



# Drinking Water Annual Report

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2020

Joe Law, Utilities Superintendent  
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## **PURPOSE:**

The City of Quesnel annual water report describes the water system and provides a summary of water quality testing and water management practices during 2020.

The Drinking Water Protection Act, Drinking Water Protection Regulation requires that such a report be prepared and made public within the first six months of the calendar year.

## **WATER SYSTEM OVERVIEW**

The City of Quesnel water system is supplied by 6 groundwater wells that deliver water to a distribution system comprised of 7 reservoirs on 6 sites, 5 booster pump stations, 3 main PRV (pressure reducing valve) stations, 7 separate pressure zones, and approximately 100 km of water main with 3620 individual service connections. At present, no treatment or disinfection processes are applied to the City's drinking water. The City of Quesnel also maintains and operates one bulk water delivery site where, for a fee, customers may fill containers.

## **WATER CONSUMPTION & CONSERVATION**

While individual water consumption within the City of Quesnel is for the most part unmetered, the City's 6 groundwater production wells are equipped with water meters. In 2020 water consumption by the City of Quesnel amounted to 2,450,547 cubic meters pumped, a 1.22% increase from the 2019 calendar year.

Groundwater usage is regulated under the Groundwater Protection Act (effective 2016), which requires that water users diverting water from a groundwater source apply for a license and report consumption annually. The City's groundwater license application has been submitted for approval and is in progress, as is the case with most applications in the province. After adjudication of the application is complete and the license has been issued, groundwater rental fees based on total consumption will be charged to groundwater users annually.

In 2020 the City of Quesnel worked with consultants (Urban Systems) to update the official Water Conservation Strategy. The objectives of the City's Water Conservation Strategy are to:

- Understand the importance of water conservation;
- Understand the characteristics of the water system and current water usage,
- Predict what infrastructure upgrades will be required to meet future demands;
- Assess the viability of water conservation measures relevant to the City; and
- Identify steps the City can take in an effort to reduce waste of water.

In Quesnel, average daily water use is 700 litres per capita per day (2012 -2019 average). This is significantly higher than the provincial average of 490 litres per person per day, as noted in the BC Living Water Smart document. Water use is highest during the summer months, where a large portion of water is consumed for irrigation and other outdoor activities.

The City is currently practicing a few methods of water conservation, including outdoor water restrictions (sprinkling regulations), leak detection, bulk water station, full cost of service recovery and public education. In 2020 the City initiated a review of once-through coolers.

The City continues to invest in the water system to ensure sufficient water is available to meet the water demands of the community. For a number of years now, the City has been working diligently to complete an expansion to the groundwater supply system in order to increase the reliability and capacity of the water system. Application works have been underway to increase the capacity of three wells and construct two new wells. Required works included extensive groundwater sampling and aquifer identification and monitoring over the past number of years.

On October 27, 2020 the project reached an important very milestone with the receipt of an Exception Order under Section 10(1)(b) of the Environmental Assessment Act for the Quesnel Water Wells Project. The Order indicated that the project may proceed without an Environmental Assessment Certificate provided that certain conditions are met.

With the Exception Order now in place, the City may now begin to plan to meet the conditions for well placement and construction. Next steps will include:

- Well head protection plan (current operating wells)
- Aquifer and Surface water monitoring plan
- Well owner and Surface Water Tenure Holder Engagement Plan
- General Coordination and Condition Review with EAO and Working Group
- Groundwater license follow up

While far from complete, the Exemption Order is a great step forward for the Quesnel Water Wells Project, and is important to note as the culmination of many years of planning and field work undertaken by the City of Quesnel.

## **WATER QUALITY**

In order to ensure the delivery of safe drinking water the City of Quesnel has in place a Drinking Water Quality Monitoring Program, which is a requirement of the City's operating permit (issued by the Northern Health Authority) and regulated under the Drinking Water Protection Regulation. This monitoring program outlines recommended practices for monitoring and reporting of water quality to the pertinent regulatory bodies and the public.

The City has a program to monitor water quality at the source. The City sends water samples to an approved lab for all sampling points and is notified on results and concerns. The sampling parameters used to monitor potability are listed in the Guidelines for Canadian Drinking Water Quality (GCDWQ) and the British Columbia Drinking Water Regulations (BCDWR). These sampling parameters are used as indicators for bacteriological, chemical and physical contaminants. As a minimum, the number of samples to be taken from the source and distribution system as required by provincial regulations are based on population. The minimum number of samples to be taken for the City of Quesnel's approximately 10,392 people is 13 per month. The City exceeds that number of monthly samples. The City samples 16 individual sites bi-weekly, for total coliforms, E. coli, heterotrophic plate count and turbidity. As well, all reservoirs and wells are tested on a monthly basis for bacterial contaminants. In addition to the bacteriological parameters, additional testing is done for chemical & physical parameters.

