

Genelle Improvement District

2023 Annual Water Report



Contents

Contents.....	2
Introduction.....	3
Genelle Improvement District Water Distribution System.....	3
SCADA.....	3
Well #1.....	3
Well #2.....	4
Well #3.....	4
Reservoir.....	4
China Creek.....	4
Routine Maintenance Program.....	4
Water Quality Complaints.....	5
Cross Connection Program.....	5
2014 Improvements.....	5
2015 Capital Projects and Improvements.....	5
Water Consumption.....	5
Water Sampling and Testing.....	5
Emergency Response Plan.....	6
Water Sample Reports.....	6

Introduction:

This report is required by Interior Health Authority as part of the Genelle Improvement District Operating Permit. The Report provides an overview of the water system including water test results, maintenance, and improvements.

Genelle Water Distribution System:

IHA Facility Number - 0210645

Water System Classification: Level II EOCP Class II-certificate #520

EOCP Certification Level of Operator – Level 2, certificate #7046

The community of Genelle lies within the Regional District of Kootenay Boundary (RDKB) in BC and forms a part of the RDKB Electoral Area “B”. Genelle is primarily a residential community with some commercial and industrial areas. The population is approximately 900 people, with a total land area of about 2.93 square km.

The Genelle Improvement District (GID) originated in 1962 under the provincial Letters Patent developed at that time. The water system was originally developed to be fed from China Creek via gravity fed system, however is now sourced from groundwater extracted from three (3) production wells (Wells #1, #2, #3). The water supply distribution system includes the three production wells, 33 fire hydrants, two pressure reducing stations, one 100,000 Imp gal reservoir and a 150,000 Imp gallon reservoir and approximately 12 km of looped PVC and asbestos concrete watermains. Pipe sizes range from 100mm to 200mm. The system is split into two pressure zones. The upper zone services lots which range in elevation from 434m–484m. The lower zone services lots which range in elevation from 410m–460m. The GID consists of 295 parcels with 298 active connections. The Whispering Pines Mobile Home Park uses their own water system which consists of three wells. Other private domestic water wells also exist in Genelle. Runoff and drainage is directed towards the Columbia River. Sewage disposal for all properties in Genelle are serviced by individual septic systems.

SCADA (Supervisory Control and Data Acquisition)

The SCADA system is used to monitor and control the wells and reservoir.

SCADA was completed in June 2014 by Westek Controls of Castlegar.

May 2023, SCADA working satisfactory with no major updates

Well #1

Well #1 is located in a pump house near the northern corner of the Home Goods furniture warehouse. It was drilled in 1978 to a depth of 53m (174 ft.), the diameter is 20cm (8 inch) and the screen assembly is 4.6m (15ft) long with a slot size of .020 and .025 inches. The well record states that 53m of sand was observed during the drilling of this well, indicating that the aquifer is unconfined. The recommended long term well yield for Well #1 is 300 US gpm. Pump and motor were upgraded with Pleuger products in November 22/17

Well #2

Well #2 is located 32m east of well #3 in a pump house within the GID works yard at 611-16th Avenue Genelle. The well was drilled in October 1990, to a depth of 62m 203ft together with a test well drilled to a depth of 60m 196ft located 1.5m from Well #2. The diameter in the production well is 20cm (8 inch) and the screen assembly is 3 m (10 ft) long with a slot size of .100 inches. The test well diameter is 15 cm (6 inch) and the

screen assembly is 1.2 m (4 ft) long with a .100 inch slot size. The recommended maximum pumping rates for production well #2 is 350US gpm and for the test well is 140US gpm. During the pumps tests, no interference effects were identified in Well #1, located approximately 180 m to the north.

2014- well #2 had a complete upgrade with new Pleuger pump, motor and column pipe done by Precision Pumps. Installation of level sensor was completed by Water Operator and Westek Controls. Precision Pumps also conducted a video inspection on well which showed no problems and in good shape for its age.

Well #3

Well #3 is located within the GID works yard at 611-16th Avenue approximately 4.2m north of test well #3. The well heads for both the production well and the test well are not housed but completed with steel casing above ground surface, as required by the BC Groundwater Protection Regulation (pitless adapter). Well #3 was drilled in October 2003 to a depth of 79m 260ft. A well screen assembly was installed from approximately 75 m to 79 m below ground surface, and consists of 4.6m (15ft) of 20 cm (8 inch) diameter telescopic screen with a .060 inch slot size. GID test well #3 was drilled in November 2002 to a depth of 93m 305ft. Although a screen was not installed in this 6 inch diameter test well, the well casing was reportedly pulled to a depth of 79m below ground surface, which was interpreted to be the base of the screenable portion of the aquifer.

2014- pulled well to confirm installation of check valve and installed level sensor. Well 3 was also pulled in 2021 due to a pump failure so a rebuilt pump that we had in stalk was installed and the failed pump was rebuilt and is in the inventory for an emergency.

