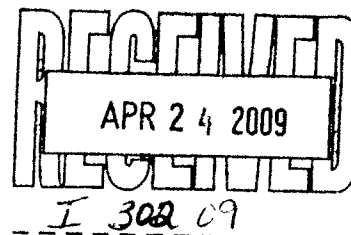
Ministère de l'Environnement

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April 22, 2009

The Corporation of the Town of Laurentian Hills
34465 Highway 17
Laurentian Hills, Ontario, K0J 1P0
Canada



Attention: Mr. Wayne Kirby, AMCT, CAO-Clerk

Dear Mr. Kirby;

RE: Chalk River Sewage Treatment Plant, 7 Blimpke St
Laurentian Hills, County of Renfrew

Reference Number 5702-7DKH6R

Please find enclosed a copy of the annual inspection report for the above facility. The plant met all its approved discharge criteria for 2008. There continues to be a problem with high flows into the plant with design criteria exceedences in May, June and August.

Disinfection was not effective in 2008. While the Certificate of Approval is silent on the subject of disinfection, Ministry policy F-5-1 suggests the minimum treatment requirements for E.coli. are a monthly geometric mean of 200 E.coli per 100 mL. According to Condition 15.0 of the Certificate of Approval, biweekly grab samples must be taken of the raw and treated sewage and analysed for fecal and total coliforms.

Please note the requirements of Section 5.0 of the report. We request the Township submit a report by May 31, 2009 on how the requirements of Section 5.0 will be met. If you have any questions, please do not hesitate to call.

Yours truly,

Bryan Dickman
Senior Environmental Officer
Ottawa District Office



Communal Sewage Inspection Report

Client:	The Corporation of the Town of Laurentian Hills Mailing Address: 34465 Highway 17, Rural Route, 1, Laurentian Hills, Ontario, Canada, K0J 1P0 Physical Address: 34465 Highway 17, Deep River, Town, County of Renfrew, Ontario, Canada, K0J 1P0 Telephone: (613)585-3114, FAX: (613)584-3285 Client #: 8438-4M7R7C, Client Type: Municipal Government		
Inspection Site Address:	Chalk River Sewage Treatment Plant Address: 7 Blimpke St, Laurentian Hills, Town, County of Renfrew, K0J 1J0 District Office: Ottawa GeoReference:		
Contact Name:	Dave Ethier	Title:	Chief Operator
Contact Telephone:	(613)589-2161 ext	Contact Fax:	(613)589-2158
Last Inspection Date:	2008/02/21		
Inspection Start Date:	2009/02/11	Inspection Finish Date:	2009/03/05
Region:	Eastern		

1.0 INTRODUCTION

This inspection was for the purpose of assessing compliance with those aspects of applicable Regulations, policies, standards, Permits, Approvals, and Orders that directly pertain to human health or the environment, as they pertain to effluent quality and sludge disposal. Available data and other information, including certificates of approval for both the works, the sludge hauler and the sludge disposal site, were reviewed for the period of time since the date of the last inspection. The inspection included a field visit to the sewage treatment plant during which the process was viewed to assess odour generation and physical characteristics of the effluent. A sample of the final effluent was obtained for standard analyses but a field measurement for total chlorine residual was not obtained on site. The plant operator was interviewed to determine his overall perception as to how the plant was operating. Notable changes to the physical plant were also noted to later determine whether additional approvals were necessary.

The plant consists of a circular 'Ecodyne' package sewage treatment plant. The plant can be operated in two different modes: extended aeration for flows less than 363 m³/day and contact stabilization mode for greater flows up to a capacity of 545 m³/day.

The system has the following components:

Pumping Stations - there are two pumping stations in the system, one off the plant property. Both stations are fitted with variable speed pumps.

Sewage Treatment Plant - the plant consists of a manually cleaned inclined bar screen, twin grit channels, a comminutor and tankage consisting of an aeration/re-aeration tank, aerated digester, sludge holding tank, sludge settling tank and chlorine contact tank.

