2014 Performance Report

WHITE ROCK

2014 PERFORMANCE HIGHLIGHTS

EPCOR

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OPERATIONAL EXCELLENCE

Operational Excellence is a philosophy of leadership, teamwork and problem solving resulting in continuous improvement throughout the organization by focusing on the needs of the customer, empowering employees, and optimizing existing activities in the process. Operational excellence includes activities related to the environment, quality assurance, customer care and community, safety, and capital projects. This report will highlight our achievements from 2014 and outline opportunities we are pursuing in 2015.

ABOUT THE UTILITY

EPCOR White Rock Water Inc. (EPCOR) is Canadian owned and operated. EPCOR purchased the White Rock Water Utility from a private owner in May 2005. The utility has served the community of White Rock since 1913.

EPCOR owns the water system assets and operates them on behalf of the residents of White Rock. EPCOR also supplies water to adjacent areas in the city of Surrey and the Semiahmoo First Nation. The utility serves a population of approximately 20,000 people.

White Rock's water supply comes from a groundwater source called the Sunnyside Uplands aquifer. The seven wells range in depth from 60 metres to 150 metres (200-500 feet). There is limited treatment of the groundwater in White Rock.

EPCOR White Rock is regulated by the BC Comptroller of Water Rights (Comptroller). Water rates and terms of service are determined through a regulatory process, which occurs whenever approved rates expire. Rates are based on a fair rate of return to EPCOR for providing water service.

There is a uniform structure to the water rates in White Rock, serving three customer groups - single family residential, multi-residential and commercial. EPCOR White Rock Water is a Class III water distribution system. These classifications provide an indication of the degree of knowledge and training that is required of an operator of the facility.

Measuring Success

We work to ensure the performance of the utility meets the consistently high standards that White Rock residents expect. This report is part of our commitment to accountability and transparency.

In each community where we work, we are accountable to deliver service that meets key measures for Environment, Customer Care, Safety, Quality Assurance, Operational Excellence and Capital Programs.

WATER QUALITY & QUALITY ASSURANCE

Canadians have standards regarding safe drinking water. These are crucial for day-to-day living and our employees work to ensure that your drinking water is safe, clean and great tasting. Protecting public health is a priority for EPCOR.

The Guidelines for Canadian Drinking Water Quality (GCDWQ), established by Health Canada, sets the maximum acceptable concentrations of microbial, radiological and chemical contaminants found in water. They have also addressed the aesthetic water quality considerations around color and taste. These guidelines are the basis for the work we do to ensure the best quality drinking water for the community. Our operations employees in White Rock conduct ongoing water quality tests in compliance with our Permit to Operate requirements set by Fraser Health. Employees monitor 75 water quality parameters and conducted more than 7,000 water quality tests in 2014.

Over the past years we have made many quality assurance improvements to the utility. Some of our ongoing programs to maintain water quality include the Cross Connection Control Program, the Backflow Prevention Program and Unidirectional Flushing of the distribution system.

A summary of the work we do to achieve excellent water quality includes:

- Annual reporting of water quality information and system upgrades to Fraser Health consistent with provincial regulations;
- Supplementary lab training to allow additional parameters to be tested in the water supply;
- Routine sampling for bacteria supplemented by quarterly quality testing for metals. All testing is carried out by accredited B.C. Laboratories (BCCDC, EXOVA and AGAT); and
- Monthly equipment testing and calibration by local operators, combined with annual testing of all water lab equipment by certified technicians.

The following tables provide detailed information on the sampling and testing completed in 2014.

