

# DEEP BAY IMPROVEMENT DISTRICT

## ANNUAL WATER SYSTEM REPORT 2014



## 2.2 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.

## 2.3 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 40 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 57 fire hydrants.

## 3 Water Sampling and Testing Program

Bacteriological monitoring is carried out semi-monthly throughout the distribution system. There are 4 sample sites, as identified by Island Health. Each site is sampled on a monthly basis and samples are delivered to the Parksville Health Unit where they are sent on for testing.

### Positive Results: none

Date	Total coliform	E. Coli	Reason	Corrective Action

### Adverse Results: none

Date	Total coliform	E. Coli	Reason	Corrective Action

Attached to this report are the full test results from bacteriological monitoring for 2014. These results can also be viewed at: <http://www.healthspace.ca/viha> .

In November 2014, DBID undertook additional chemical analysis on all production wells (except Well # 4 which was out of commission for repairs) and the reservoir. These samples were taken to North Island Labs for testing. All of the well and reservoir samples were within the chemical parameters listed in *The Guidelines for Canadian Drinking Water Quality*, with the following exceptions:

Site	Test	Result	Units	Drinking Water Guidelines
Reservoir	Total Coliform	9.9	mg/L	<1
Well #2	Colour–Apparent	16	Colour Units	15
Well #2	Total Iron	.518	mg/L	.3 Aesthetic Objective

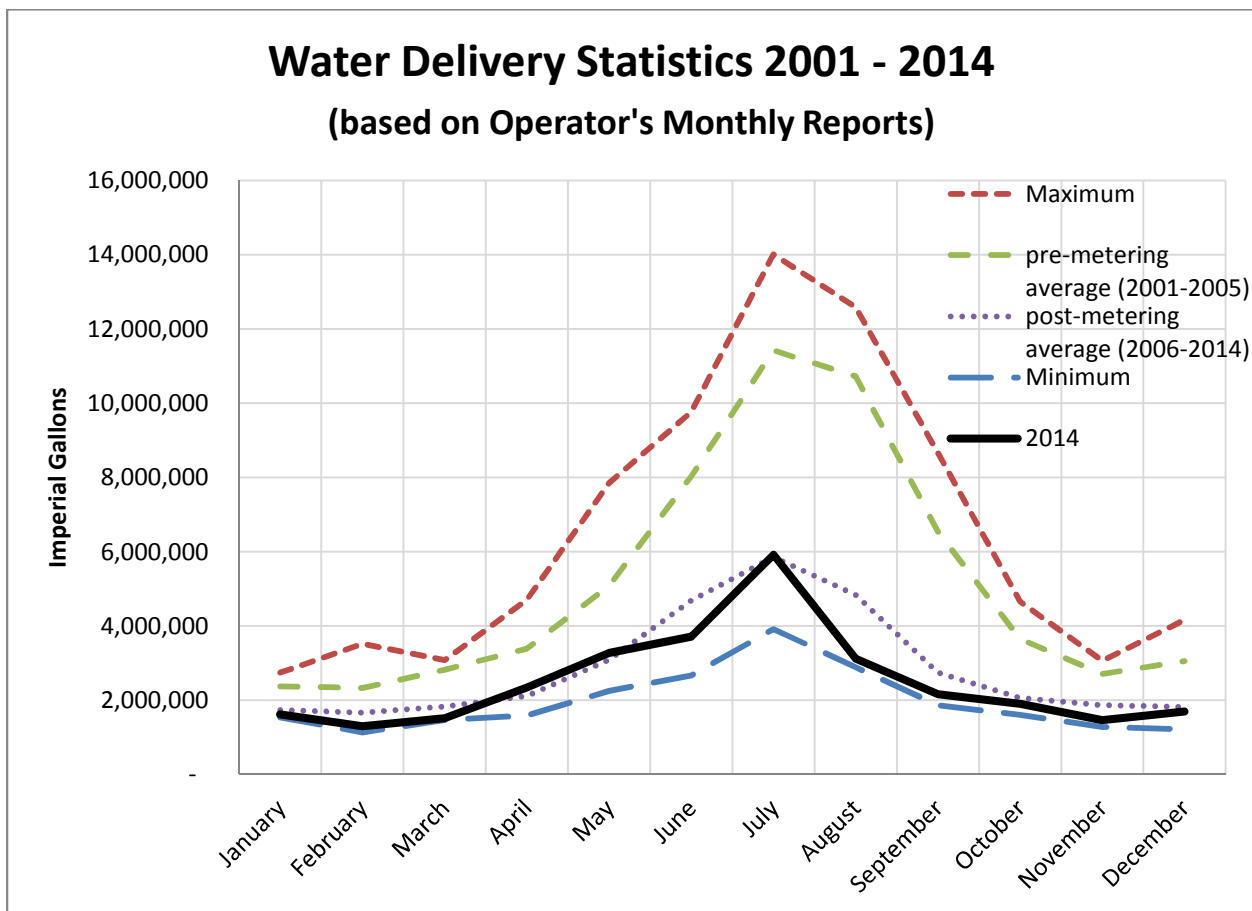
The results of the chemical analysis are available for viewing at the DBID office and are posted on the website at [www.dbid.ca](http://www.dbid.ca) under "Water Quality Reports".