1.1 AUTHORIZING AND CONTROL DOCUMENT INFORMATION

Authorizing/Control Document	Number	Issue Date	Effluent Limits (yes/no)	Effluent Monitoring Requirements (yes/no)	Effluent Reporting Requirements (yes/no)
Certificate of Approval (Sewage)	52/5/134	1972/07/27	No	No	No
Certificate of Approval	3-0210-87-896	1989/07/21	Yes	Yes	Yes

(Sewage)					
Certificate of Approval (Sewage)	3-0210-87-896	1991/10/17	No	No	No

The plant was first approved in 1972, and modified in 1989. The approval issued in 1989 was for modifications to the existing Chalk River Water Pollution Control Plan in order to treat an average daily

sewage flow of 363 m³/d when operating in an extended aeration mode and an average daily flow of

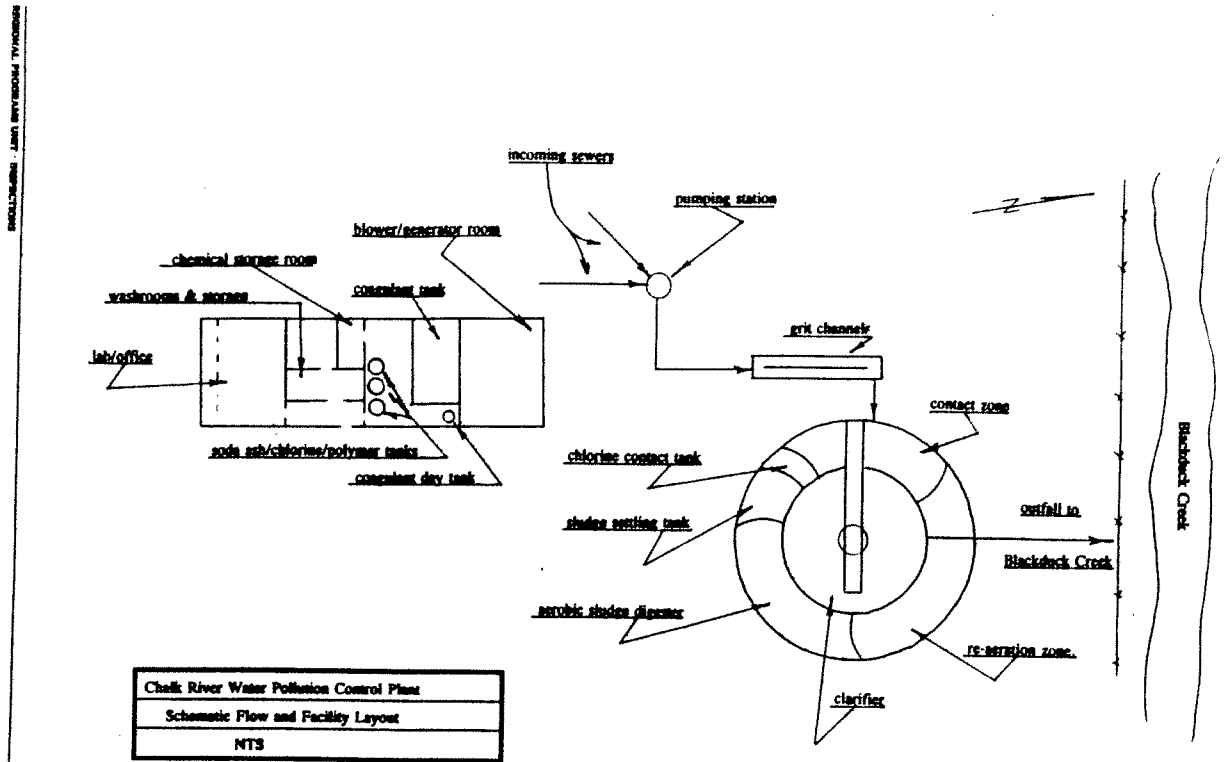
545 m³/d when operating in a contact stabilization mode. The approval allowed the following:

- the installation of seventy-two (72) new coarse bubble air diffusers complete with eighteen (18) header assemblies and new air header piping;
- the installation of two (2) new submersible sewage pumps in main sewage pumping station each rated at 22.7 L/s at a TDH of 12.2 m, including modifications to the pump control system to allow for variable speed pump operation;
- replacement of the existing comminutor with a new unit rated at 53 L/s, complete with an enclosure;
- replacement of the existing scum arm on the final clarifier with a new unit and the replacement and relocation of the scum box;
- the enlargement of all compartmental gates to 300 mm diameter;
- the replacement and extension of the influent trough;
- the relocation of the catwalk;
- the installation of a new submersible sludge pump rated at 5.7 L/s at a TDH of 4.6 m, including installation of a flexible suction hose;
- four (4) variable speed chemical pumps rated as follows:
 - i) alum pump - 45 L/d
 - ii) polyelectrolyte pump - 400 L/d
 - iii) sodium carbonate pump - 35 L/d
 - iv) hypochlorite pump - 140 L/d;
- one (1) FRP 10 m³ alum storage tank
- one(1) FRP 350 L alum day tank;

including interconnecting piping, valves, appurtenances, associated equipment and instrumentation.