Physical and Chemical Water Quality Data for White Rock Source and Distribution Water for 2014

Parameter	Unit of Measure	Number of Samples	Annual Minimum	Annual Maximum	EPCOR Annual Average	GCDWQ Guidelines
BACTERIA						
E. Coli	MPN/100mL	719	<1	<1	<1	0 per 100 mL
Total Coliforms	MPN/100mL	718	<1	1	1	Less than 10% > 0
CHEMICALS						
Chloroform	mg/L	36	<0.001	<0.001	<0.001	---
Bromodichloromethane	mg/L	36	<0.001	<0.001	<0.001	---
Dibromochloromethane	mg/L	36	<0.001	<0.001	<0.001	---
Bromoform	mg/L	36	<0.001	<0.001	<0.001	---
Total THMs	mg/L		<0.001	<0.001	<0.001	0.1 mg/L[1]
Monochloroacetic Acid	µg/L	36	<2.0	<2.0	<2.0	---
Monobromoacetic Acid	µg/L	36	<2.0	<2.0	<2.0	---
Dichloroacetic Acid	µg/L	36	<2.0	<2.0	<2.0	---
Bromochloroacetic Acid	µg/L	36	<2.0	<2.0	<2.0	---
Dibromoacetic Acid	µg/L	36	<2.0	<2.0	<2.0	---
Trichloroacetic Acid	µg/L	36	<2.0	<2.0	<2.0	---
Total HAA6	µg/L		<2.0	<2.0	<2.0	80 µg/L[2]

[1]Total THMs is the sum of the above 4 parameters
[2]Total HAA6 is the sum of the above 6 parameters

Physical and Chemical Water Quality Data for White Rock Source and Distribution Water for 2014

Substance	Unit of Measure	Number of Samples	Annual Minimum	Annual Maximum	Annual Average	Guidelines[1]
CHEMICALS						
Ammonia	mg/L	30	<0.01	0.15	0.05	---
Fluoride	mg/L	30	0.11	.23	.16	1.5 (MAC)
Nitrate	mg/L	30	<0.01	1.01	.24	10 (MAC)
Nitrite	mg/L	30	<0.01	0.05	0.01	---
Total Organic Carbon	mg/L	30	<0.5	0.6	0.5	---
MINERALS						
Alkalinity (total, as CaCO3)	mg/L	30	94	129	111	---
Chloride	mg/L	30	8.7	78.0	26.3	250 (AO)
Hardness (total, as CaCO3)	mg/L	30	83	110	93	---
Sodium	mg/L	30	9.00	67.6	26.9	200 (AO0
Sulfate	mg/L	30	11.0	23.8	15.7	500 (AO)
Total Dissolved Solids	mg/L	30	160	372	202	500 (AO)
OTHER						
Colour	ACU	30	<5	<5	<5	15 TCU (AO)
Conductivity	µS/cm	30	238	53	312	---
pH		30	7.54	8.06	7.88	6.5-8.5(AO)
Turbidity	NTU	30	0.02	0.25	0.07	---
TRACE METALS - Extractable						
Aluminum	mg/L	30	<0.005	<0.050	0.007	0.1 (OG)
Antimony	mg/L	30	<0.0002	<0.002	0.0003	0.006 (MAC)
Arsenic	mg/L	30	0.0027	0.0093	0.0072	0.01 (MAC)
Barium	mg/L	30	0.011	0.020	0.014	1 (MAC)
Boron	mg/L	30	<0.05	0.073	0.027	5 (MAC)
Cadmium	mg/L	30	<0.00007	<0.0007	0.00009	0.005 (MAC)
Calcium	mg/L	30	19.7	25.3	21.7	---
Chromium	mg/L	30	<0.0005	<0.005	0.00077	0.05 (MAC)
Copper	mg/L	30	<0.001	0.082	0.013	(AO)
Iron	mg/L	30	<0.005	0.017	0.006	0.3 (AO)
Lead	mg/L	30	<0.001	0.0016	0.0004	0.01 (MAC)
Magnesium	mg/L	30	8.3	11.4	9.5	---
Manganese	mg/L	30	0.001	0.209	0.068	0.05 (AO)
Mercury	mg/L	30	<0.00001	<0.00001	<0.00001	0.001 (MAC)
Potassium	mg/L	30	2.7	4.7	3.5	---
Selenium	mg/L	30	<0.0006	<0.006	0.0015	0.01 (MAC)
Silicon	mg/L	30	10.9	11.8	11.2	---
Uranium	mg/L	30	<0.0005	<0.005	0.0007	0.02 (MAC)
Vanadium	mg/L	30	0.0018	0.0043	0.0027	---
Zinc	mg/L	30	0.001	0.06	0.007	5 (AO)

