

THE VILLAGE OF RADIUM HOT SPRINGS

Radium Hot Springs 2014 Annual Water Report

The Village of Radium Hot Springs is required, under its Water Operating Permit issued by the Interior Health Authority, to prepare an annual report detailing the operation of the Village of Radium Hot Springs' Water Treatment Plant (WTP) and its distribution system.

SOURCE PROTECTION:

The Village of Radium Hot Springs is a member of the Forster Creek Watershed Committee, which is consulted by Ministry of Forests for any comments regarding Forster Creek tenures, logging or development issues. In addition to this, the Village maintains fences around all our remote infrastructures such as our intake, sediment ponds and treatment facility.

WATER-SUPPLY

The Village of Radium Hot Springs is the owner and operator of the Radium WTP and of the water distribution system, which serves approximately 777 full time residents, and over 1000 part time residents. The Village of Radium Hot Springs is certified by the Environment Operators Certification Program (EOCP) as a Class II Water Treatment Plant and Class I water distribution system.

The raw water supply for Radium Hot Springs is Forster Creek. The water intake is located at the 18 km mark on Forster Creek Road. Water enters through a rock dam allowing for removal of surface debris such as leaves, sticks etc. The intake screen is located adjacent to the creek in a small chamber and consists of 36" stainless steel with 6mm openings. The water then enters a 1 million gallon settling basin and is screened once again prior to entering our 12" supply line.

INTAKE

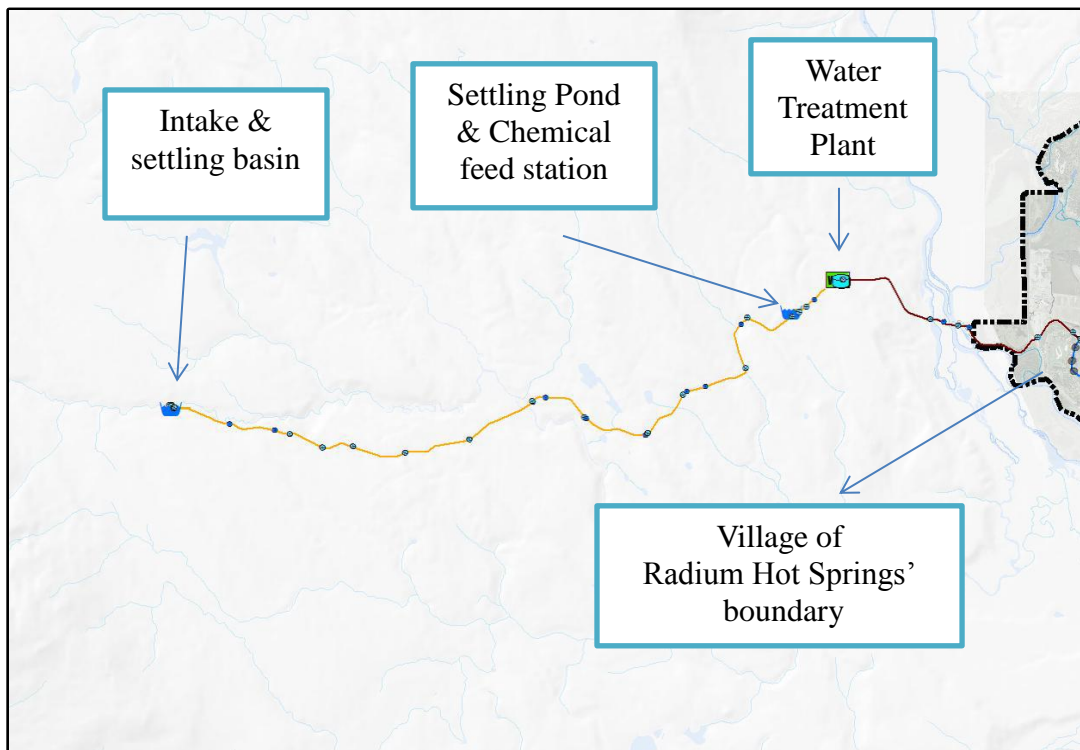


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SETTLING POND



The 12" supply line runs at gravity pressure through approximately 10 km of pipe to a second, 6 million gallon settling pond (.5 km upstream of our Water Treatment Plant). The settling pond also houses a chemical feed system which allows for pre-treatment of the raw water prior to arriving at the Water Treatment Plant.



