14) a)

Ministry of the Environment
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Ontario

January 21, 2011

Brian Hanson
Manager of Operations
Town of Petrolia
411 Greenfield Street
P.O Box 1270
Petrolia, ON N0N 1R0

Dear Mr. Hanson,

RE: Ministry of Environment Compliance Inspections
Reference Number 3036-84ZQ25

Enclosed please find the inspection report prepared following the May 10, 2010 Communal Sewage inspection completed by the Ministry of the Environment at the Petrolia Water Pollution Control Plant. The inspection was completed as part of the Ministry of the Environment's Sarnia District Office 2010/11 planned inspection program.

Please refer to the inspection report for detailed inspection findings. If you have any questions please contact me at 519-383-3770.
Yours truly,

David Dominelli
Environmental Officer
Sarnia District Office

File Storage Number: SI-LA-PT

Ontario

Ministry of the Environment
Ministère de l'Environnement

Communal Sewage Inspection Report

Client:	The Corporation of the Town of Petrolia Mailing Address: 411 Greenfield St, Post Office Box, 1270, Petrolia, Ontario, Canada, N0N 1R0 Physical Address: 411 Greenfield St, Petrolia, Town, County of Lambton, Ontario, Canada, N0N 1R0 Telephone: (519)882-2350, Extension: 235, FAX: (519)882-3373, email: works@town.petrolia.on.ca Client #: 4130-4WTHHR, Client Type: Municipal Government, NAICS: 913910		
Inspection Site Address:	Petrolia Water Pollution Control Plant Address: 546 Maude St, Petrolia, Town, County of Lambton District Office: Sarnia GeoReference: ,		
Contact Name:	Dale Wright	**Title:**	Operator
Contact Telephone:	(519)882-3137 **ext**	**Contact Fax:**	
Last Inspection Date:	2007/06/12		
Inspection Start Date:	2010/05/10	**Inspection Finish Date:**	2010/05/14
Region:	Southwestern		

1.0 INTRODUCTION

The proper treatment of communal sewage is vital to the protection of Ontario's waterways.
Communal sewage works are sewage treatment and collection systems approved and operated to serve municipal, private and commercial sites (excluding industrial sewage discharges from industrial facilities).

Under the Ontario Water Resources Act (OWRA), all communal sewage works discharging to surface waters are required to obtain a Certificate of Approval (CofA) prior to constructing new sewage works or altering and expanding existing sewage works. Certificate of Approval documents may impose a variety of conditions related to operation of the facilities, as well as monitoring and reporting requirements, and discharge limits that have been established using existing policies and legislation.

In order to ensure that the regulated community is complying with the provisions of the legislation and specific certificate of approval documents the Ministry is committed to conducting routine inspections of communal sewage treatment facilities and to follow-up on reports of complaints or exceedances of effluent criteria. With this aim in mind a Communal Sewage inspection was conducted at the Petrolia Water Pollution Control Plant (WPCP), owned by the Town of Petrolia, as part of the Ministry of the Environment, Sarnia District Office 2010/11 planned inspection program.

Certificate of Approval No. 5819-7EZNY7 was issued to the Town of Petrolia on August 29, 2008 for a tertiary extended aeration plant. The plant is equipped with grit removal, mechanical & multi-aspirating submersible aerators, clarification, continuous phosphorus removal with alum, flow-through sand filtration and year round ultraviolet disinfection. The effluent is approved to discharge to Bear Creek. The works also includes two lagoons. The East lagoon is approved for holding sludge from the aerobic digesters and the West lagoon is used for temporary storage of excess sewage flows during emergency events and/or required plant maintenance. The facility is owned by the Town of Petrolia and operated by CHM2Hill-OMI.

The inspection consisted of a review of the Ministry's Sarnia office files to assess compliance with sampling, performance, and reporting requirements and a physical site inspection to observe and review operations and maintenance procedures, confirm operator licensing and training, and collect audit samples of the plant's final effluent and liquid sludge. The physical site inspection was carried out on May 10, 2010, by Provincial Officer David Dominelli.