ABBREVIATIONS	
-	No guidance set by Health Canada
<	Less than detection limit
>	More than detection limit
ACU	Apparent Color Unit
AO	Aesthetic Objective
as caCO3	expressed as Calcium Carbonate
GCDWQ	Guidelines for Canadian Drinking Water Quality
HAA	Haloecetic Acids
MAC	Maximum Acceptable Concentration
mg/L	Miligram per Litre
N	Nitrogen
NA	not applicable
ng/L	Nanograms per Litre
NTU	Nephelometric Turbidity Unit
µg/L	Micrograms per Litre
µS/cm	Microsiemens per Centimetre
TCU	True Color Unit
THMs	Trihalomethanes

[1]The Guideline is either the Maximum Acceptable Concentration (MAC), the Aesthetic Objective (AO) or the operational guideline (OG) as per the Guidelines for Canadian Drinking Water Quality established by Health Canada. Dash indicates no guideline established.

Trace Metals Water Quality Data for White Rock Source and Distribution System Water

Parameter	Unit of Measure	Number of Samples	Minimum	Maximum	Average	GCDWQ Guidelines
Arsenic	mg/L	209	0.0018	0.0099	0.008	0.01 (MAC)
Copper	mg/L	209	<0.001	0.122	0.012	1 (AO)
Iron	mg/L	209	<0.005	0.050	0.016	0.3 (AO)
Lead	mg/L	209	<0.00001	0.00170	0.00020	0.01 (MAC)
Manganese	mg/L	209	0.001	0.209	0.076	0.05 (AO)

Summary of Total Chlorine Residuals

Sampling Location	Number of Samples Collected in 2014	Number of Samples with Total Chlorine of >0.2 mg/L	Percentage of Chlorine Residuals >0.2 mg/L (%)
15600 Blk. Moffat Lane	13	9	69
EPCOR Office	13	9	69
Evergreen Day Care	13	12	92
Kent Activity Centre	12	11	92
Merklin & Thrift	52	52	100
Merklin High Reservoir	52	51	98
Merklin Low Reservoir - 25%	52	48	92
Merklin Low Reservoir - 50%	52	44	85
Merklin Low Reservoir - 75%	52	51	98
Peace Arch Hospital	52	51	98
Penny Lane	6	2	33
Stevens STN	13	13	100

How to Measure:

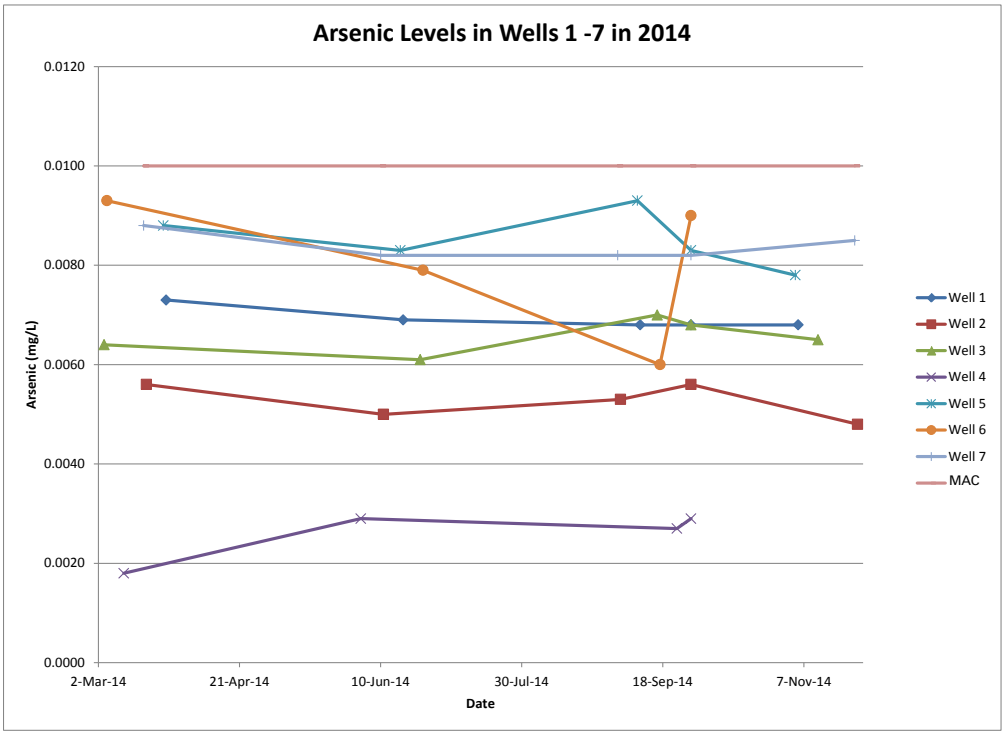
- Most substances listed are reported in milligrams per litre (mg/L). One milligram per litre is commonly referred to as one part per million.
- One part per million is equivalent to one drop in 1/2 bathtub full of water or one second in 12.5 days.
- Some substances are measured in parts per billion. One part per billion is also referred to as one microgram per litre (µg/L).
- One part per billion is equivalent to one drop in 520 bathtubs full of water or one second in 32 years.

TOTAL WATER QUALITY MANAGEMENT PLAN (TWQMP)

EPCOR received direction from Fraser Health to implement system chlorination by June 30, 2016. The TWQMP has been underway and is necessary to treat the water supply and upgrade critical infrastructure in White Rock to ensure consistent and reliable service of high-quality drinking water. The project allows the utility to disinfect the water supply at the source and maintain the residual disinfectant throughout the reservoirs and distribution system. This disinfection ensures customers are protected against the possibility of microbial contamination of the system through mechanical failures or undetected cross-connections. As of December 31, 2014, the site has been prepared, some design adjustments are underway and construction contracts have been awarded.

As outlined in previous reports and on our website, EPCOR has been working in conjunction with FHA to monitor the levels of arsenic and manganese, which occur naturally, in the White Rock water supply. Originally included in the Total Water Quality Management Project scope, the treatment for arsenic and manganese was delayed to reduce the overall rate impact for the White Rock community and because these elements were still trending within acceptable levels under the Guidelines for Canadian Drinking Water Quality (GCDWQ). As outlined with FH, should those levels trend above the GCDWQ, in the case of arsenic, or become a health criteria, in the case of manganese, treatment systems to address both must be operational on or before December 31, 2018. Once further analysis of ongoing levels of these elements is complete, additional treatment plans will be reassessed.

