



# **District of Port Hardy**

## **Wastewater Treatment Plants & Collection System**



**Annual Operations Report 2013**

**MOE Certification ME-00385 & PE-04168**



---

---

## TABLE OF CONTENTS

---

<b>OVERVIEW .....</b>	<b>3</b>
<b>TSULQUATE WASTEWATER TREATMENT PLANT HIGHLIGHTS .....</b>	<b>4</b>
<b>AIRPORT WASTEWATER TREATMENT PLANT HIGHLIGHTS.....</b>	<b>5</b>



## Overview

Port Hardy is located on the northeastern tip of Vancouver Island, British Columbia. There are two major collection areas in the town, each with a wastewater treatment facility. The Airport Wastewater Treatment Plant (AWWTP), built in 1975, is located adjacent to the Transport Canada Airport facility. In February 2012, the existing permit was updated to a new Operational Certificate (ME-105299). Effluent is discharged into the Queen Charlotte Strait. There are three lift stations located in the AWWTP collection system.

The Tsulquate Wastewater Treatment Plant (TWWTP), originally built in 1972, services the majority of the population of Port Hardy, and has historically operated under permit PE-385. The discharge from this facility is sent into Hardy Bay. There are eight lift stations located in the TWWTP collection system. The plant underwent a major upgrade in 2007 which included the addition of two sequential batch reactors, a new headworks and ultraviolet disinfection (UV). The permit was also updated into a more stringent Operational Certificate (ME-00385).

### Permits

The Airport wastewater treatment facility is a Class 2 facility and operates under Operational Certificate ME-105299.

The Tsulquate wastewater treatment facility is a Class 3 facility as deemed by the Environmental Operators Certification Program (EOCP), certification number 1488. The fully upgraded Tsulquate plant operates under the Ministry of Environments Operating Certificate of ME-00385. The historical permit that applied before the upgrades were completed was PE-385.

Operator Certification		
Operator	Title	Certification
Dennis Dugas	Capitol Projects Coordinator	WT III, MWWT II, WD IV, WWC I, CH
Joe Jewell	Foreman	WT IV, MWWT II, WD II, CH
Sean Mercer	Foreman	WD III, CCT
Kenn Oliver	Operator	WT III, MWWT III, CH
Justin Reusch	Operator	WT II, WD I, MWWT II
Roland Le Fort	Operator	MWWT II WT I
Cory Henschke	Operator	MWWT I



## Tsulquate Wastewater Treatment Plant Highlights

The upgraded Tsulquate wastewater treatment plant (TWWTP) has performed very well since the new SBR trains have been online and the modifications to the extended aeration plant were completed in 2008. The combined average effluent flow over the course of 2013 was 1919 m<sup>3</sup>/day. The design capacity for the entire plant with the SBR trains and the extended aeration train is 2700 m<sup>3</sup>/day.

### Incidents

During the months of June and July, there were issues with the fecal coliform counts in the effluent. Many solutions were tried including cleaning the ultraviolet bulbs several times and eventually replacing the bulbs. It was ultimately determined that the issue was a faulty dissolved oxygen probe on the system giving a high value which caused issues with the biomass. The unit was replaced and issue was resolved. All other parameters were within permitted levels during this time.



## Airport Wastewater Treatment Plant Highlights

The Airport wastewater treatment plant (AWWTP) continued to produce excellent effluent in 2013. There were no permit violations. The average influent effluent flow was 682 m<sup>3</sup>/day. The capacity of the plant is 276,000 Imperial Gallons per day (1242 m<sup>3</sup>/day).

### Incidents

During the months of June and July there were issues with the pH of the effluent being low. This is due to the fact that the volume of wastewater coming into this plant is quite low and the sludge age as a result is quite high. Operators have started keeping the Mixed Liquor Suspended Solids in the aeration basin much lower to try and remedy this.

Currently, the outfall for the Airport Wastewater Treatment Plant is damaged. A contractor has dove and video inspected the outfall. Pacificus Biological Ltd. has been retained to gather samples in the receiving waters to monitor the fecal coliforms to assess the impact. An engineering firm has also been hired to assess the outfall pipe and provide an improved design or other options to divert flow from the Airport Plant back to the Tsulquate Wastewater Plant in town through an upgraded collection system. The situation is currently classified as a spill due to the fact that the treated effluent is not reaching its intended depth and distance for the shore. The beach continues to be closed from shellfish harvesting as it has for many years. The Ministry of Environment has been contacted and a Provincial Emergency Program (PEP) number has been generated.