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WATER-TREATMENT

Radium Hot Springs Water Treatment Plant was constructed in 2000 and consists of two filter tanks (trains), each having two multi-media filters consisting of five layers of different size rock, gravel and sand, topped with 18" of anthracite (Charcoal). Forster Creek is a glacier fed creek and has super fine colloidal silt (rock flour) during the summer months. This requires the addition of a coagulant to increase the particle sizes to ensure removal with the filters. Each train produces 500 gal/min for a total of 1000 gal/min of treated water. The filtered water then flows through an ultra violet disinfection chamber prior to the addition of chlorine (sodium hypo-chloride - 17% solution of chlorine). The water treatment plant is fully automated and is monitored with a SCADA system (Supervisory Control and Data Acquisition system). The Village of Radium Hot Springs plant operators maintain a free chlorine residual at the WTP of approximately 0.35mg/l to maintain 0.20mg/l free chlorine residual at the far end of the distribution system. The free chlorine residual is also monitored by online instrumentation at the treatment plant and in town. Both are tied into the Radium Hot Springs SCADA system. The SCADA system has the ability to alarm out if the chlorine concentration drifts outside of predetermined ranges.

WATER TREATMENT PLANT



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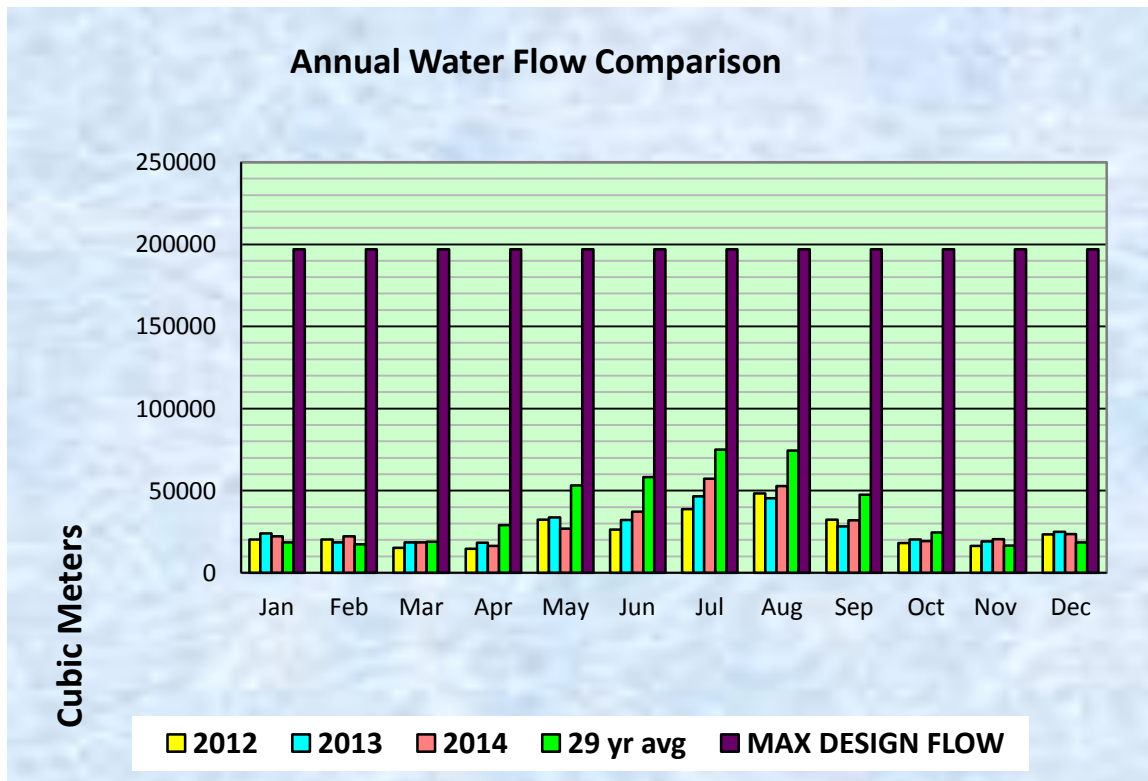
DISTRIBUTION SYSTEM

