

# DEEP BAY IMPROVEMENT DISTRICT

## ANNUAL WATER SYSTEM REPORT 2022

## 1 Introduction

This annual report describes the Deep Bay Improvement District (DBID) water system and summarizes the water quality and production data from January 1, 2022 - December 31, 2022.

The DBID operates under a permit issued by Island Health (Vancouver Island Health Authority).

## 2 Deep Bay Improvement District

The Deep Bay Improvement District was incorporated in 1972 (originally as the Deep Bay Waterworks District). The water source comes from 7 groundwater wells. Water supply is stored in an above ground concrete reservoir and is not treated. The DBID supplies water to 616 metered services.

### 2.1 Groundwater Wells

Water supply for the DBID system is provided by seven wells that are located north and south of the Island Highway for a distance of 700 meters on either side of Gainsberg Road. Water from these wells is pumped directly into the distribution system.

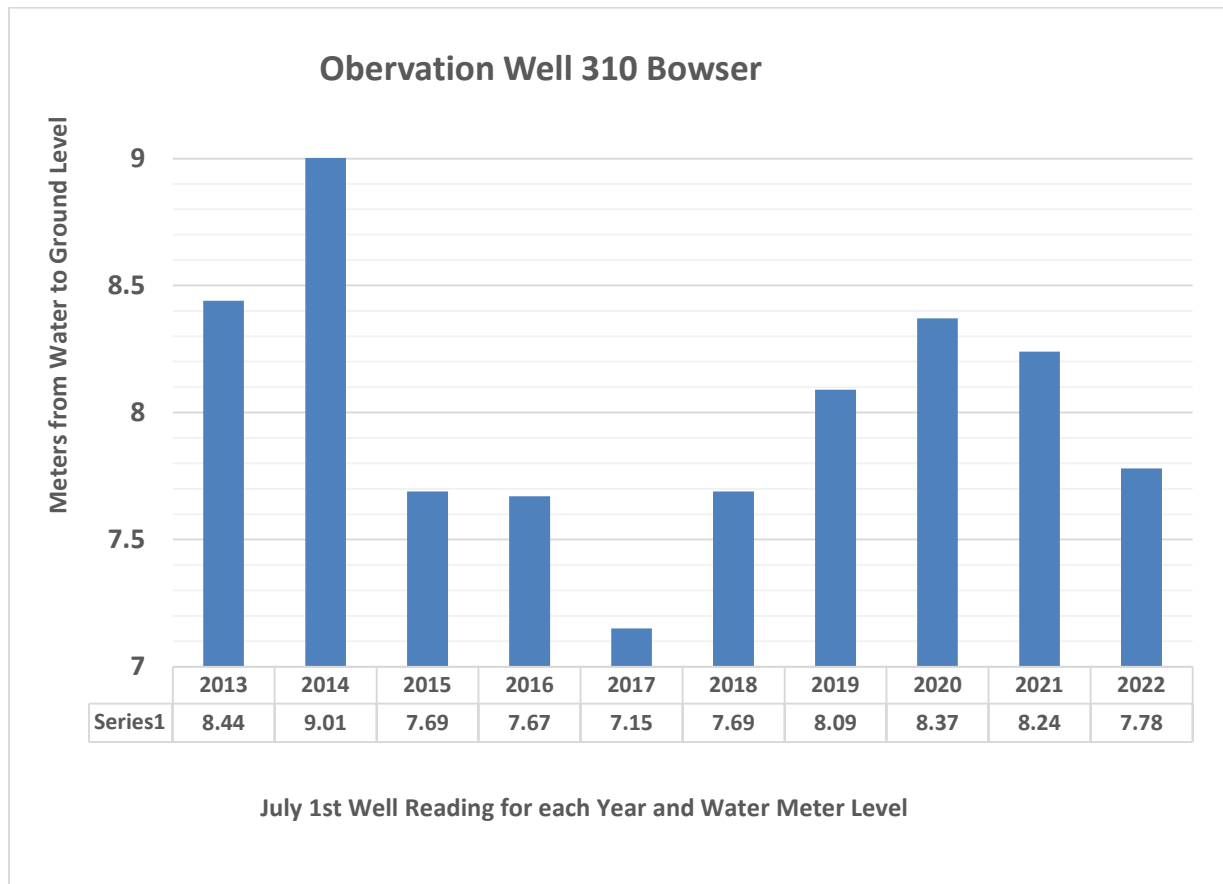
Currently Wells 4, 5, 6 & 8 are used for production supply. Wells 1, 2 & 3 are on standby for emergency use only.