---

---

## Collection System

---

The collection system is operating well considering the age of the infrastructure. The lift stations remain a focus for the maintenance and capital upgrade programs to address aging infrastructure, as identified in the Liquid Waste Management Plan.

### Incidents

There were no spills or incidents at the liftstations in 2013.

In January, there was an issue with a customer on 6230 Beaver Harbour Road with a sewer back up. An operator was dispatched and cleared the 4 inch sewer line from the home to the lower pressure sewer system liftstation.



## EFFLUENT QUALITY DATA

Water quality monitoring of the plant has increased substantially for the upgraded TWWTP, partially due to the monitoring requirements identified in the operational certificate and also due to the increased monitoring that is required to meet higher treatment standards. The data presented in this report includes the results from samples sent to an external laboratory, certified to ISO17025 by CALA, as well as the internal testing results for some of the parameters completed onsite. While the internal data is not CALA accredited, it goes through an extensive QA/QC process. It complements the external data in demonstrating treatment performance due to the increased frequency of the internal testing.

The following two tables summarize the key quality parameters for the Tzulquate and Airport Wastewater Treatment Plants. Receiving environment monitoring was also completed.

**Table 1 - TWWTP Effluent Quality Summary**

Month	Flow cubic meters / day		Internal Lab				External Lab					
	Avg	Max	TSS mg/L		CBOD mg/L		TSS mg/L		CBOD mg/L		Un-Ionized Ammonia mg/L	
January	1543	1912	10	20	2	5	8	12	8	13	0.027	0.027
February	2183	4421	12	20	4	5	10	13	5	5	0.030	0.030
March	2002	3004	14	36	4	8	12	14	7	11	0.010	0.010
April	1941	2554	15	36	6	8	14	16	8	11	0.040	0.040
May	1836	2410	11	24	5	6	11	15	8	11	0.030	0.030
June	1777	2560	12	28	7	11	14	23	11	13	0.060	0.060
July	1665	2429	12	20	7	13	11	21	13	19	0.060	0.060
August	1704	2249	9	28	6	10	12	17	<5	<5	0.120	0.120
September	2023	5253	9	20	3	4	8	10	<5	<5	0.070	0.070
October	2205	12901	7	12	2	5	11	16	5	6		
November	1924	2941	7	16	3	6	10	12	<5	<5	0.045	0.050
December	2232	3182	11	28	5	5	10	14	7	7	0.030	0.030
Average	1919											

*Note: Samples were sent to North Island Laboratories in October for Un-Ionized Ammonia testing. The lab did not perform the test. Two samples were sent in November for WSER compliance*

**Table 2 - AWWTP Effluent Quality Summary**

Month	Flow cubic meters / day		Internal Lab				External Lab							
	Avg	Max	TSS mg/L		CBOD mg/L		TSS mg/L		CBOD mg/L		Total Ammonia mg/L		Un-Ionized Ammonia mg/L	
January	680	912	20	28	17	25	17	17	16	16	0.1	0.1	<0.01	<0.01
February	748	1031	15	28	14	21	10	10	5	5	0.1	0.1	<0.01	<0.01
March	700	936	10	20	3	5	15	15	6	6	0.0	0.1	<0.01	<0.01
April	665	954	21	60	23	74	10	10	<5	<5	0.2	0.2	<0.01	<0.01
May	638	782	7	12	5	6	11	11	<5	<5	0.1	0.1	<0.01	<0.01
June	676	1120	13	28	5	8	11	11	<5	<5	0.2	0.2	<0.01	<0.01
July	632	1195	17	80	7	17	19	26	6	6	1.1	1.1	<0.01	<0.01
August	654	953	11	24	14	23	12	12	<5	<5	0.1	0.1	<0.01	<0.01
September	680	1050	17	24	7	8	44	44	<5	<5	1.9	1.9	<0.01	<0.01
October	699	1073	14	20	5	8	14	14	<5	<5	0.0	0.0	<0.01	<0.01
November	670	928	13	20	26	26	12	12	5	5	0.0	0.1	<0.01	<0.01
December	748	1033	10	20	<5	<5	13	13	<5	<5	0.1	0.1	<0.01	<0.01
Average	682													



**Table 3 – Permit Limitations**

Parameter	Permit Limits	
	AWWTP	TWWTP
Biochemical Oxygen Demand (BOD <sub>5</sub> ) mg/l	45	45
Fecal Coliforms cfu/100ml Geomean Average	n/a	200
Total Suspended Solids (TSS) mg/l	45	45
pH	6.0-9.0	6.0-9.0