#### 4 Water Quality Inquiries and Complaints

The DBID did not receive any inquiries or complaints regarding water quality during 2014.

#### 5 Groundwater Production and Consumption

The following graph shows the monthly water delivery figures from the DBID wells. Overall, water delivery for 2014 was below the post-metering average. Consumption in some of the spring and summer months was slightly higher than the post-metering average. Given the dry conditions that were experienced over the summer months, rate payers are to be commended for their careful use of water.



DBID conducts a water audit after each quarterly meter reading to compare the amount of water pumped, as measured at the wells, vs. the amount of water delivered through the water meters. The average difference for 2014 was 12.51% up from 10.47% in 2013. This difference is accounted for by water used for flushing (hydrants and reservoir), water used for fire protection purposes, and undetected water loss in the system. In the first quarter of 2014 the system experienced unusually high loss due to an electrical malfunction at one of our well pumps that resulted in overflow at the reservoir. Typical loss in a water system is 10-15%.

The table below shows the **percentage of users who met specified consumption figures** for 2014. For example: in the 1st quarter, January - March 2014, 69% of users consumed between 1 - 40 cubic meters.

<b>Cubic Meters (m<sup>3</sup>)</b>	<b>Jan - Mar 2014</b>	<b>Apr - Jun 2014</b>	<b>Jul - Sep 2014</b>	<b>Oct - Dec 2014</b>	<b>2014 Overall</b>
0	13%	4%	3%	7%	7%
1 - 40	69%	45%	34%	72%	55%
41 - 75	15%	29%	29%	17%	23%
76 - 100	2%	10%	10%	2%	5%
Over 100	1%	12%	24%	2%	10%

## 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. Air valves are inspected annually. Flushing program includes: flushing dead ends regularly, particularly during periods of low demand. Fire hydrants are serviced annually.

## 7 Water System Projects

### 7.1 2014 Completed Studies & Projects

- Completed SCADA installation at wells 1, 5, 6 & 8 (upgrade and/or replacement of electrical panels at wells) and associated programming of SCADA software (\$42,935).
- Review and update of the 2008 Engineering, Planning and Design Report (\$5000).

## **7.2 2015 Proposed Projects & Upgrades**

- Completion of SCADA installation at wells #3 & 4. Installation of data loggers at all SCADA wells and associated programming. Estimated cost \$17,675.
- Replacement of pump and well casing in Well #4. Estimated cost \$8500.
- Wellhead Protection Plan. Estimated cost \$15,000.

## **8 Emergency Response Plan**

The Emergency Response Plan (ERP) was reviewed and updated in 2014. 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". Copies will be mailed upon request. There is no charge for a copy of this report

A copy of this report is submitted to Island Health.

4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	15-Dec-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	15-Dec-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	2-Dec-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	2-Dec-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	24-Nov-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	24-Nov-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	12-Nov-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	12-Nov-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	20-Oct-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	20-Oct-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	6-Oct-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	6-Oct-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	22-Sep-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	22-Sep-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	8-Sep-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	8-Sep-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	25-Aug-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	25-Aug-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	11-Aug-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	11-Aug-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	21-Jul-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	21-Jul-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	7-Jul-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	7-Jul-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	16-Jun-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	16-Jun-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	2-Jun-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	2-Jun-2014 L1 L1

4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	12-May-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	12-May-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	5-May-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	5-May-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	14-Apr-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	14-Apr-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	7-Apr-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	7-Apr-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	24-Mar-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	24-Mar-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	17-Mar-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	17-Mar-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	24-Feb-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	24-Feb-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	4-Feb-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	4-Feb-2014 L1 L1
4503 Maple Guard Drive, Deep Bay, SAMPLE STATION, 4503 Maple Guard Drv., Deep Bay BC	28-Jan-2014 L1 L1
4647 Thompson Clarke Drive, East, Deep Bay, Deep Bay WWD, Deep Bay BC	28-Jan-2014 L1 L1
Deep Bay Drive, Deep Bay, Deep Bay Drive, Deep Bay BC	8-Jan-2014 L1 L1
Deep Bay Fire Hall, Deep Bay, Deep Bay Fire Hall, Deep Bay BC	8-Jan-2014 L1 L1