The notice issued in 1991 changed the use of the word alum in the original approval to coagulant so that the plant operator had the flexibility to use coagulants other than alum to achieve acceptable effluent

quality under seasonally changing process conditions.



Chalk River Water Pollution Control Plant
Schematic Flow and Facility Layout
NTS

Figure 2

2.0 INSPECTION OBSERVATIONS
Sewage Treatment Plant

Sewage Works Number:
Certificate of Approval Number(s)
C of A Number(s):
Plant Ownership:
Operating Authority:

110001589
● Yes ○ No
See above
● Munc. ○ OCWA ○ Other
○ Munc. ○ OCWA ● Other

Please specify: American Water Services Canada
930

Service Population:
Wastewater Collection System:
Certificate of Approval Number(s):
C of A Number(s):
Collection System Ownership:
Operating Authority:

● Yes ○ No
WWC Certification #534, Class 2 December 14, 1987
● Munc. ○ OCWA ○ Other
☒ Munc. ☐ OCWA ☐ Other

2.1 SYSTEM DESCRIPTION

Type Of Plant

Primary:
Secondary:
Advanced:

○ Yes ● No
● Yes ○ No

Biological Treatment: Yes No

Lagoon(s): Yes No

Other: Yes No

Describe: Conventional AS
 Contact Stabilization
 Extended Air Rotating Biological Contactor
 Package plant capable of operating in extended aeration or contact stabilization modes.
 Communal Septic
 Constructed Wetland
 Snowfluent
 Other

Effluent Discharge Frequency Seasonal:
 Continuous:
 Annual:
 No Direct Discharge:

Does the Plant Practice Phosphorous Removal? Yes No

Effluent Disposal Method Surface Water
 Surface Land Disposal
 Subsurface

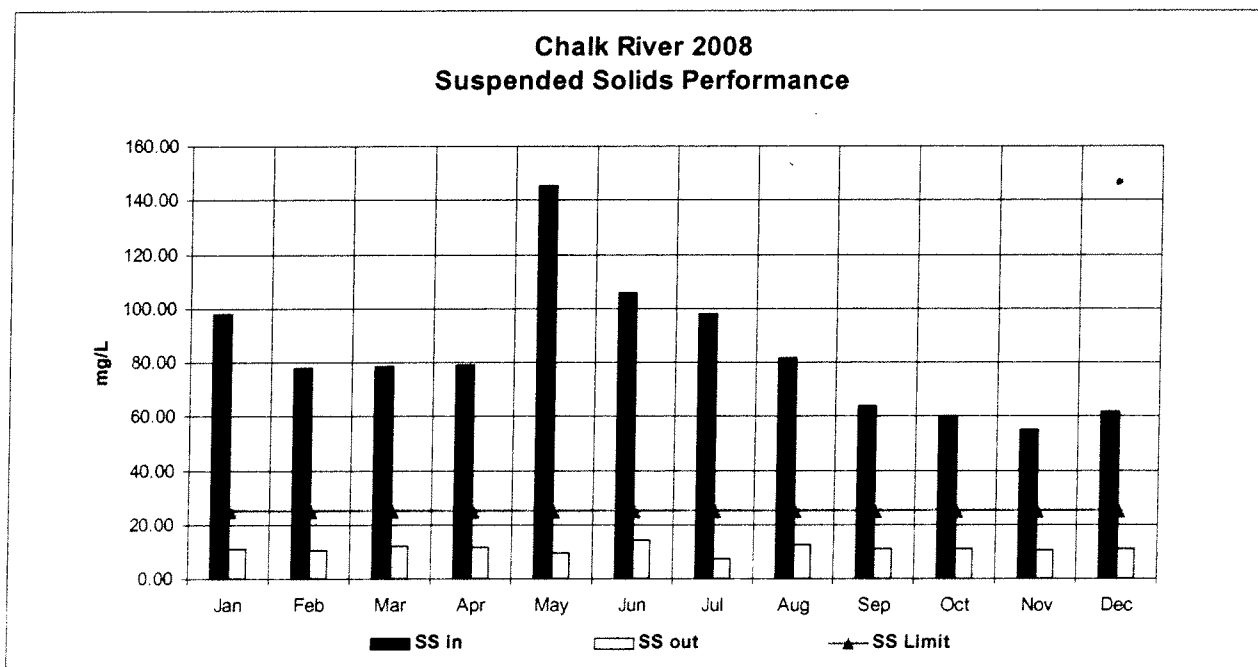
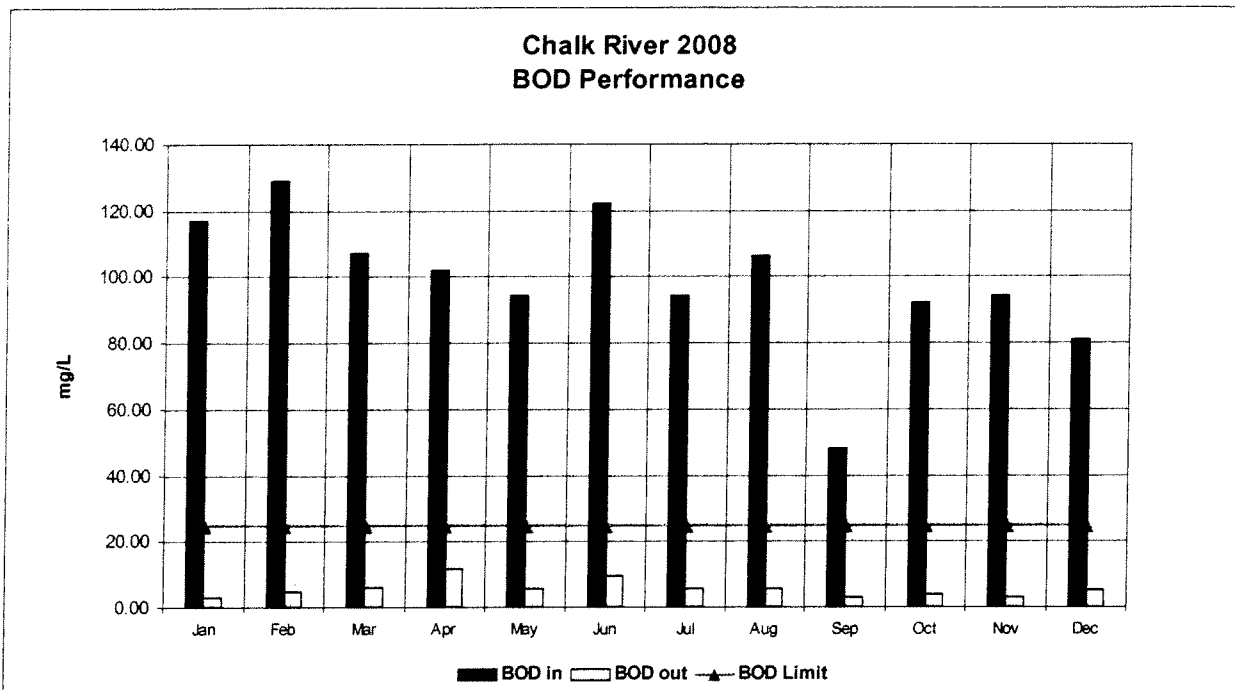
If disposal is to surface water, name of immediate receiving stream: Blackduck Creek