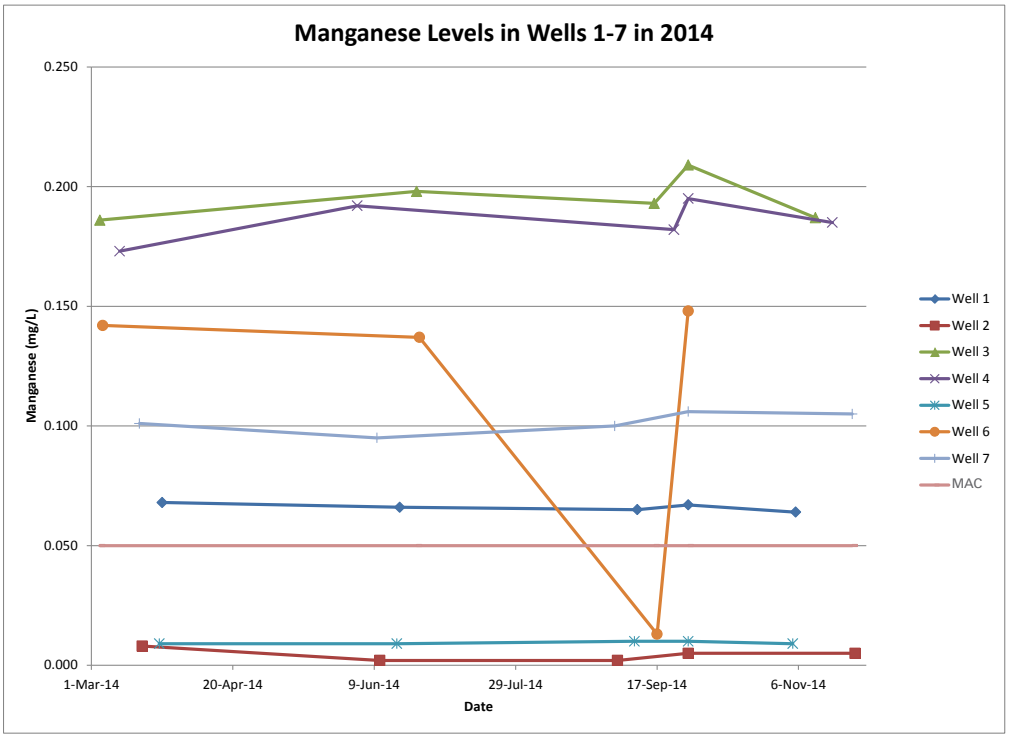
Arsenic Concentrations



EPCOR has been monitoring naturally occurring arsenic levels routinely in conjunction with Fraser Health. In 2007, Health Canada reduced the Maximum Acceptable Concentration (MAC) levels for arsenic from 0.025 mg/L to 0.010 mg/L. They also communicated that although the new MAC for arsenic is set at 0.010 there may be health risks associated at lower levels.

In 2014, our tests show arsenic levels under the MAC.

Manganese Concentrations



The GCDWQ aesthetic objective (AO) for manganese is 0.05 mg/L. At levels above 0.15 mg/L it can cause staining of plumbing and laundry, as well as an objectionable taste.

SAFETY

Making sure our employees get home safely after work is a priority. In fact, our staff in White Rock haven't had a single lost time accident since 2006. These positive results stem from our continual emphasis on safety training for existing staff, new employees and contractors.

Continuous training is a sign of our commitment to the safety of both staff and the public. In 2015, EPCOR's White Rock staff will participate in more than 20 hours of safety training per employee on topics such as Electrical Safety, Confined Space Entry and Rescue, Standard First Aid, and Mentally Active Driving.

CUSTOMER CARE & COMMUNITY

Our customers are the reason we work in our community and this drives us to achieve the highest customer standards possible. We understand the importance our customers place on reliable water service, therefore, we are available around-the-clock for emergencies. EPCOR responded to and resolved nine outages in White Rock in 2014. EPCOR White Rock restored all water outages within 6 hours.

In 2014, EPCOR repaired 15 service line leaks and resolved 140 meter maintenance issues. We completed 477 backflow prevention tests in the community. We also responded to 48 aesthetic issues with regards to both odour and manganese.

EPCOR IN THE COMMUNITY

EPCOR supports the communities where we work through initiatives that fall in line with our three community investment pillars, namely **Water** (Food), **Energy** (Shelter and Safety), and **Education.** This is a natural extension of the essential services that we provide. A number of opportunities exist to obtain support for initiatives, programs and events that enhance the community's quality of life. This includes our EPCOR Community Essentials Council (ECEC) and our Helping Hands grant program that supports community service organizations for which staff volunteer. Our efforts in White Rock, through donations and volunteering, help create stronger communities and healthy families. Community activities in 2014 included:

- South Surrey White Rock Chamber of Commerce;
- White Rock South Surrey Hospice;
- Semiahmoo House Society;
- Peace Arch Hospital Foundation;
- Canada Day by the Bay;
- Tour de White Rock; and
- The United Way.

