

***REGIONAL DISTRICT OF KITIMAT-STIKINE***

***South Hazelton  
Community Water System***

***Annual Report 2015***



Regional District of  
**Kitimat-Stikine**

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## 1.0 INTRODUCTION

Kala Geosciences Ltd. was engaged by the Regional District of Kitimat-Stikine (RDKS) to complete an Annual Report for the 2015 calendar year, pertinent to the South Hazelton Community Water System (CWS) located in the community of South Hazelton, BC.

## 2.0 SYSTEM OVERVIEW

The South Hazelton community's drinking water system supply is Chicago Creek. The Chicago Creek watershed supplies water to South Hazelton for both consumption and irrigation purposes.

The following is a brief summary regarding the source:

- The South Hazelton CWS was originally intended as a natural water source with no treatment;
- As of 1998, the South Hazelton community was put on a 'Boil Water Advisory' because of the presence of potentially harmful bacteria in the system;
- In 2003, the Waterworks District was ordered to comply with Provincial Drinking Water Regulations and install a suitable disinfection treatment system. In addition, the South Hazelton CWS did not meet minimum fire flow requirements set out by the Fire Insurance Underwriters. This resulted in the community being at risk of higher fire insurance rates. Feasibility studies, design and funding were secured once the RDKS took over the assets and responsibilities;
- In 2011, construction contracts were awarded; the start of construction included water intake upgrades, infiltration gallery improvements, the construction of the water disinfection facility, including power and communication systems, and access road upgrades to the facility, along with two reservoirs for domestic and firefighting purposes;
- In February 2012, with completion of the system upgrades and final clearance from Northern Health, the boil water advisory was rescinded, and;
- The District of New Hazelton operates and maintains the South Hazelton CWS, on behalf of the RDKS and a long-term arrangement is currently under development.

### 2.1 Wells and Intakes

The CWS obtains drinking water from a surface water source called Chicago Creek. There are no water wells within the CWS. The Chicago Creek intake was upgraded in 2011.

### 2.2 Water Storage

Water is stored within one of two reservoirs present within the Chicago Creek CWS. One of the reservoirs is located above the water intake and is 280,120 L in size. This reservoir is located at a greater elevation than both the intake and the distribution system. An additional reservoir is located at the South Hazelton Fire Hall to provide additional storage. The second reservoir is 268,764 L in volume. A fire skid (pump) is located at this reservoir to assist in sustaining pressures when required. This pump would be used for firefighting or water system flushing. Emergency storage for three to eight days is available depending on the time of year, as 170,000 L per day is used by residents at peak usage in the summer months.

### 2.3 Water Distribution

Water is pumped from Chicago Creek to the treatment facility through an infiltration gallery, located outside of the treatment facility. Water passes through a sand filtration bed as it enters the treatment facility, the turbidity is measured via an inline sensor and flow is automatically controlled. The water flows through the treatment facility and into the first reservoir. From the reservoir, water is fed through the distribution system and to the additional reservoir (at the Fire Hall). The first reservoir is at high elevation, allowing for system pressure requirements to be met for normal use. The Fire Hall reservoir contains an additional pump, used to meet fire flow pressure requirements. The distribution piping within the community is mainly comprised of asbestos cement, polyvinyl chloride and some ductile iron. The distribution piping system is approximately 8.3 km in total.

### 2.4 Water Treatment

Water pulled from Chicago Creek passes through an infiltration gallery outside of the treatment facility and then through a sand filtration bed, prior to entering the water treatment facility. The turbidity of the water is monitored via an inline sensor and the flow rate of the water is automatically adjusted. The water then passes through two of three Ultraviolet (UV) disinfection reactors and into a holding tank, where a 12% sodium hypochlorite solution is injected for additional disinfection, and also to maintain a free chlorine residual within the distribution system. Free chlorine residual leaving the treatment plant typically ranges from 0.48 to 0.70 mg/L to ensure that a minimum residual concentration of 0.20 mg/L is achieved at the end of the distribution system. Residual free chlorine is monitored daily at the treatment plant, every two days centrally within the distribution system and whenever possible at a hydrant at the end of the line.

### 3.0 SYSTEM CLASSIFICATION

The South Hazelton CWS treatment facility is number: **1610731**.

