

Genelle Improvement District

2013 Annual Water Report



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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:

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, but 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, 31 fire hydrants, two pressure reducing stations, one 100,000 Imp gal 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 294 parcels with 287 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. Surface water from China Creek located on the north side of Genelle, can be used for emergency water supply purposes only. 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. Upgrade to SCADA will occur in April 2014.

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 250US gpm.

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 together with a test well drilled to a depth of 60m 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.

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. 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. 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.

Reservoir

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 panhandle shaped Statutory Right of Way (Plan 16317) measuring 24mx24m at the top with a 6m wide handle 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 flushed every spring along with pressure testing and removal of winter markers. In the fall, they are inspected, pressure tested, winter markers are placed on hydrants and any worn parts are replaced. 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 are read two times per year in order to gather data on water usage.

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

Valve exercising to ensure valves are in proper working condition.

Water Quality Complaints:

Received 2 complaints. Samples were taken at the two residences and sent to Caro Analytical Services. Results were within acceptable standards - <1.

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.

2013 Improvements:

- Determined best location for a second reservoir.
- Electrical Upgrade to Wells 1, 2 & 3.
- Replaced several service boxes.

2014 Capital Projects and Improvements:

- Electrical supply to storage container.
- SCADA upgrading.
- New Reservoir Project
- Maintenance on all wells.

Water Consumption:

In 2013, the GID total water consumption was 329,364 cubic meters. The minimum daily demand in January was 245 cubic meters and the maximum daily demand in August was 1590 cubic meters.

Operational Costs:

	2011	2012	2013
Administration	\$ 64,925	\$ 75,878	\$77,235
Operating Costs	\$ 85,687	\$ 87,801	\$84,888
Total Expenses	\$150,612	\$163,679	\$162,123

In 2013 the cost to deliver water was \$0.49 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 Caro Analytical Services in Kelowna, results are emailed back to the GID and a monthly report is emailed to IHA. There are three sampling sites used with one sample taken weekly and alternating between sites. A complete chemical analysis of Wells 2&3 was completed in 2013 by Caro Analytical Services.

Emergency Response Plan:

The GID has an Emergency Response Plan in place. The Plan identifies potential emergencies and action plans.

Water Sample Reports for 2013

Site: 611-16th Avenue

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

Site 102-12th Avenue

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

Site 404-14th Avenue

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

Site 523-15th Avenue

September	1	<1	<1
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Site 601-12th Avenue

September	1	<1	<1
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Well #2: Comprehensive Drinking Water Analysis completed by Caro Analytical Services on April 29, 2013. Copy emailed to IHA.

Well #3: Comprehensive Drinking Water Analysis completed by Caro Analytical Services on May 29, 2013. Copy emailed to IHA.