#### DBID Well Data:

Well Name	Completion Depth	Capacity	Treated/Untreated	Year Drilled
#1	15.9 m (52 ft)	4.8 l/s (65 IGPM)	Untreated	1973
#2	11.6 m (38 ft)	3.0 l/s (40 IGPM)	Untreated	1973
#3	16.4 m (53.7 ft)	5.7 l/s (75 IGPM)	Untreated	1969
#4	19.3 m (63.5 ft)	5.3 l/s (70 IGPM)	Untreated	1977
#5	21.5 m (70.5 ft)	10.0 l/s (130 IGPM)	Untreated	1985
#6	23.2 m (76 ft)	9.0 l/s (120 IGPM)	Untreated	1990
#7	26.1 m (85.6 ft)	Not in production	Untreated	1996
#8	23 m (75.4 ft)	11.0 l/s (145 IGPM)	Untreated	1997

## 2.2 Observation Well 310 Bowser

This is an observation well that is monitored by the provincial government to provide data showing the meter distance from the ground to the water level in the well. The meter number increasing is indicative that the well water level is lower than the previous year, in other words the distance from the ground to the water. Over the past 8 years the aquifer level has fluctuated from year-to-year, with the 2022 level being at a level comparable to 2015, 2016, and 2018.



## 2.3 Reservoirs

Water storage for the DBID system is provided by an above ground concrete reservoir located on the hillside south of the Island Highway. This structure was built in 1975 and provides 545 cubic meters (120,000 Imperial Gallons) of storage. This reservoir is divided in half by a vertical wall and both sides can operate independently.

## **2.4 Distribution System**

The DBID water distribution system serves an area of approximately 5 square kilometers. The system has been constructed over a period of more than 45 years. The original lines were built before the District was established in 1972. Approximately 80% of the system was constructed using Asbestos Cement (AC) pipe and the remainder is Polyvinyl Chloride (PVC) pipe. The system has 58 fire hydrants.

## **3 Water Sampling and Testing Program**

Bacteriological monitoring is carried out weekly throughout the distribution system. There are 4 sample sites, as identified by Island Health. At least two samples are taken each week, alternating between sample sites. Samples are delivered to the Parksville Health Unit where they are sent on for testing.

Full test results from bacteriological monitoring are included with this report as an attachment “Appendix A” at the back of this document. These test results are also available on the VIHA website and there is a link to the test results on the DBID website under the Water Reports tab.

