



ANNUAL WATER REPORT 2011

Date: 24 October, 2012

Introduction

The City of Langley (City) provides water for residents and businesses within the City limits. This report is provided to City Council for their information, and in fulfillment of the City's obligations under the Provincial Drinking Water Protection Act and associated regulations, as well as the terms and conditions of the City's Water System Operating Permit. Enforcement of the regulations and issuance of water system permits is the responsibility of the Fraser Health Authority's Drinking Water Officer.

Water Supply

The City receives its water supply from the Coquitlam Lake reservoir. The water is supplied through the Greater Vancouver Water District (GVWD)'s trunk watermain. There is a primary ozone disinfection station at the Coquitlam reservoir and a secondary chlorination disinfection station at Clayton hill area in the City of Surrey. The City relies on Metro Vancouver staff for the quality of water delivered to the City.

Storage

The City has one water reservoir to serve our present and future water demand. Should there be a disruption in the supply of water from the GVWD, there is adequate water capacity in the reservoir to serve our City for extended

periods of time. The reservoir is equipped with an automatic shut off valve, which will close if flow is disrupted, including seismic events. The intention behind this design is that water is retained in the reservoir for domestic and firefighting use. Because the reservoir was constructed in two separate cells, our crews can clean and maintain one cell at a time, and still have sufficient clean water for our residents.

Distribution System

The City is divided into two pressure zones. These zones split in the area of 53rd Avenue with the northern zone being supplied by gravity from the Clayton reservoir in Surrey at all times and the southern zone being supplied directly from our reservoir. If the available pressure in the northern zone drops, automatic control valves located along 53rd Avenue will open allowing water from our reservoir to supply the north sector in the interim.

The reservoir is also supplied by the Clayton reservoir, located in Surrey, through trunk mains, which are isolated from the rest of the system.

The City's water distribution system consists of 520 fire hydrants, 83 kilometers of watermains and 2 pressure zones. The type of water pipes that were used in the past was predominately Asbestos Cement (AC). Since 1980, all

replacement water pipe has been PVC and recently the City is also using Ductile Iron (DI) pipe when replacing old AC pipe, depending on the soil conditions.

Maintenance Program

The City schedules flushing and cleaning all water mains every 2 years. The GVRD pressure zone was last flushed in the spring of 2007 and the Reservoir pressure zone will be flushed after blow off assemblies on dead end mains have been replaced.

There are 92 dead ends in the City's water distribution system, most of them in cul-de-sacs and all of them have blow-off valves. The City schedules flushing of dead end mains annually, or more often as necessary. The City has replaced all of the old blow off assemblies and the dead ends can now be flushed on an annual basis.

If the City receives a complaint with regards to the quality of the water (i.e. dirty water), the City will investigate and resolve the situation as quickly as possible. If the problem persists, the City will flush the watermain and if required, will have the water tested by an independent laboratory.

As bacterial regrowth is more susceptible in Asbestos Cement (AC) pipe than in PVC, the City has a long-range plan of replacing all AC watermains in the City. The schedule for AC water pipe replacement is based on

the scheduled road pavement rehabilitation program. In 2011, the City did not complete any scheduled AC replacement work.

Backup Water Supply

The City of Langley has an agreement with the Township of Langley that will allow us to open a valve, which are located on the municipal boundaries, when our main source is down with a watermain break or earthquake. This source is from various areas of the Township and there is enough water to last until repairs are done to ours or the GVWD's mains. The City has started discussions with the Township to ensure regular operation of these valves to ensure emergency operability.

Water Sampling & Testing Program

Water sampling is being done every Tuesday of the week, 52 times a year. The City has installed new testing stations at the same locations as stated in the 2008 report. The reservoir has 1 sampling station for testing temperature, chlorine residual and turbidity of the water contained in the cell. The other 13 sampling stations, that are located throughout the City, are used for taking water samples for the GVWD (see attached map). The City gathers all the water samples from each station and the GVWD picks up these samples the same day for testing at their laboratory. The test results are sent back to the City for review weekly.



The City has 52 samples tested every month, almost twice as many samples as is required under the Canadian Guidelines for Drinking Water Quality. Five testing stations are at low flow mains, one at the reservoir (because there is the only “source”), four at medium flow locations and one at a high flow location.

The testing of metals and disinfection byproducts at three testing sites are also being done by the GVWD – these results are attached to this report.