### 4.0 OPERATOR CERTIFICATION

South Hazelton has five operators currently employed by the Public Works and Operations Department. These individuals are responsible for water treatment and distribution:

<b>Allan Berg:</b>	<b>Public Works Superintendent, Chief Operator</b> Water Distribution 2, Water Treatment 2
<b>Jim Bolger:</b>	Operator
<b>Sabrina Croft:</b>	Operator
<b>Pat Thistle:</b>	Operator
<b>Jason Lacroix:</b>	Operator

The RDKS also has four operators currently employed within the Works and Services Department:

<b>Mike Gull:</b>	<b>Works and Services Coordinator</b> Water Distribution 1, Wastewater Collection 1
<b>Roger Tooms:</b>	<b>Works and Services Manager</b> Water Distribution 3, Wastewater Collection 2, Municipal Wastewater Treatment 2, Chlorine Handling
<b>Parrish Miller:</b>	<b>Operations Foreman</b> Water Treatment – Multi Utility 1, Wastewater Collection 2, Municipal Wastewater Treatment 2, Water Distribution 2, Chlorine Handling
<b>Chris Kerr:</b>	<b>Operations</b> Municipal Wastewater Treatment 1, Wastewater Collection 2, Water Distribution 2

Water system and operator certifications are provided in Appendix A

## **5.0 WATER SYSTEM WORKS**

### **5.1 Water Quality Inquiries and Complaints**

No water quality inquiries or complaints were received by the RDKS regarding the South Hazelton Community Water System in 2015.

### **5.2 System Flushing Schedule**

The CWS was completely flushed in June. The process required approximately one week to complete and included all piping and dead ends. Flushing notifications were posted in the newspaper one to two weeks in advance and multiple advertisements aired daily on terrestrial radio as the flushing progressed throughout the various locations within the distribution system. Some minor dead end flushing was completed throughout 2015, to ensure that a free chlorine residual was maintained.

## **6.0 WATER QUALITY RESULTS**

Water samples were collected and submitted every two weeks for bacteriological analysis. This is the major method of determining water quality. Water sampling results are available via the online Public Health Protection database from Northern Health ([www.healthspace.ca/nha](http://www.healthspace.ca/nha)), where historical data is available in a searchable format.

### **6.1 Bacteriological**

As part of their regular duties in 2015, the water system operators collected samples every two weeks from representative locations within the CWS. In 2015, a total of 24 samples were collected and submitted to a certified laboratory for analysis of total coliforms and E.coli. The monitoring program indicated that there were no positive samples collected over the 2015 monitoring period. No follow-up flushing of the system or water quality advisories were required. All 2015 samples met the bacteriological requirements of the Canadian Drinking Water Quality Guidelines.

## **6.2 Chemical**

Additional parameters are also monitored within the CWS distribution system via a supervisory control and data acquisition (SCADA) system. The SCADA system continuously monitors real-time water quality data and alerts operators to changing conditions. The SCADA system monitors the following parameters along with other basic water quality parameters: turbidity, pH, UV intensity and bulb life and free and total chlorine. In 2015, annual sampling of the source water became mandatory as a condition of the permit to operate. Samples are collected from Chicago Creek annually and analyzed for general potability parameters, yearly.

## **7.0 FUTURE INITIATIVES AND ISSUES**

### **7.1 Proposed System Improvements**

The RDKS has no proposed system improvements for the South Hazelton CWS in 2015.

### **7.2 Source Protection**

Source protection is provided by the District of New Hazelton on behalf of the RDKS.

### **7.3 Emergency Response**

Emergency response is provided for the South Hazelton area by the District of New Hazelton, on behalf of the RDKS. Appendix B includes the Emergency Response Plan (ERP) for the South Hazelton CWS. The ERP includes Boil Water Notices procedures and signage to be used should a Boil Water Notice be required. The ERP (Appendix B) is in place and will be activated during high turbidity events within the CWS.

### **7.4 Cross Connection Control**

Cross connection control shall be applied to the South Hazelton area once a cross connection control program is finalized for the Thornhill CWS. At the present time, this program remains in its infancy.

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Figure 1: South Hazelton Community Water System Layout