Water quality is routinely monitored at the source and throughout the City water system in compliance with Drinking Water Protection Act regulations and best practices employed by other municipalities in British Columbia. Samples are taken at the start, middle and end of the entire City water distribution system. If it is observed during testing that certain parameters exceed the limits specified in the GCDWQ or BCDWR guidelines, a procedure is in place for re-testing and notification of any results or conditions that render or could render the water unfit to drink. If during any routine monitoring a sample comes back with an unacceptable bacteriological result for total coliforms, the standard protocol is to contact the Drinking Water Officer and re-sample immediately at the same location. The samples are then resubmitted for testing in order to rule out contamination during the collection of the sample. The provincial Drinking Water Officer will determine if any action by the City is necessary only after a second test also shows the presence of coliforms.

If any other sample parameters exceed the Guidelines for Canadian Drinking Water Quality the Provincial Drinking Water Officer is contacted in order to determine an appropriate response. The City collects samples from 16 (sixteen) individual sites throughout the distribution system on a bi-weekly basis. These samples are analyzed for total coliforms, E. coli, heterotrophic plate count, and turbidity.

The water system reservoirs (seven) and production wells (six) are sampled for bacteriological contaminants on a monthly basis. In total 27 (twenty-seven) sites are sampled and tested monthly.

In 2020, the City of Quesnel collected and tested a total of 366 water samples. 2 individual samples recorded exceedances for total coliforms, 1 Mills Road, 1 Pinecrest Reservoir - these sites were re-sampled with all re-sampling results returned showing 0 (zero) exceedances for total coliforms. There were 0 (zero) total exceedances recorded for E. coli in 2020.

Water chemistry samples are also collected and analyzed in accordance with the parameters and schedule laid out in the Drinking Water Quality Monitoring Program. Production wells are tested annually for the parameters: "Enhanced Potability", Molybdenum, Nickel, Phosphorus, Silver, Aggressive Index Number, and Volatile Organic Compounds. Identified sampling sites within the distribution system are tested on a semi-annual basis for the parameters: Copper, Zinc, Lead, Iron, Vinyl Chloride, and Manganese.

Complaints regarding water quality are addressed and followed up on a case by case basis. The majority of customer complaints are of “dirty” or black water. This is due to manganese found in the City water which adheres to pipe walls in the distribution system until it is disturbed or breaks free. Homeowners are advised to run a cold tap until the water clears. In some cases the City will flush the mains through a hydrant or blowoff. All mains are flushed each fall to remove mineral scale and buildup in the lines in addition to ensuring proper operation and maintenance of all City fire hydrants. The guideline for Canadian Drinking Water Quality aesthetic objective for manganese is 0.05 mg/L. The City of Quesnel wells vary from .014-.59 mg/L.

**\*In May 2019, the CGDWQ updated the parameter regarding Manganese in drinking water. The maximum acceptable concentration (MAC) for total manganese in drinking water is 0.12mg/L (120ug/l). The aesthetic objective (AO) for total manganese in drinking water is 0.02mg/L (20ug/L). Water system sampling and consultations are currently taking place to determine the next steps towards compliance with these new regulations.**

Manganese removal is a priority given that the Manganese level in the City drinking water exceeds the maximum acceptable concentration in the Guidelines for Canadian Drinking Water Quality.

In November of 2020 the City of Quesnel worked with consultants (Urban Systems) to release a “Water Treatment System Conceptual Report” based on findings from the Manganese Removal pilot testing program undertaken in 2019. The conceptual report contained:

- Design requirements based on anticipated water demands and the current drinking water guidelines
- Evaluation of treatment options that provide best operational and system efficiencies
- Review of site layout and constraints for each well site

Work has continued on this initiative, although the impact of Covid-19 has slowed this process down.

There are occasional complaints of cold water smelling like rotten eggs or sulfur. This is caused from the City water having a reaction with the small diameter “feed line” tubing which connects the household plumbing to the faucet under the sink. It is most common in homes that have new or recently upgraded taps or plumbing fixtures. A corrective measure for this is suggest homeowners replace the feed lines with metal tubing such as copper or alternatively clean the lines with sodium hypochlorite (household bleach), then rinse and reinstall.

City of Quesnel Bylaw 1567 of 2004 was adopted in 2005 to ensure provisions for the elimination of cross connections between potable water and any non-potable source. The City has two Certified Backflow Assembly Testers on staff that annually tests assemblies in City parks and the City water supply system to protect against potential backflows and cross connections. They also install backflow prevention devices which are a secondary line of defense for backflow prevention. It is the responsibility of the owner or operator of private buildings to install and test the approved backflow assembly upon installation and annually thereafter by a certified tester. Following the test, a copy of the report is to be forwarded to the City of Quesnel. This program has not been completely implemented as there is a lack of resources and staff to track and account for these assemblies.