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 - Municipal and Private Sewage Works	5819-7EZNY7	2008/08/29	Yes	Yes	Yes

The sewage works consists of a tertiary extended aeration plant equipped with grit removal, mechanical & multi-aspirating submersible aerators, clarification, continuous phosphorus removal with alum, flow-through sand filtration and year round ultraviolet disinfection. The effluent is approved to discharge to Bear Creek. The works also includes two lagoons. The East lagoon is approved for holding sludge from the aerobic digesters and the West lagoon is used for temporary storage of excess sewage flows during emergency events and/or required plant maintenance.

2.0 INSPECTION OBSERVATIONS

Sewage Treatment Plant

Sewage Works Number: 110000579

Certificate of Approval Number(s) C of A Number(s): ● Yes ○ No
5819-7EZNY7

Plant Ownership: ● Munc. ○ OCWA ○ Other

Operating Authority: ○ Munc. ○ OCWA ● Other

Please specify: CH2M Hill OMI

Service Population: 5000

Wastewater Collection System:

Certificate of Approval Number(s): C of A Number(s): ● Yes ○ No
N/A

Collection System Ownership: ● Munc. ○ OCWA ○ Other

Operating Authority: ☐ Munc. ☐ OCWA ☒ Other

Please specify: CH2M Hill OMI

2.1 SYSTEM DESCRIPTION

Type Of Plant

Primary: ● Yes ○ No

Secondary: ● Yes ○ No

Advanced: ● Yes ○ No

Biological Treatment: ● Yes ○ No

● Conventional AS
○ Contact Stablization
○ Extended Air Rotating Biological Contactor

Lagoon(s): ● Yes ○ No

○ Aerated
● Facultative

Other: ○ Yes ● No

Describe:

○ 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: Bear Creek

2.2 EFFLUENT QUALITY ASSESSMENT

Parameter	Year 1 2007	Year 2 2008	Year 3 2009	Limits
BOD5 (mg/l)	1.5	1.3	2.1	10
Suspended Solids (mg/l)	0.9	0.7	0.5	10
Total Phosphorus (mg/l)	0.48	0.45	0.44	1

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

Does the facility comply with its limits Yes

The above chart compares the Annual Average Concentrations of BOD5, Total Suspended Solids and Total Phosphorus with the Monthly Average Concentration Limits imposed under the issued Certificate of Approval. In addition to the limits for BOD5, SS, and TP, the Approval also imposes limits on Total Ammonia as Nitrogen, pH and *E.Coli* . The table below summarizes the plant's effluent limits:

Effluent Parameter	Avg. Monthly Conc. (mg/L)	Avg. Monthly Loading (kg/day)
BOD5	10	38
TSS	10	38
TP	1.0	3.4
TAN May 1st - November 30th	3.0	11.4
TAN December 1st - April 30th	7.0	26.6

The limit for *E.coli* is a maximum geometric mean density of 200 organisms per 100 ml for any calendar month during the required disinfection period of April 1st - November 30th. Although not required by the issued Certificate, disinfection has been carried out on a year round basis by the town voluntarily, following a request by the Ministry.

A review of the annual summary reports and R1 and R2 reports submitted for 2007, 2008, and 2009 was completed as part of the inspection. The review showed that the monthly average concentrations and loadings for the effluent parameters listed in the above table consistently met the concentration and loading limits imposed under the Certificate of Approval. The review also showed that the plant's effluent consistently met the imposed limit for E.Coli during the same period.

2.3 CAPACITY ASSESSMENT

Flows shown below are for the last three calendar years. Identify the year, eg., 1999

Item	Year 1 2007	Year 2 2008	Year 3 2009
Average daily flow (m^3/day)	2941.00	3247.00	2964.00
Maximum daily flow (m^3/day)	5865.00	8126.00	11590.00
Capacity Design (m^3/day)	3800.00	3800.00	3800.00
% of capacity, based on average daily flow	77.39	85.45	78.00

The rated capacity of the works, detailed in the issued Certificate of Approval, is an average daily flow of 3,800 cubic metres with a peak flow rate not exceeding 10,640 cubic metres per day at any time.