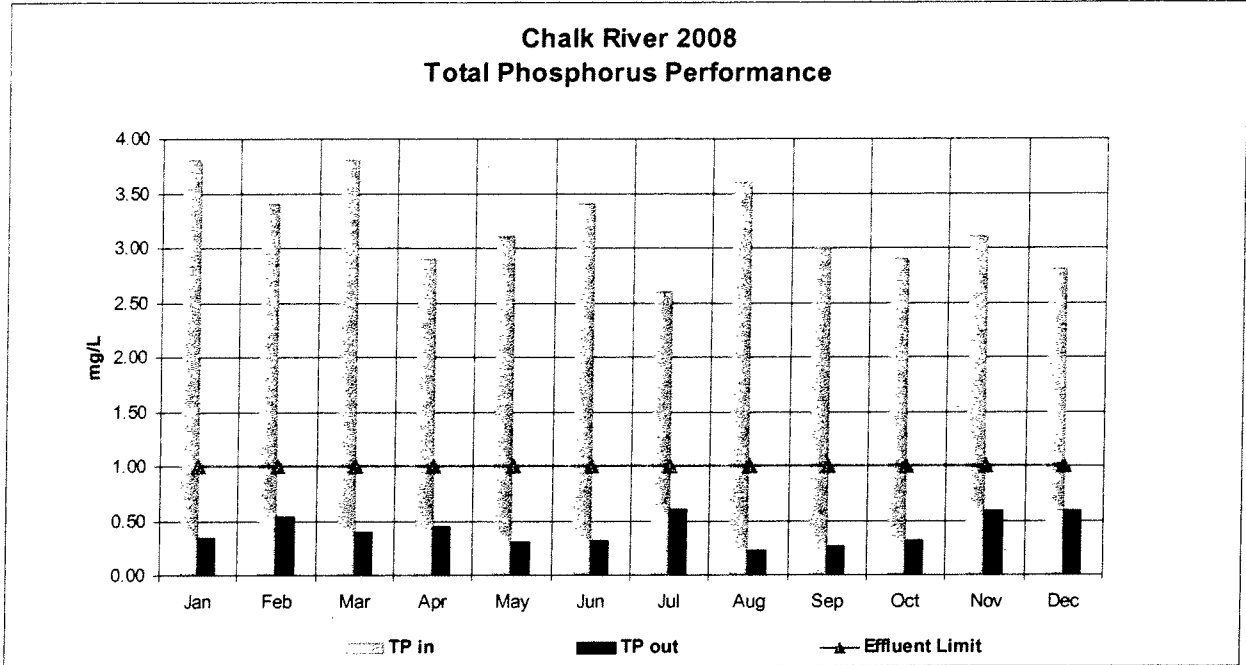
2.2 EFFLUENT QUALITY ASSESSMENT

Parameter	Year 1 2006	Year 2 2007	Year 3 2008	Limits
BOD5 (mg/l)	6.9	5.6	5.5	25
Suspended Solids (mg/l)	11.4	10.4	11	25
Total Phosphorus (mg/l)	0.42	0.63	0.60	1.0

Limits are based on: Certificate of Approval
 PO Order
 Director's Order
 Guidelines

Does the facility comply with its limits Yes

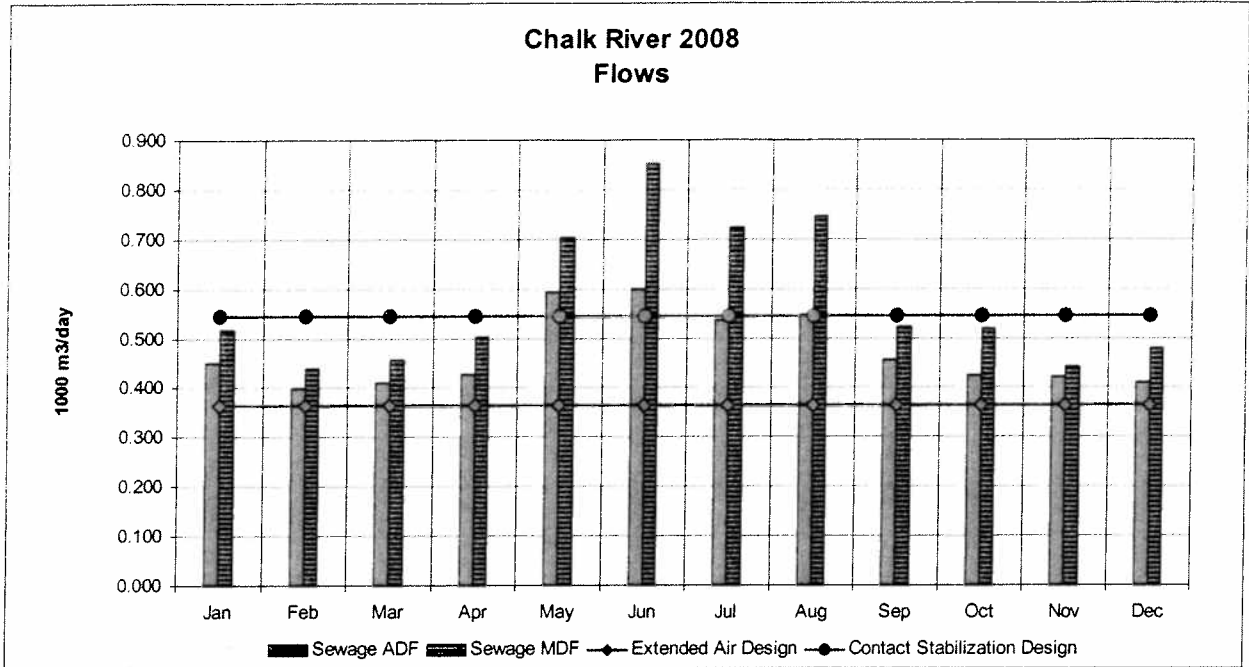




The plant met all discharge criteria in the Certificate of Approval.