What staff time is available is focused on communication with contractors/plumbers and high risk users. The main group addressed is industrial, commercial and institutions. Utilities staff communicate and keep a watchful eye out for any potential cross connections.

## **WATER MANAGEMENT**

The City of Quesnel maintains a Water System Emergency Response Plan, which is reviewed and updated annually to ensure that standard operating procedures remain applicable and up-to-date. Operating procedures continue to be reviewed in order to improve reliability of the distribution network. It is critical to the system to maintain pumps and equipment to a high standard, which avoids costly failures.

The SCADA (Supervisory Control and Data Acquisition) monitoring system enables staff to observe real-time data and information related to water system operating conditions, including water well operation and reservoir levels. System operators have the ability to remotely respond to system conditions and demands which reduces equipment failure and increases pumping efficiency. Upgrades to the SCADA are ongoing as equipment becomes obsolete and communication between stations require updates to operate effectively. As Telus continues elimination of copper data lines, the City SCADA has been updating to radio communication between the Utilities office and water wells/pumping stations. In September of 2020, TELUS communicated plans to file a request with the CRTC to stop supporting moves, adds, and changes to existing Analog Private Line services starting November 2020. This will be the first phase of TELUS' plan to discontinue Analog Private Line services. This announcement means that completion of the SCADA radio upgrades in 2021 is of paramount importance in order to ensure uninterrupted operation of the SCADA system.

In the interest of public health and environmental protection, the Environmental Operators Certification Program (EOCP) is named in legislation and is tasked with the responsibility of Classification of Facilities and Certification of Operators to enable the prudent management of water in British Columbia and the Yukon. The EOCP requires that all facilities must have an Operator with certification commensurate with the level of facility classification and that all hands-on Operators must be certified appropriate to their position. The classification level is determined by the size and complexity of the facility. The City of Quesnel water distribution system is classified as a Class III system. In 2019 an EOCP review of facility classifications for the City of Quesnel resulted in a Level III classification of the water system. Prior to receiving this facility classification, the City's water system operated as a Class II facility. The experience and training requirements for an operator to receive a Level III certification are:

- Operator Level II Certificate PLUS
- 2 years related post-secondary or 90 CEUs (900 hours contact time) PLUS
- 4 years operating experience at a Class II facility
- including 2 years Direct Responsible Charge at a Class II facility

Currently, no operators within the City of Quesnel are EOCP certified as Level III Water Distribution Operators, however operators continue to work toward acquiring the required CEU's and Direct Responsible Charge hours. Timelines for gaining certifications have not been identified. As the City operators also operate a level II Wastewater Collection System, work experience hours are calculated at a rate close to 50 percent water duties and 50 percent Wastewater duties. This condition doubles the time it takes to reach certification, stretching the 4 years' operating including 2 year Direct Responsible Charge time to 8 years including operating and 4 years direct charge.

As Class 2 Water Distribution Operators, City staff are required to possess a minimum of 5400 hours of experience (or 3 year full time), achieve a minimum score of 70% on written examinations and must receive 24 hours (2.4 CEU) of approved training in every two year period to maintain their certification. Operator training is critical to maintaining facility classification and ensures that current industry standards and best practices are being met. Training also provides staff an opportunity to network with other operators over common challenges faced in field operations.

On April 09, 2020 the emerging COVID 19 pandemic prompted Provincial Health Officer Dr. Bonnie Henry to issue a statement regarding Temporary Measures to Ensure Continuity of Operations for Water Systems in British Columbia under the Drinking Water Protection Act. The following letter and suggested actions is still in effect at present:

*"As the COVID-19 outbreak continues to evolve locally and globally, the health and well-being of the people of British Columbia is our government's number one priority. Under British Columbia's Drinking Water Protection Act, operations for drinking water systems to provide clean, safe drinking water to the public is considered an essential service.*

*During the current Public Health Emergency and Provincial State of Emergency declarations, the Provincial Health Officer supports the following temporary measures, where reasonable, to ensure continuity of operations for drinking water system owners who may experience staffing challenges as a result of the outbreak:*

*•Flexibility to redeploy and employ qualified Operators as needed to address staff shortages, reschedule Operator hours, and use Operators whose certification may have expired within the past 3 years. System owners should consult their Direct Responsible Charge plan when selecting Operators from within their organization. The expectation is that system owners and health authorities engage with their employees and unions (where applicable) to identify options that may work for all parties involved when scheduling adjustments and/or deployment are needed.*