Testing indicates that water quality issues such as higher summer temperatures, low disinfection residual and fluctuating/high Heterotrophic plate counts (HPC) occur in areas with minimal water looping. These areas have been identified for future capital upgrades and are included on a hydrant flushing program, particularly in the summer months.

Water Consumption

The total water consumption for 2011 in the City was 1,433,000 cubic meters, down from 1,450,000 cubic meters in 2010.

New Connections

In 2011, the City issued permits for 152 multifamily units and 3 single family units. Additionally, a subdivision development added nine residential lots to the system.

Utility Management

The City responds quickly to problems involving turbidity issues, leaking services or mains, and loss of water pressure. A standby person is on call at night and on weekends; and during normal working hours we have a maintenance crew that will respond immediately to any water complaints. We received a couple of calls in 2011 relating to low water pressure. These problems usually occur during the summer months when people sprinkle their lawns and the water usage is greater than normal. The City received two calls relating to dirty water when there were high turbidity levels.

Turbidity events from source-water quality are dealt with in conjunction with Metro Vancouver and Fraser Health, ensuring that the public is notified if conditions exist that may be a risk to health. Similar notification plans are in place if an area of the City’s system was experiencing high turbidity due to construction or a watermain break.

Problems/complaints from the public regarding issues such as chlorine levels, blue-green staining, ozone & secondary disinfection, or source turbidity, are asked to phone the Metro Vancouver Water Quality department for further information.

Planned Works for 2012

The City has budgeted for the following water capital projects in 2012.

- Purchase of an automated valve exerciser.



- Replacement of 200m of corroded ductile iron pipe.
- Replacement of an existing water sampling station

Emergency Response Plan

The City has an emergency response plan in case our water supply is interrupted for any reason. There are procedures that our Public Works crews follow whether it is a major or minor

problem. Our Emergency Plan involves activating four distinct stages:

1. ALERT situation.
2. EMERGENCY RESPONSE to save as much water as possible & regulate water supply.
3. RECOVERY/RESTORATION to reinstate our water supply.
4. DEBRIEFING would take place when recovery operations are underway.

Conclusion

This 2011 City of Langley Water System Report is presented to the public, by way of posting on the City of Langley website, as required by the British Columbia Drinking Water Protection Act and Regulations, as well as to meet the terms and conditions of the City's Water System Operating Permit issued by the Fraser Health Drinking Water Officer.

Attachments:

1. Water consumption records for the City of Langley, 2011
2. 2011 Annual Haloacetic Acids, Trihalomethanes, Metals and Vinyl Chloride Monitoring Report – Metro Vancouver, 2012
3. 2011 Annual Water Quality Reports for test stations in the City of Langley.
Note regarding graphs: Temperature and HPC are on a logarithmic scale. HPC values shown as "1" are where the reading was given as "<2"

