

Joint Utility Board Sewage Treatment Plant Outfall Relocation Project

Frequently Asked Questions

Why is the outfall being moved?

The effluent from the treatment plant is highly treated and more than meets Provincial requirements for protecting human health, fish and other aquatic life. Regardless, there are several reasons to relocate the outfall to a deep-water location:

- The Sewage Treatment Plant is on Cowichan Tribes Reserve land and under a lease agreement. This agreement includes a commitment to make reasonable effort to move the outfall from the River.
- During drier summers there is not enough River flow to provide the desired amount of effluent dilution. Low River flows are expected to become even more frequent in the future.
- The existing outfall infrastructure is at risk of damage from log jams and gravel accumulation. The outfall has experienced damage in the past at great cost.
- Moving the outfall from the River could trigger a reassessment of shellfish harvesting opportunities in Cowichan Bay.

When will pipe construction take place?

At this time, we anticipate that construction of the pipes and new outfall would take place in 2023.

Whose sewage is it?

The Joint Utilities Board (JUB) Sewage Treatment Plant treats sewage from all of the Central Sector area. This includes Duncan, parts of the Municipality of North Cowichan, Cowichan Tribes lands and parts of CVRD Areas D and E. The Municipality of North Cowichan manages the Sewage Treatment Plant on behalf of all the project partners.

All the project partners — Municipality of North Cowichan, Duncan, Cowichan Tribes and the Cowichan Valley Regional District — are contributing to the cost of building this project.

How much will the project cost?

The total project cost is estimated at \$43 million. Depending on which pipe route is chosen the costs may be less. The Federal and Provincial governments are contributing \$12 million towards the cost. The cost will be amortized over many years so as not to create a large tax increase.

Why aren't you just using the effluent for irrigation (or other purposes)?

At the start of the project, many different options were considered. This included sending the effluent to Quamichan Lake, sending sewage to be treated at Catalyst Pulp and Paper, using the effluent water for forest irrigation, discharging the effluent to ground, and more. During the first round of public engagement (2015), these ideas were explored and discussed, but for various reasons did not provide a good solution. Hence, a decision was made to create a deep-water outfall in Cowichan Bay.

What level of treatment does the sewage get?

Sewage treatment at the JUB is a combined secondary/tertiary system and involves several stages:

- Removal of bulky non-human waste type items (like diapers, wipes, Q-tips, etc.).
- Removal of sandy inorganic material such as sand and grit.
- In the first treatment pond, the organics are suspended using air and mixed with bacteria which then eat the organic material.
- In the downstream treatment ponds (of which there are four), the bacteria sink to the bottom. As the water moves through the treatment process it gets cleaner.
- At the last stage, the water is first disinfected using chlorine to kill any remaining harmful bacteria and viruses. It is then dechlorinated, so that chlorine does not affect the River ecosystem.

- In lower summer flows, a coagulant is added to remove phosphorus, so that it does not harm fish. In winter months, there is much greater dilution of the effluent, so the phosphorus removal is not required.

What will discharge from the new outfall?

The effluent from the new outfall will be the same high-quality effluent that currently goes into the River. The difference is that in the River, the level of dilution can go as low as 25:1. In the marine environment, the rate of dilution will be 400:1 or better.

Modelling shows that beyond the 100-metre “initial dilution zone,” it will not be possible to detect the effluent plume.

How do you manage contaminants of emerging concern?

Contaminants of emerging concern (CECs) — things like fire retardants or pharmaceuticals — are challenging as new chemicals are constantly being developed and it is possible that some may eventually end up in the effluent. Some CECs are removed in the treatment process but the removal efficiency is not the same for every CEC. There is no treatment process that will deal with all CECs as their properties, removal method, and the removal rate will vary.

Regular monitoring of the effluent will continue with the new outfall, to make sure levels of organics and CEC are low or undetectable. CECs will also be monitored in the receiving environment if they are found in the effluent.

How will you monitor the impact of the new outfall?