2.3 CAPACITY ASSESSMENT

Item	Year 1 2006	Year 2 2007	Year 3 2008
Average daily flow (m ³ /day)	510.00	458.00	472.00
Maximum daily flow (m ³ /day)	749.00	552.00	850.00
Capacity Design (m ³ /day)	545.00	545.00	545.00
% of capacity, based on average daily flow	93.58	84.04	86.61



Flows near plant capacity continues to be an issue with the Chalk River sewage system. The plant ran at 84% capacity through 2007, down from over 93% in 2006 which was an exceptionally wet year.

In 2008, the plant exceeded the contact stabilization design flow in May, June and August.

The municipality must continue to reduce flows into the sewage collection system.

2.4 EFFLUENT SAMPLING REQUIREMENTS

Sampling requirements are based on : Certificate of Approval
 Does the plant meet the sampling requirements? Yes

2.5 EFFLUENT REPORTING REQUIREMENTS

Reporting Requirements are based on :Certificate of Approval

Does the plant meet the effluent reporting requirement? Yes

2.6 MINISTRY SAMPLING AT TIME OF INSPECTION

Were Ministry samples collected at the time of inspection Yes

Sample Locations and Analyses: Grab sample- Effluent - Phys/Chem, Grab sample - Effluent - Metals, Grab sample - Effluent - Bacteriological

Parameter Name	Value	Units	Qual
Mercury	0.02	ug/L	<=W
Aluminium	0.955	mg/L	
Barium	0.033	mg/L	
Beryllium	0.001	mg/L	<=W
Cadmium	0.001	mg/L	<=W
Cobalt	0.001	mg/L	<=W
Chromium	0.020	mg/L	

Copper		0.090	mg/L	
Iron		0.191	mg/L	
Lead		0.005	mg/L	<=W
Magnesium	2.64		mg/L	
Manganese	0.056		mg/L	
Molybdenum		0.005	mg/L	<=W
Nickel		0.014	mg/L	<=T
Silver		0.003	mg/L	<=W
Strontium		0.081	mg/L	
Titanium		0.004	mg/L	<=T
Vanadium	0.001		mg/L	<=W
Zinc		0.048	mg/L	
Calcium		11.6	mg/L	
Sodium		43.7	mg/L	
Potassium	7.80		mg/L	
Oxygen demand; BOD carbonaceous	1.80		mg/L	
Solids; suspended	6.40		mg/L	
Arsenic		.0005	mg/L	<=W
Selenium		.0005	mg/L	<=W
Nitrogen; nitrite		0.950	mg/L	
Nitrogen; nitrate+nitrite		8.13	mg/L	
Nitrogen; ammonia+ammonium	0.78		mg/L	
Phosphorus; phosphate		0.36	mg/L	
Nitrogen; total Kjeldahl		1.85	mg/L	
Phosphorus; total		0.51	mg/L	
Escherichia coli		-	c/100mL	