Based on the flow data provided by the operator it appears that the plant is approaching its design capacity. Please refer to Section 6 of this report for the inspection recommendations.

2.4 EFFLUENT SAMPLING REQUIREMENTS

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

The sampling requirements are detailed in Condition 8. of the Certificate of Approval. In summary, the operator is required to collect a 24 hour composite sample of the plants raw effluent and final effluent on a weekly basis. Final effluent composite samples are to be analysed for BOD5, TSS, Total Ammonia as Nitrogen, Nitrate, Nitrite, TP, and Alkalinity. A weekly grab sample of the final effluent is also to be collected and analysed for *E.Coli* . The raw sewage composite sample is to be analysed for BOD5, TSS, Total Kjeldahl Nitrogen, TP and Alkalinity.

In addition to the sampling requirements on the plant, the East and West lagoons also have imposed sampling requirements. During discharge periods three grab samples are to be collected from East and West lagoons at the beginning, middle, and end of the discharge. The samples are to be analysed for BOD5, TSS, TP, Total Ammonia as Nitrogen, Nitrate, Nitrite, Alkalinity, and *E.Coli.*

A review of the data provided by the Operator demonstrated that the facility is collecting samples at the required frequency and is analysing for the required parameters.

2.5 EFFLUENT REPORTING REQUIREMENTS

Reporting Requirements are based on : Certificate of Approval

Does the plant meet the effluent reporting requirement? Yes

The reporting requirements for the facility are detailed in Condition 9. of the issued Certificate of Approval.

Condition 9.(5) requires that an annual report be submitted 90 days following the period being reported on. Following a review of the Ministry's Sarnia Office files it was determined that the owner is submitting the required reports on an annual basis by the imposed deadline. The contents of the reports were reviewed during the inspection and it was determined that the reports contained all of the required information.

In addition to the annual reports, the operator is also submitting R1 & R2 reports to the Ministry's Sarnia District Office on a quarterly basis as required. This data must also be forwarded on to Koshy Mathew, Database Technician with the Ministry of the Environment. This information can be submitted to Mr. Mathew on a quarterly basis by email to koshy.mathew@ontario.ca.

The owner is also required under Condition 9(2) to orally report exceedances as soon as reasonably possible to the District Manager or designate with written follow-up to the District Manager of the Sarnia District Office within seven days of the occurrence. There were no compliance issues identified with respect to oral and written reporting requirements.

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, Grab sample - Wet Sludge - Phys/Chem

Audit sample results will be forwarded upon receipt from the Ministry's laboratory.

2.7 DISINFECTION

a)	**Method of disinfection:**	Ultraviolet
b)	**Disinfection Period**	Continuous
c)	**Comment on the seasonal disinfection period for each year**	The Municipality is conducting continual year round disinfection on a voluntary basis at the request of the Ministry of the Environment staff. The issued Certificate of Approval only requires disinfection from April 1st to November 30th annually.
d)	**Disinfection Required By:**	Certificate of Approval
e)	**Residual monitoring technique:**	
f)	**Was there a measurable chlorine residual In the final effluent after contact:**	Not obtained

2.8 PLANT CLASSIFICATION & OPERATOR CERTIFICATION

a) **Plant classification:**
   i) **Facility Level:** Level III
   ii) **Certificate Number:** 191
   iii) **Date of Issue:** 1992/10/20
b) **Plant operators have the appropriate level of certification for this plant** ● Yes ○ No

2.9 FLOW MEASUREMENT

a) **Flows are being metered at:** Raw Sewage
b) **Date of last calibration of effluent flow meter:** 2009/12/17