Reservoir I

The 100,000 Imp gallon concrete reservoir is located on the west side of Highway 22, on the hillside across from the Genelle Fire hall. It is placed within a Blanket Easement on (Plan 16317) stretching down to the highway. The reservoir is located at an elevation of 515m. and is connected to the GID system by a 200 mm water main running down the dedicated 6m wide right of way. In 2021 the reservoir had a complete restructuring and put back on line

Reservoir II

The 150,000 Imp gallon concrete reservoir is located on the west side of Highway 22, on the hillside across from the Genelle Fire hall . It is placed within a Blanket Easement on (Plan 16317) stretching down to the highway. The reservoir is located at an elevation of 515m. and is connected to the GID system by a 200 mm water main running down the dedicated 6m wide right of way.

China Creek

China Creek is a small watershed with a catchment area of approximately 29 square km. above the GID intake. Recorded data shows the majority of runoff occurs during spring freshet. The average flow in the creek during low flow times is in the range of 63L/s. The GID holds 8 water licences on China Creek.

Routine Maintenance Program:

Fire Hydrants are maintained and inspected when necessary. And every 5 years service as advised by the manufacturer. Easy access to hydrants is maintained throughout the year; during winter months, hydrants are cleared of snow and during summer months, grass is cut.

Chlorination at the reservoir and system flush is completed twice per year, once in the spring and once in the fall.

Inventory and equipment count is done yearly at the beginning of January.

Gathering data on each well on a weekly basis (amperage, voltage, starts and stops etc.)

Water meters located on each well is data we collect every month to know the water consumption and is reported to Interior Health

Update mapping to show additional meters, water lines, valves etc.

Valve exercising to ensure valves are in proper working condition.

Water Quality Complaints:

We had one bad sample in 2023 due to high coliform count and were put on a water advisory after some more testing we came to the conclusion that is was a poor sample and were able to rescind the advisory

Cross Connection Program:

The GID is presently collecting water system data on each parcel, to address the potential for cross connection. Water System Operator completed Cross Connection Course through BCWWA.

Water Consumption:

In 2023 the GID total water consumption was 221,104 cubic meters. The minimum daily demand gallons per household in December was 132 and the maximum daily demand gallons for household in July was 1046 Our water consumption up from the previous year approx. 20,000 cubic meters

Operational Costs:

	2021	2022	2023
Administration	90,964	86,394	112,392
Operating Costs	143,175	124,861	137,178
Total Expense	234,139	211,255	249,570

In 2021 the cost to deliver water was \$1.19 per cubic meter

In 2022 the cost to deliver water was \$1.01 per cubic meter

In 2023 the cost to deliver water was \$1.13 per cubic meter

Water Sampling and Testing:

As required by the Interior Health Authority (IHA), the GID Water System Operator takes water samples for the purpose of testing of Total Coliforms and e-Coli. The samples are sent to Passmore Laboratory in Winlaw, results are emailed back to the GID usually within 2 – 3 days then a monthly report is emailed to IHA. Samples are taken at different points in the system weekly alternating between sites. A complete chemical analysis of Well 2 in 2020, Well 3 in 2020, Well #1 in 2023, by Caro Analytical Services.

These tests are requirements from IHA. You can view the results from these test on our website or a copy can be picked up at the office.

Emergency Response Plan:

The GID has an Emergency Response Plan in place. The Plan identifies potential emergencies and action plans. This ERP is available on our website and is updated each year

Water Sample Reports for 2023

Site: 611-16th Avenue

Date	# of Samples	Total Coliform Results	E.Coli Results
January	1	<1	<1
February	2	<1	<1
March	1	<1	<1
April	1	<1	<1
May	2	<1	<1
June	1	<1	<1
July	0		
August	1	<1	<1
September	2	<1	<1
October	2	<1	<1
November	1	<1	<1
December	1	<1	<1

Site: 102-12th Avenue

Date	# of Samples	Total Coliform Results	E.Coli Results
January	1	<1	<1
February	1	<1	<1
March	1	<1	<1
April	2	<1	<1
May	0		
June	0		
July	4	2-2 & 2 <1	<1
August	3		
September	1	<1	<1
October	2	<1	<1
November	1	<1	<1
December	1	<1	<1

Site: Other

Date	# of Samples	Total Coliform Results	E.Coli Results
January Well 1	2	<1	<1
February Well 1	1	<1	<1
March Well 1	2	<1	<1
April Well 1	1	<1	<1
May Well 1	1	<1	<1
May Well 2	1	<1	<1
May Well 3	1	<1	<1
June Well 2	1	<1	<1
June Well 3	1	<1	<1
July Well 1	1	<1	<1
July Well 3	1	<1	<1
July Well 2	1	<1	<1
Aug Well 2	2	<1	<1
Aug Well 3	2	<1	<1
Sept Well 2	1	<1	<1
Oct Well 3	1	<1	<1
Nov Well 1	2	<1	<1
Dec Well 1	1	<1	<1

Counts in the Water

July 10 102 12th Ave had a count of 2 Coliform
July 12 102 12th Ave had a count of 2 Coliform

These counts were high enough that we were put on a boil water advisory then after a chlorine flush and more testing it was resolved, this could have been a biofilm that grows in the lines as the temperatures rise and when sampling from a hydrant it disrupts the film and sends it out into the water this is becoming more likely to happen as our ground temperatures rise