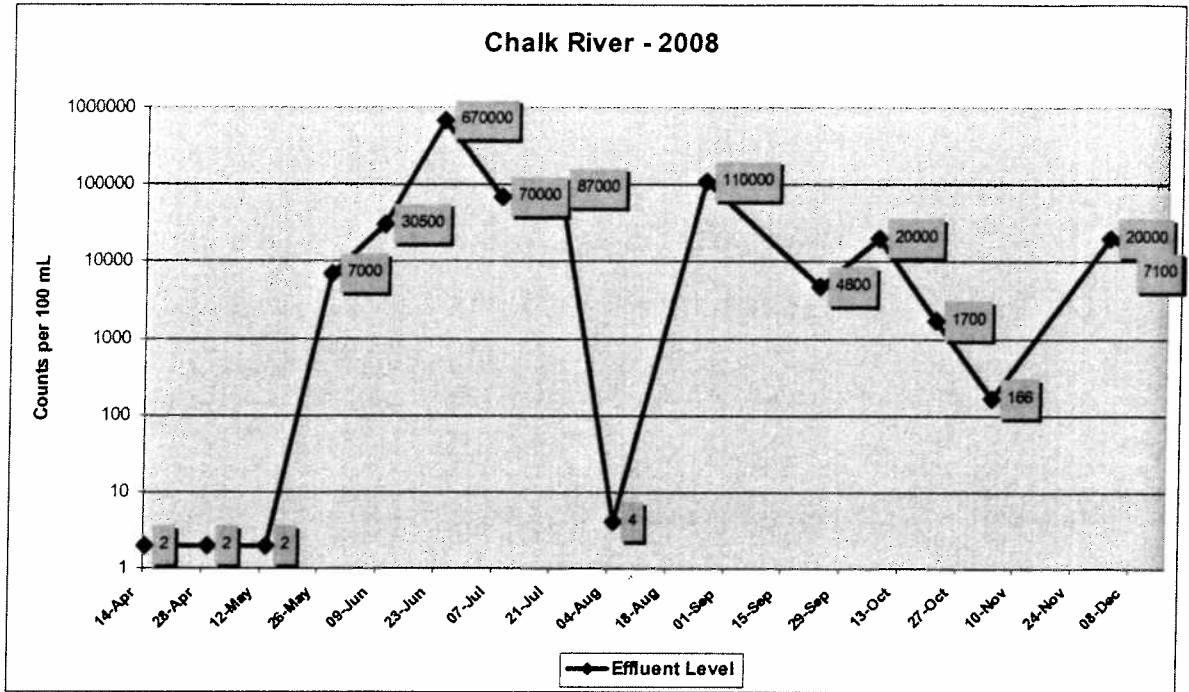
<=T A measurable trace amount: interpret with caution

<=W No measurable response (zero)

2.7 DISINFECTION

- | | |
|--|--------------|
| a) Method of disinfection: | Chlorination |
| b) Disinfection Period | Continuous |
| c) Comment on the seasonal disinfection period for each year | |
| d) Disinfection Required By: | Not required |
| e) Residual monitoring technique: | Autoanalyser |
| f) Was there a measurable chlorine residual in the final effluent after contact: | Not obtained |

The certificate of approval is silent on the subject of disinfection. According to Condition 15.0 of the Certificate of Approval, biweekly grab samples must be taken of the raw and treated sewage and analysed for fecal and total coliforms. Ministry policy F-5-1 suggests the minimum treatment requirements for E.coli. are a monthly geometric mean of 200 E.coli per 100 mL.



2.8 PLANT CLASSIFICATION & OPERATOR CERTIFICATION

- a) Plant classification:
 - i) Facility Level: Level II
 - ii) Certificate Number: 533
 - iii) Date of Issue: 1987/12/14
- b) Plant operators have the appropriate level of certification for this plant Yes No

2.9 FLOW MEASUREMENT

- a) Flows are being metered at: Final effluent
- b) Date of last calibration of effluent flow meter:

Date of calibration will be provided in the annual report.

2.10 BYPASSES, AND/OR OVERFLOWS

- Are bypasses and overflows routinely reported? Plant Yes No Collection System Yes No
- Are bypasses and overflows routinely monitored? Yes No Yes No
- Are bypasses and overflows routinely sampled? Yes No Yes No

PLANT INFORMATION:

Item	Plant Bypass			Plant Overflow		
	Year 1 2006	Year 2 2007	Year 3 2008	Year 1 2006	Year 2 2007	Year 3 2008
Total number of events?	NA	NA	NA	NA	NA	NA
Total duration of event(s)? (Hour(s))						
Of the total number of events, how many are dry-weather events?						
Total quantity with no treatment? (1000 m ³)						
Total quantity with only disinfection? (1000 m ³)						
Total quantity with primary treatment? (1000 m ³)						

Total quantity with primary treatment and disinfection? (1000 m ³)					
Total quantity with other treatment? (1000 m ³)					
Total quantity with other treatment and disinfection? (1000 m ³)					
What is the most common reason for event(s)?					
What is the name of the receiving water?					
Name the most important type of sensitive receptor?					
What is the approximate distance to the sensitive receptor? (km)					

COLLECTION SYSTEM INFORMATION: (Satellite(s), Lift Station(s) and Regulator(s))