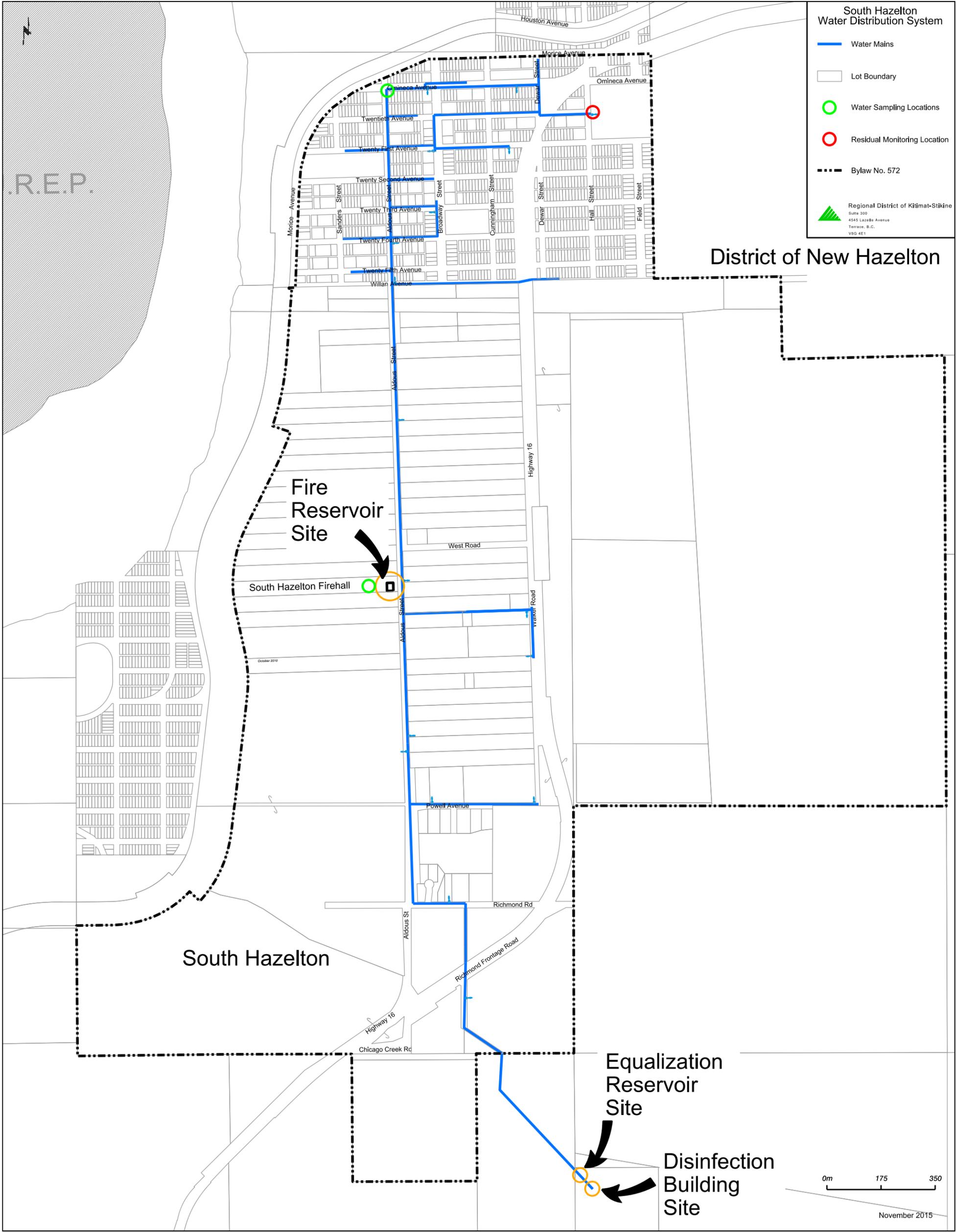
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Figure 1: South Hazelton Community Water System Layout



**South Hazelton Water Distribution System**

- Water Mains
- Lot Boundary
- Water Sampling Locations
- Residual Monitoring Location
- Bylaw No. 572

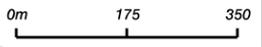
**Regional District of Kitimat-Stikine**  
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District of New Hazelton

South Hazelton

Equalization Reservoir Site

Disinfection Building Site



November 2015

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Appendix A: Water System and Operator Certifications

Appendix B: Emergency Response Plan

## **Appendix A**

### Water System and Operator Certifications

## WATER SYSTEM AND OPERATOR CERTIFICATIONS

Operator certificates can be viewed via the Environmental Operators Certification Program (EOCP) website at: <http://www.search.eocp.ca/index.php> by searching for the operator or facility name. All RDKS operators have an individual EOCP Membership Number, as follows:

Allen Berg	3716
WT-II, WD-II, WWC-I	
Mike Gull	8767
WWC-I, WD-I	
Chris Kerr	5500
WD-II, MWWT-I, WWC-II	
Parrish Miller	3095
WT-MU-I, WWC-II, MWWT-II, WD-II, CH	
Jason Lacroix	8412
WD-I	
Roger Tooms	673
MWWT-II, WD-III, BH, WWC-II	

### WATER SYSTEM

Facility Number (EOCP):	2048
Name:	South Hazelton Water Treatment Facility
City:	Hazelton, BC
Facility Classification:	WT-II
Classification Date:	2011-10-05

The EOCP can be contacted directly for additional inquiries into individual members or facilities at:

**EOCP**  
#201 3833 Henning Drive  
Burnaby, BC  
V5C 6N5

Phone: (604) 874-4784 · Toll Free: 1-866-552-3627  
Fax: (604) 874-4794 · E-mail: [eocp@eocp.ca](mailto:eocp@eocp.ca)