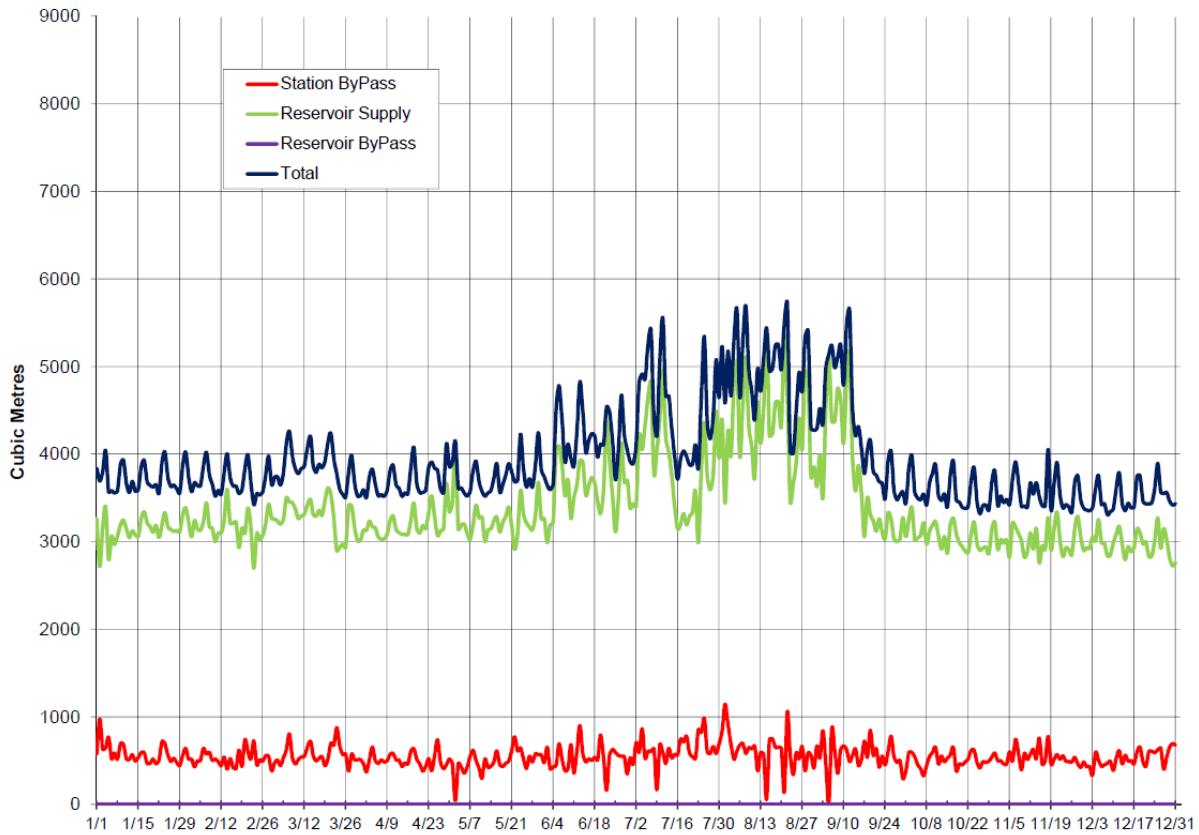


Mike Thomas P.Eng.
Manager of Engineering Services

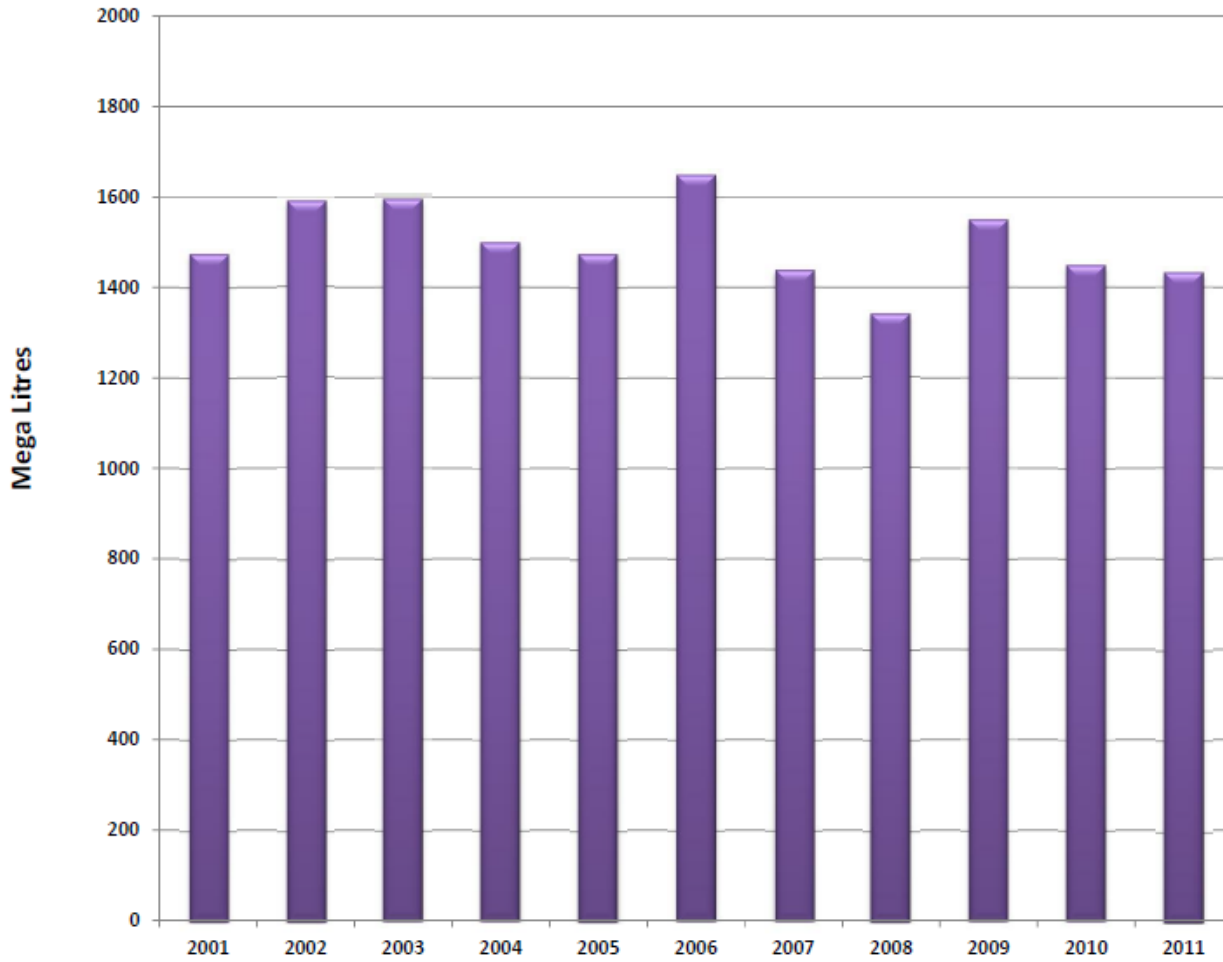
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2011 Water Consumption Records – Total 1433ML