Looking ahead, EPCOR White Rock will continue to support these great organizations that are making a difference in our community.

CAPITAL PROGRAM

EPCOR follows a comprehensive set of processes for identifying, approving and executing capital projects.

A water system master plan provides a long-term planning horizon to ensure that the waterworks infrastructure supports existing and future water demands and needs for the City of Whiter Rock and surrounding area. The Master Plan includes an assessment of projected growth and demand patterns. It identifies areas such as system integrity and water sources to address capital infrastructure requirements.

Capital programs in 2014 included:

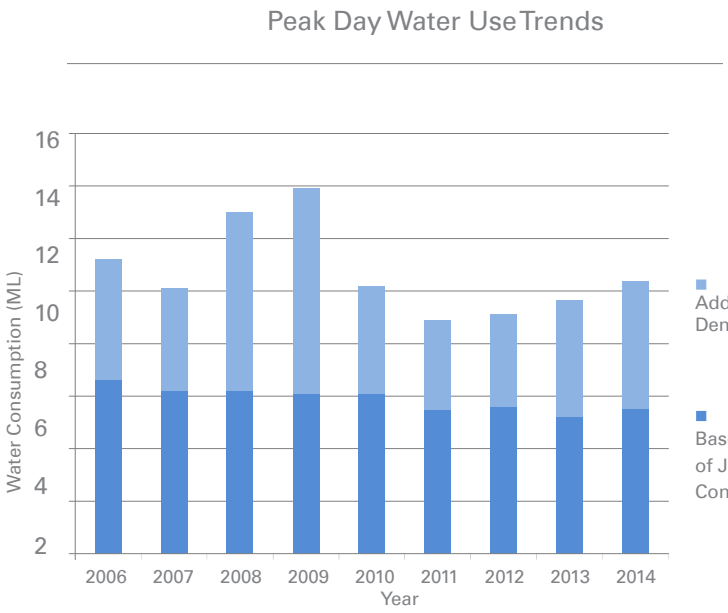
- Water Main upgrades - completion of Marine Drive from High Street to Bishop Road including 45 upgraded water service connections:
- Hydrant Replacement Program - we installed three new hydrants:
- Meter Replacement Program - 223 new water meters were installed:
- New Water Services - there were 92 new Water services installed in 2014.

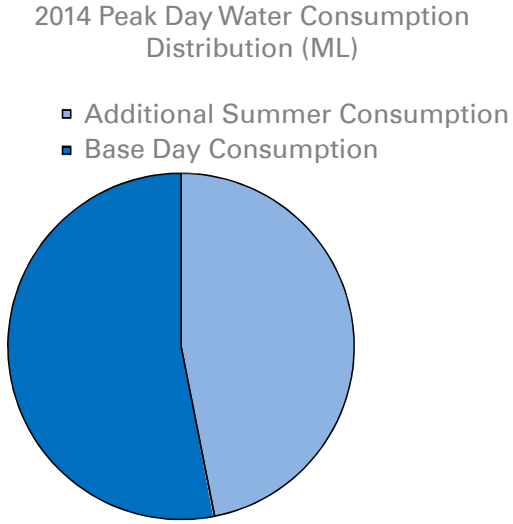
MAXIMUM DAY DEMAND

EPCOR tracks annual water consumption patterns to ensure that the White Rock system continues to provide sufficient water service to customers. Key to this tracking is the water consumption recorded on the peak day each year, the point of highest demand.

The record of peak demand enables us to design water system resources to meet all customer needs, including fire fighting and high-use periods.

On August 6, 2014, White Rock consumed 10.4 million litres (ML) of water. Demand on the peak day is separated into a base consumption of about 5.5 ML and additional summer consumption of about 4.9 ML. By comparison, the 2013 maximum day total was 9.7 ML. White Rock's average consumption is 6.5 ML/day.





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