The Village of Radium Hot Springs has a relatively simple distribution system. 99% of our water system is gravity fed, with pressures ranging from 110 to 150 psi (per square inch). The Village has approximately 18.5 km of water-mains, 44 fire-hydrants and two pressure reducing stations, one that supplies north Radium and one that supplies Rivercrest subdivision. We also have one booster pump station that pumps water up to two motels and one residence at the top of Madsen Road. Also connected to our water system is approximately 3.3 km of private water-mains and 10 fire-hydrants owned by various strata developments.

THE VILLAGE OF RADIUM HOT SPRINGS

2013 Water Consumption: Cubic Meters M3

	2011	2012	2013	2014	29 Total	29 yr avg	MAX DESIGN FLOW Max/Month
Jan	23,353	20,321	23,978	22,168	534,488	18,431	197,000
Feb	19,865	20,171	18,482	22,197	502,602	17,331	197,000
Mar	22,986	15,106	18,404	18,489	549,760	18,957	197,000
Apr	22,707	14,680	18,359	16,316	838,973	28,930	197,000
May	45,474	32,378	33,625	26,874	1,544,725	53,266	197,000
Jun	50,354	26,362	32,140	37,222	1,687,421	58,187	197,000
Jul	69,496	38,727	46,469	57,362	2,172,271	74,906	197,000
Aug	70,352	48,257	45,318	52,779	2,158,856	74,443	197,000
Sep	48,110	32,276	28,232	31,889	1,380,022	47,587	197,000
Oct	23,678	18,030	20,243	19,227	710,669	24,506	197,000
Nov	16,134	16,336	19,069	20,539	482,437	16,636	197,000
Dec	20,019	23,369	24,881	23,555	536,215	18,490	197,000
	432,528	306,013	329,200	348,617	12,383,943	427,033	



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TESTING AND MONITORING PROGRAM:

The Village presently conducts weekly bacteriological sampling and testing from seven sites at end points of water-mains. We conduct annual testing of Forster Creek raw water and ensure proper testing of new water lines as they are installed. All water samples are tested by Caro Environmental Labs in Kelowna. All sample results for 2014 have been negative for any bacteriological contaminants. In 2014 we will add testing for Trihalomethanes annually.

MAINTENANCE AND REPAIRS:

The Village has an extensive maintenance system that includes annual pressure reducing station maintenance, including cleaning Y strainers, exercising valves and monitoring pressures, annual fire-hydrant maintenance and line flushing. Water treatment plant maintenance includes servicing valves, pumps and blower, cleaning tanks and settling basins.

CROSS CONNECTION CONTROL PROGRAM:

The Village does not presently have a cross connection control program in place but we have a draft version from a consultant. The draft report includes numerous requirements that need to be reviewed in detail by staff and council prior to implementation. Although the cross connection program is not in effect yet, the Village is ensuring that new developments include back flow protection, as requested by the Public Health Engineer on the waterworks permits.

CONCLUSION:

The Village of Radium Hot Springs' Annual Water Report is presented to the public by way of the Radium Hot Springs' website, as required by the British Columbia Drinking Water Protection Act and Regulations, as well to meet the terms and conditions of the Village's Water System Operating permit, issued by the Interior Health Drinking Water Officer.

Respectfully submitted

Ken McDonell
Public Works Superintendent
Village of Radium Hot Springs