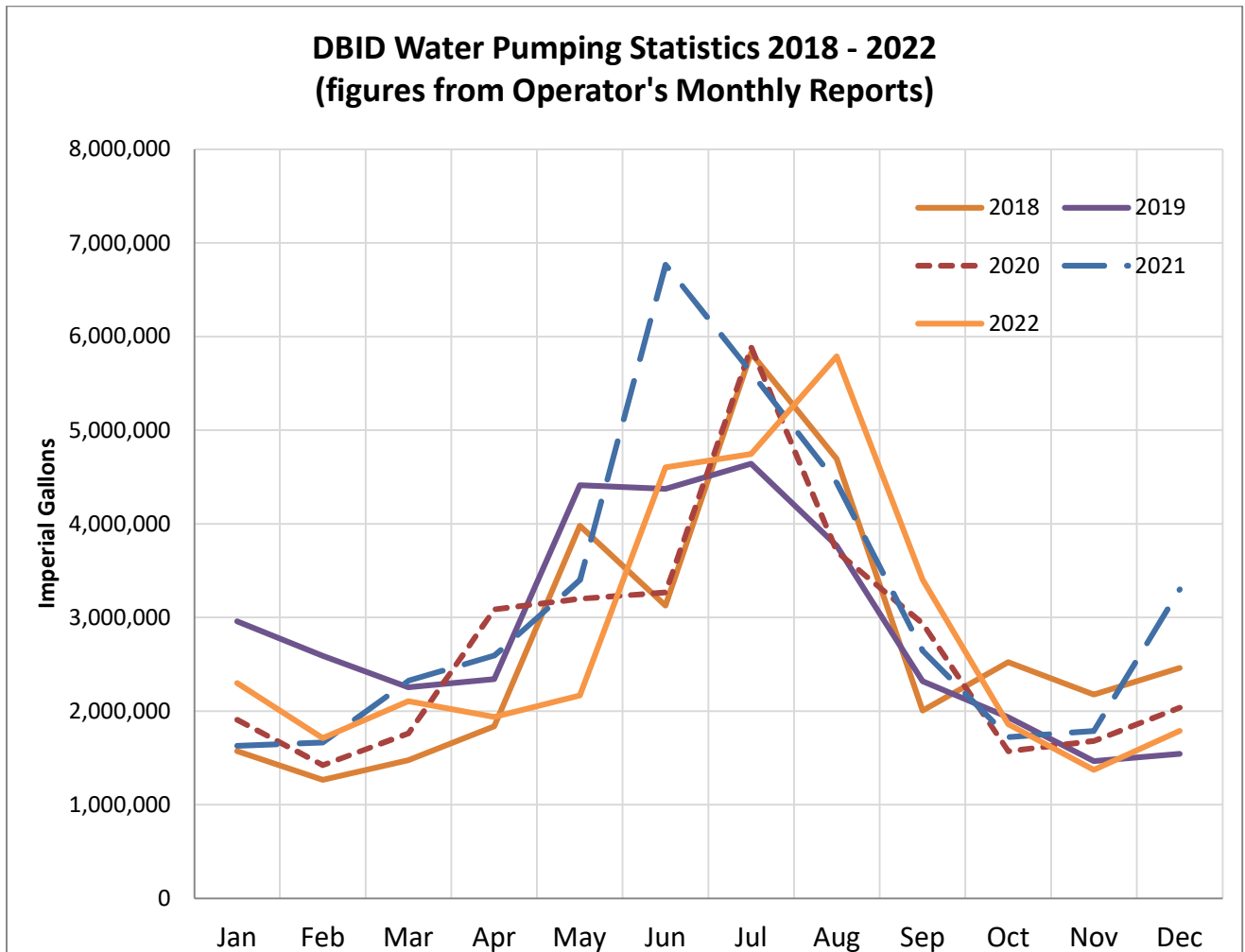
## **4 Water Quality Inquiries and Complaints**

DBID receives water quality inquiries throughout the year. There are several detailed engineering studies available for review on the DBID website under the Technical/Operational Documents tab and the Water Reports tab.