2.10 BYPASSES, AND/OR OVERFLOWS

	Plant	Collection System
Are bypasses and overflows routinely reported?	● Yes ○ No	● 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 2007	Year 2 2008	Year 3 2009	Year 1 2007	Year 2 2008	Year 3 2009
Total number of events?	0	0	0	0	0	0
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?	Bear Creek			Bear Creek	Bear Creek	Bear Creek
Name the most important type of sensitive receptor?	receiving water			receiving water	receiving water	receiving water
What is the approximate distance to the sensitive receptor? (km)	0.5			0.5	0.5	0.5

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

Item	Lift Station Overflow			Other Location Overflow		
	Year 1 2007	Year 2 2008	Year 3 2009	Year 1 2007	Year 2 2008	Year 3 2009
Total number of events?	0	0	0	0	0	0
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?	Bear Creek	Bear Creek	Bear Creek	Bear Creek	Bear Creek	Bear Creek
Name the most important type of sensitive receptor?	receiving water	receiving water	receiving water	receiving water	receiving water	receiving water
What is the approximate distance to the sensitive receptor? (km)	0.5	0.5	0.5	0.5	0.5	0.5

Comments:

Any bypasses that occur within the collection system, pump stations and treatment facility are not discharged into the receiving stream. All bypasses are diverted to the existing on-site facultative lagoons.

2.11 SLUDGE (BIOSOLIDS) MANAGEMENT

Sludge Stabilization:	Aerobic
Sludge Storage:	Lagoon
Total available storage:	
Volume	88,200 Cubic meters
Retention Time	undetermined
Certified waste hauler	N/A
Certificate numbers of haulers are:	N/A
Method of Disposal/Utilization:	Other
Certified waste disposal facility	N/A
Certificate number(s) of facilities are:	N/A

Sludge has been stored in the east lagoon at this site since the issuance of the approval in April 1997

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:

Any bypasses that occur within the collection system, pump stations and treatment facility are not discharged into the receiving stream. All bypasses are diverted to the existing on-site facultative lagoons.

3.0 REVIEW OF PREVIOUS NON-COMPLIANCE ISSUES

There were no outstanding non-compliance issues identified during the course of this inspection.

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?
No

Specifics:

5.0 ACTION(S) REQUIRED

There are no actions required by the Owner/ Operator as a result of this inspection. Please see Section 6. of this report for the inspection recommendations.

6.0 OTHER INSPECTION FINDINGS

As a result of the inspection the following comments are provided:

1. It was noted during the inspection that plant is beginning to approach its design capacity (see table in Section 2.3 of this report). It is the Town's responsibility to ensure that there is adequate capacity to serve the community. The limited remaining capacity could result in there being an insufficient capability to treat sewage from proposed or future developments. It is therefore recommended that the Town of Petrolia conduct an evaluation of the future sewage capacity requirements and begin

developing a plan to ensure that there is a sufficient capacity available to serve future development needs within the community. The ministry encourages municipalities to start planning new facilities or upgrading existing facilities when the flows reach 80% of the system's designed capacity. The Environmental Assessment (EA) and First Nation consultation requirements for a new proposal should be reviewed and adhered to as part of the planning or design stage.

2. While reviewing the Standard Operating Procedures (SOP's) for the facility it was noted that there are no specific SOP's for initiating and carrying out a plant by-pass. It was also noted that there are no specific written procedures detailing the sampling and analysis requirements imposed on the plant. As these are integral to the operation of the facility, it is recommended that procedures specific to conducting bypasses and sampling at the facility be developed and incorporated into the facility's operations binders.

7.0 INCIDENT REPORT

Not Applicable

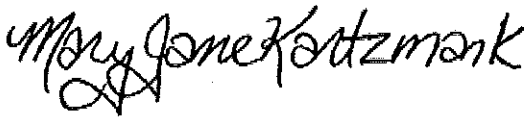
8.0 ATTACHMENTS

PREPARED BY:
Environmental Officer:

Name:	**David Dominelli**
District Office:	**Sarnia District Office**
Date:	**2010/06/02**
Signature	

REVIEWED BY:
District Supervisor:

Name:	**Mary Jane Kartzmark**
District Office:	**Sarnia District Office**
Date:	**2010/12/07**
Signature:	



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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"