Comparison of 10 Years of Annual Water Consumption



Disinfection Byproduct Results 2010 - 2011

Sample	Date Sampled	THM (ppb)						Total THM Quarterly Average	HAA (ppb)						Total HAA Quarterly Average
		Bromodichloromethane	Bromoform	Chlorodibromomethane	Chloroform	Total Trihalomethanes	Dibromoacetic Acid		Dichloroacetic Acid	Monobromoacetic Acid	Monochloroacetic Acid	Trichloroacetic Acid	Total Haloacetic Acid		
COL-451	14/09/2010	1	<1	<1	38	39		<0.5	9	<1	<2	24	34		
COL-451	23/11/2010	1	<1	<1	59	60		<0.5	24	<1	3	64	92		
COL-451	16/02/2011	<1	<1	<1	27	27		<0.5	9	<1	<2	25	34		
COL-451	10/05/2011	<1	<1	<1	28	28	39	<0.5	12	<1	3	27	43	51	
COL-451	13/09/2011	<1	<1	<1	35	35	38	<0.5	13	<1	13	38	64	58	
COL-451	16/11/2011	<1	<1	<1	39	39	32	<0.5	18	<1	8	30	57	49	
COL-451	28/02/2012	<1	<1	<1	20	21	31	<0.5	13	<1	7	26	45	52	
COL-457	14/09/2010	<1	<1	<1	32	32		<0.5	13	<1	<2	19	32		
COL-457	23/11/2010	<1	<1	<1	43	43		<0.5	38	<1	25	82	145		
COL-457	15/02/2011	<1	<1	<1	21	21		<0.5	12	<1	3	18	33		
COL-457	10/05/2011	<1	<1	<1	27	27	31	<0.5	19	<1	6	29	54	66	
COL-457	13/09/2011	<1	<1	<1	23	23	29	<0.5	20	<1	51	24	95	82	
COL-457	16/11/2011	<1	<1	<1	43	43	29	<0.5	26	<1	28	33	87	67	
COL-457	28/02/2012	<1	<1	<1	24	24	29	<0.5	42	<1	12	29	83	80	
COL-480	14/09/2010	1	<1	<1	41	42		<0.5	2	<1	<2	17	19		
COL-480	23/11/2010	1	<1	<1	58	59		<0.5	12	<1	3	85	100		
COL-480	15/02/2011	<1	<1	<1	27	27		<0.5	5	<1	<2	22	28		
COL-480	10/05/2011	<1	<1	<1	34	34	41	<0.5	7	<1	<2	33	40	47	
COL-480	13/09/2011	<1	<1	<1	34	34	39	<0.5	5	<1	7	22	35	51	
COL-480	16/11/2011	1	<1	<1	50	52	37	<0.5	10	<1	<2	27	37	35	
COL-480	28/02/2012	<1	<1	<1	30	30	38	<0.5	16	<1	3	50	69	45	