



WATER FACILITY INSPECTION REPORT

Health Protection

Premises Name Gillies Bay Improvement District Water System		Tel: (604) 223-7757 Fax:	
Premises Address Gillies Bay Texada Island, BC V0N 1W0		Inspection Date April 10, 2019	Time Spent 3 hours
Operator (Person in Charge) Ken Taylor			
Inspection Type Routine			

Observed Violations
<p>501 - Failure to disinfect surface water. Observation: Failure to provide 3 log reduction for protozoa. Corrective Action(s): Continue to look at options/grants to upgrade the system to include a secondary treatment to remove or inactivate Giardia Lamblia and Cryptosporidium..</p> <p>409 - Total coliform exceedance pursuant to Schedule A, DWPR. Observation: In 2018, there were 12 samples taken from the distribution system that showed total coliform (TC) counts (12 out of 100 samples or 12%). The source of these TC counts are potentially due to reoccurring environmental factors. Corrective Action(s): These events of total coliforms exceedances were handled by increasing chlorination and Boil Water Advisories. GBID must seek options to improve the treatment of their water system. These events have been reoccurring on a yearly basis and the status quo is obviously failing to meet the requirements set out in the Drinking Water Protection Regulation / Act.</p> <p>503 - Failure or inadequate treatment for chemical/physical parameters. Observation: Existing treatment works do not adequately control for disinfection by-products. Corrective Action(s): An improved treatment system will dramatically reduce potentially harmful disinfection by-products.</p>

Section Details

Comments
<p>A walkthrough of the system was conducted by DWO, Michael Nguyen, EHO, Jack Davidson, and GBID water operator, Ken Taylor. As mentioned above, GBID does not meet the 4-3-2-1-0 Drinking Water Objective for Surface Water, which is:</p> <ul style="list-style-type: none">● 4 log reduction of viruses;● 3 log removal or inactivation of Cryptosporidium and Giardia Lamblia;● 2 refers to two treatment processes for all surface water drinking water systems;● 1 for less than 1 NTU or turbidity;● 0 total coliforms and E.coli. <p>GBID utilizes Cranby Lake as its drinking water source. As this is a surface water source, there needs to be another level of treatment as chlorine alone cannot treat for harmful protozoa or parasites such as Giardia or Cryptosporidium. Surface water sources are subject to fecal contamination (which carry Giardia and Cryptosporidium) and can be present in animals such as deer, rodents, beavers or birds – all of which can found in the watershed supplying your system. Treatment technology should be in place for the removal or inactivation of Giardia and Cryptosporidium; normally this can be done with the addition of</p>

filtration and UV disinfection.

Contact time (CT) is the concentration of free chlorine * contact time. Chlorine is a strong oxidizing agent and a very effective disinfectant; however it requires a certain amount of time it is in contact with the water to treat. Due to the nature of surface water, the chlorine demand varies from the amount of organics in the water – this affects the required contact time. In addition, GBID experiences an increased usage in the summer time which pulls more water into the distribution system at a faster pace than usual and the chlorine pumping in does not receive the appropriate contact time to treat the water. This may potentially be causing your counts of total coliforms seen in the summer time along with the warmer weather.

The operator, Ken Taylor has been managing the system to the best of his ability, however he cannot control the environmental factors, variable usage rate and non-compliant infrastructure. As a reiteration of past inspection reports, efforts must be taken to determine ways to upgrade the non-compliant water system.

- Operator is very knowledgeable
- Despite issues with the raw water quality, operation of the disinfection system has been optimized by Ken Taylor.
- GBID has been working with RE'SEAU / Capstone to pilot a project to treat their water.
- There has been some discussion surrounding having the Improvement District's water utilities being taken over by the qathet Regional District.

As mentioned in the 2018 Evaluation:

- Good sampling frequency in 2018 with 82 bacteriological samples submitted in 2018. A total of 12 were positive for total coliform which exceeds the standard as pursuant to Schedule A of the DWPR
- GBID commissioned a Master Water Plan in 2016 to provide a roadmap for the future. The final report was released in July 2016. Please move forward with this plan in order to provide the necessary treatment for this water system.
- Strategies were outlined to meet the standards as per DWPA, Water meters are currently being installed and work is underway. VCH acknowledges this as an effective measure in water system protection and water conservation.
- ERCP is up to date and have been submitted to VCH.
- An Annual Report has been completed by Ken Taylor and is available to the users.
- A full chemical analysis has been completed in November 2018.

Hazard Rating For Your Facility:

☐ High ☒ Moderate ☐ Low

DWO



DWO Printed Name

Michael Nguyen