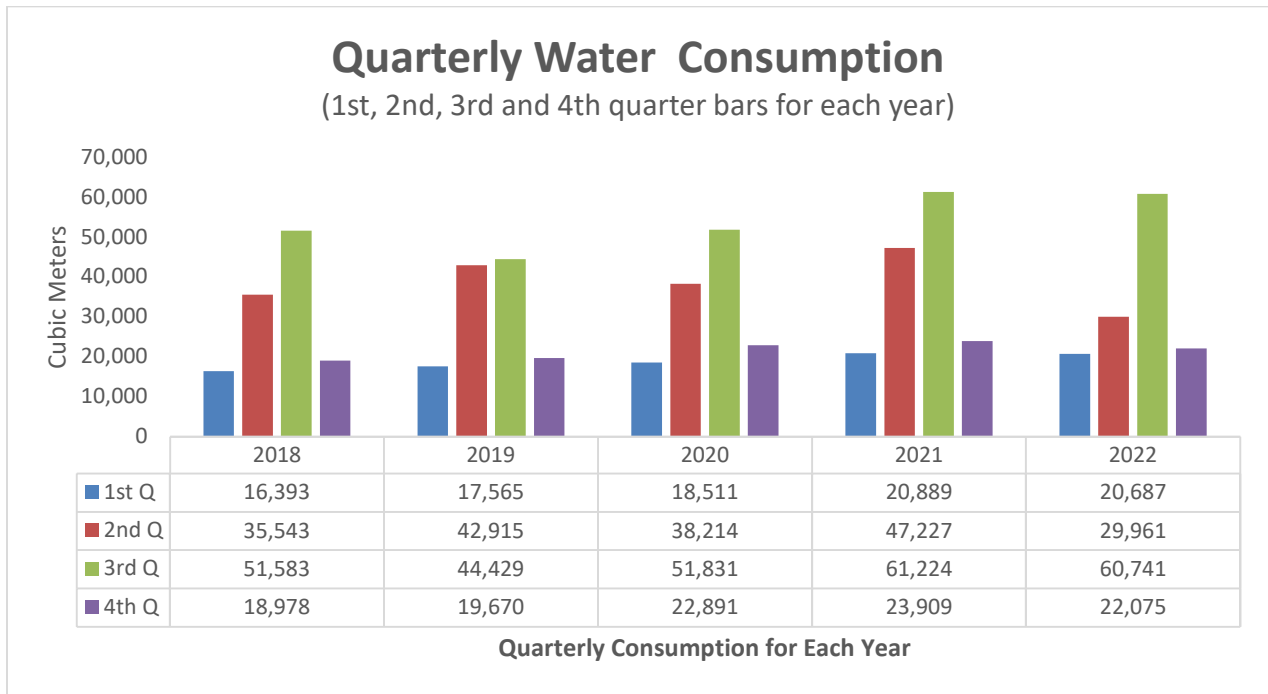
## **5 Groundwater Production and Consumption**

The following graph shows the monthly water delivery figures (a measure of water pumped from the DBID wells) and quarterly water consumption numbers.

**DBID Water Pumping Statistics** show the water pumped from the wells each month. This does not correlate directly to water consumption measured at the meters as it also includes all distribution system flushing, hydrant use and water used during routine repairs and maintenance.



**Quarterly Water Consumption** reflects usage measured by the quarterly meter reads. Water consumption has been relatively steady during the past few years. Summer water consumption is considerably higher than over seasons due to sprinkling and other summer activities. This consumption data is used to bill rate payers quarterly for water usage.



## 6 Maintenance Program

Production wells and the reservoir are inspected on a weekly basis to reduce or eliminate the risk of contamination and system failure. All meters have dual check valves that are tested annually to prevent backflow into the system. Isolation valves are exercised bi-annually and air valves are inspected annually. Flushing program includes: flushing dead ends, particularly during periods of low demand. Fire hydrants are inspected annually and serviced as required.

## 7 Water System Projects

### 7.1 2022 Completed Studies

- There were no major studies completed in 2022. An engineering detailed design for a new reservoir was started.

### 7.2 2022 Completed Projects

There was no major construction projects completed in 2022.

## 8 Emergency Response Plan

The Emergency Response Plan (ERP) was reviewed and updated in 2021. The DBID ERP includes:

- Emergency Phone Contact Lists
  - Personnel,
  - Government Agencies,
  - Contractors/Repair Services,
  - Technical Resources,
  - Parts Supply,
  - Bulk Water Suppliers, and
  - Media Contacts.
- Emergency Procedures
  - Unsafe Water Guidelines (Contamination of Well Space/s),
  - Loss of Source, Water Shortage, Broken Water Main, Pump Failure, Power Failures,
  - Flooding, Backflow or Back Siphonage,
  - Earthquake, and
  - Fire.
- Maps of System & Electrical Schematics

## 9 Report Distribution

Residents are notified by direct mail-out in the Pipeline Newsletter each year regarding the availability of this report. Annual Water System reports are available from the DBID office and on the website at [www.dbid.ca](http://www.dbid.ca) under "Water Quality Reports".

A copy of this report is submitted to Island Health.