Studies are taking place to monitor the water quality in the outfall location, prior to the installation of the new outfall. A series of sampling stations will be set up to monitor water quality and shellfish tissues. These will be set up in a circle at 100 m from the outfall (the initial dilution zone), at 300 m (mid-field stations), and at 1000 m (far field stations).

This monitoring is part of a robust Receiving Environment Monitoring Program that has been prepared with input from local First Nations.

Is the sewage being tested to provide information on the level of COVID-19 in the community?

Some communities are testing their wastewater as a way to measure the prevalence of COVID-19, and to alert people to growth in COVID-19 activity. So far, the JUB is not doing this testing.

Has the Municipality considered increasing the level of treatment at the JUB?

Based on the findings of the detailed Stage 1 and Stage 2 Environmental Impact Studies undertaken in 2015 and 2019/2020, the effluent will be non-detectable at the edge of the Initial Dilution Zone (100 m from the outfall). The level of treatment currently provided by the JUB is much higher than required and the facility has an excellent compliance record.

However, there have been improvements made to the treatment plant over the years to improve the performance of the treatment system. Recent and significant improvements include the installation of a fine bubble complete mix aeration system in the main treatment cell in 2000, the installation of a coagulant addition system to remove phosphorus in 2003, and the installation of a new chlorination/dechlorination system in 2018.

In addition, none of the work associated with the outfall relocation project precludes the upgrading of the existing treatment system, or provision of an entirely new treatment system, in the future.

Are people with septic fields paying for this project?

- ♦ Properties OUTSIDE a sewer service area are NOT contributing to the cost of this project.
- ♦ Properties that are INSIDE a sewer service area, but that DO NOT have a sanitary sewer pipe running along their property frontage, are NOT contributing to the cost of this project.
- ♦ Properties that are INSIDE a sewer service area, that DO have a sanitary sewer pipe running along the property frontage, but that are NOT CONNECTED to the sanitary sewer pipe, ARE contributing to the cost of this project through the sewer parcel tax.

- ◆ Properties that are INSIDE a sewer service area, that DO have a sanitary sewer pipe running along the property frontage, but that ARE CONNECTED to the sanitary sewer pipe, ARE contributing to the cost of this project through the sewer parcel tax.

What is the JUB Sewage Treatment Plant’s compliance record?

The Ministry of Environment and Climate Change requires treatment plants such as this to conduct frequent monitoring to ensure that they are compliant with the Plant’s Operating Certificate. As part of this process, the JUB monitors far more than required by the Ministry of Environment and Climate Change:

Statistics (Effluent Compliance)						
Data is from Jan 1/2009 to Dec 31/2018						
Parameter	Operating Certification Limit	Start Date	End Date	Total Samples	Samples in Comp	% In Comp
CBOD5	100% <= 30 mg/L	1-Jan-09	31-Dec-18	419	415	99.0%
TSS	100% <= 40 mg/L	1-Jan-09	31-Dec-18	489	485	99.2%
TP	100% <= 18 kg/d (Jul 1 to Sep 30)	1-Jan-09	31-Dec-18	95	93	97.9%
FC	100% <= 800 CFU/100 mL	1-Jan-09	31-Dec-18	441	440	99.8%
	100% <= 200 CFU/100 mL (Median of 7 Samples)	1-Jan-09	31-Dec-18	441	439	99.5%
Chlorine	100 % <= 0.02 mg/L	1-Jan-09	31-Dec-18	3626	3621	99.9%
Toxicity	50% Survival in 100% Effluent f 96 Hours	1-Jan-09	31-Dec-18	29	29	100.0%
Total				5540	5522	
Weigthed Avg Compliance Rate						99.7%

Any time the operator finds an issue of non-compliance, they act quickly to redress the issue. The JUB has a very high compliance record (over 99.7% compliance from 5,522 samples in compliance out of 5,540 samples taken in the past 10 years). However, like most plants of this size, it is not uncommon to have the odd non-compliance event

While there have been some non-compliance events over the many years this treatment plant has been in operation, the Ministry of Environment and Climate Change has no concerns regarding the operation of, or the quality of the effluent discharged by, this facility.