Item	Lift Station Overflow			Other Location Overflow		
	Year 1 2006	Year 2 2007	Year 3 2008	Year 1 2006	Year 2 2007	Year 3 2008
Total number of events?	NA	NA	NA	NA	NA	NA
Total duration of event(s)? (Hour(s))						
Of the total number of events, how many are dry-weather events?						
Total quantity with no treatment? (1000 m ³)						
Total quantity with only disinfection? (1000 m ³)						
Total quantity with other treatment? (1000 m ³)						
Are any overflow(s) at combined sewer locations? (Yes/No)						
What is the most common reason for event(s)?						
What is the name of the receiving water?						
Name the most important type of sensitive receptor?						
What is the approximate distance to the sensitive receptor? (km)						

Comments:

The Town of Chalk River does not have any combined sewers. The sewage treatment plant and the two pumping stations in the Town do not have any means to by-pass.

2.11 SLUDGE (BIOSOLIDS) MANAGEMENT

Sludge Stabilization: Aerobic

Sludge Storage: Holding Tank

Total available storage:

Volume 159 m3

Retention Time 3 months

Certified waste hauler Yes

Certificate numbers of haulers are: H870017

Method of Disposal/Utilization: Agricultural, Off-site Munc. STP

Certified waste disposal facility Yes

Certificate number(s) of facilities are: 03-0715-94-006

2.12 WASTEWATER COLLECTION SYSTEMS

1. Does this plant receive sewage from a Combined Sewer Collection System (sanitary sewage, roof leaders, foundation drains, catch basins and/or storm water conveyed within a single pipe)? Yes No

2. How are bypasses, overflows and/or combined sewers being minimized or eliminated?
 - a) Pollution Prevention and Control Plan (As described in Procedure F-5-5) Yes No Developing
 - i. Other Plan Yes No Developing
 - b) Characterization Study? Yes No Developing
 - c) Implementation Plan? Yes No Developing

Comments:

The Town of Chalk River does not have any combined sewers. The sewage treatment plant and the two pumping stations in the Town do not have any means to by-pass.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

No previous non-compliance issues.

4.0 SUMMARY OF INSPECTION FINDINGS (HEALTH/ENVIRONMENTAL IMPACT)

Was there any indication of a known or anticipated human health impact during the inspection and/or review of relevant material, related to this Ministry's mandate ?

No

Specifics:

Was there any indication of a known or anticipated environmental impact during the inspection and/or review of relevant material ?

No

Specifics:

Was there any indication of a known or suspected violation of a legal requirement during the inspection and/or review of relevant material which could cause a human health impact or environmental impairment ?

No

Specifics:

Was there any indication of a potential for environmental impairment during the inspection and/or the review of relevant material ?

No

Specifics:

Was there any indication of non-conformance or minor administrative non-compliance?

Yes

Policy/Guideline(Non-conformance)

Specifics: Policy F-5-1, Minimum Requirements for Sewage Treatment Works Discharging to Surface Waters,

suggests the following minimum treatment level for bacteria:

a monthly geometric mean of 200 *E.coli* per 100 mL.

5.0 ACTION(S) REQUIRED

1. The plant is still experiencing hydraulic stress. Storm events could lead to the plant exceeding the waste loading criteria set out in Condition 14.0 of the Certificate of Approval. The municipality must continue to repair and reduce leaks to manholes and make efforts to prevent infiltration or inflow into the collection system.
2. The disinfection system must be operated to stay within the E.coli. criteria of 200 counts per 100 mL

6.0 OTHER INSPECTION FINDINGS

Coliform test were not performed biweekly in the months of September and November. The sampling must conform to Section 15 of the Certificate of Approval.

7.0 INCIDENT REPORT

Applicable
4601-7PYKZV

8.0 ATTACHMENTS

Required attachments:

**PREPARED BY:
Environmental Officer:**

Name: Bryan Dickman
District Office: Ottawa District Office
Date: 2009/03/05
Signature



**REVIEWED BY:
District Supervisor:**

Name: Paul Kehoe
District Office: Ottawa District Office
Date: 2009/03/09

Signature:

A handwritten signature in black ink that reads "Paul Kehoe." The signature is written in a cursive style with a large, looped initial 'P'.

File Storage Number: SI RE CH BL 410

Note:

"This inspection report does not in any way suggest that there is or has been compliance with applicable legislation and regulations as they may apply to this facility. It is, and remains, the responsibility of the owner and/or the operating authority to ensure compliance with all applicable legislative and regulatory requirements"