*•Temporarily employ certain other qualified individuals to perform operational duties, if needed. These individuals include knowledgeable technical personnel and supervisors, managers, professional engineers, technologists, and Operators.*

*•For any Level I to IV water systems that require Environmental Operators Certification Program (EOCP) certified Operators, the EOCP's Operator Peer Network program may be able to provide a source of appropriately certified Operators.*

*•Small water systems that do not require EOCP certification (unless specified in conditions on their permit) may seek to train others in the basic operation of systems to assist in case the person running the system is unavailable. Drinking water system owners are further advised to:*

*•Update emergency response plans (ERPs) and review staffing coverage procedures to plan for staff absences due to illness or isolation as it is important that those experiencing symptoms (fever, sore throat, coughing, sneezing, diarrhea) of COVID-19 or other communicable disease do not come to the workplace. System owners should share the updated ERPs with their Drinking Water Officer and should notify them of any major disruptions.*

*•Consider mutual aid agreements with neighboring suppliers, where possible, to ensure that drinking water services are maintained.*

*•Identify priority actions to be taken in the event of a reduced workforce and create operations teams that provide a critical mixture of skills required to operate the water system continuously and without interruption.*

*•Ensure written standard operating procedures are detailed and easy to follow for junior staff to carry out duties not normally assigned to them, if needed.*

*•Consider postponing new non-critical projects to ensure tasks essential to delivering potable water can be carried out if staff resources are a potential issue. General precautions for employers with respect to physical distancing, hygiene and employee illness all apply to water systems.”*

This response to the COVID-19 pandemic has been included in the City of Quesnel Annual Water Report from 2020 as it serves to highlight the importance of operator certification to public health and rings attention to the importance of maintaining appropriate staffing levels in the City's water system.

## **CONCLUSION**

The 2020 City of Quesnel Water System Annual Report is presented to Council as required by the Drinking Water Protection Act, Drinking Water Regulations. It has been established as a requirement to ensure accountability to the community for the water service provided. In order to meet the terms and conditions of the City's Water System Operating Permit issued by the BC Drinking Water Officer, this report is made available to the public.

Additional information may be obtained from the City of Quesnel Utilities Department at 250-992-6330, attention: Joseph Law, Utilities Superintendent.



## ATTACHMENTS

### Attachment "A"

- sampling point sites and the parameters tested for the City of Quesnel

### Attachment "B"

- Water sampling result summary reports for 2020.

## LINKS

The Health Canada website ( [www.hc-sc.gc.ca](http://www.hc-sc.gc.ca) ) contains "Summary of Guidelines for Canadian Drinking Water Quality", which Health Canada publishes on current guidelines and updates each spring on their website.

# Attachment "A"

## City of Quesnel Water Quality Monitoring Program

SITE	LOCATION	PARAMETERS
<i>BI-WEEKLY (Distribution System)</i>		
<b>FIRST WEEK</b>		
<b>Water Trax Locator #</b>		
94 E4	Airport	Parameters: Total coliforms, Ecoli, HPC's, turbidity, temp
94 E5	Mills Rd	
94 E7	Marsh Dr	
94 E8	Graham Avenue	
94 E9	West Fraser Rd	
94 FO	Pederson Rd	
35D91K	Carson Pit	
179 CA	Dennis Road	
<b>THIRD WEEK</b>		
94 E6	Carradice Rd	Parameters: Total coliforms, Ecoli, HPC's, turbidity, temp
94 F1	Dixon St	
94 F2	Front St – Hospital	
94 F3	Nason St	
94 F4	N. Star Dragon Hill	
94 F6	N Star South Hill	
94 F7	Chew Rd	
21 D9B	Bulk Water on North Star	

**MONTHLY (Reservoirs)**

94 EA	R-1 Shadow Heights	Parameters: Total coliforms, Ecoli, Temp
94 F9	R-2 Pinecrest	
94 FA	R-3 Sugar Loaf	
94 EB	R-4 Abbott Dr 1	
94 EC	R-4 Abbott Dr 2	
94 FC	R-5 Dragon Hill	
94 FF	R-6 New Tatchell Reservoir	

**MONTHLY (Wells)**

94 ED	Well A Sword Rd	Parameters: Total coliforms, Ecoli, Temp
94 D1	Well 3 Rolph at Roddis	
94 DC	Well 6 Rolph at Robertson	
94 EO	Well 7 N. Fraser Dr	
94 E1	Well 8 Hilborn Rd	
94 DF	Well 9 Carson Sub	
28000	Well 10 Hilborn Rd	

***SEMI - ANNUALLY (Distribution System)***  
(first week April & Oct)

94 E5	Mills Rd (94E5)	Parameters: Copper, Zinc, Lead, Iron, Vinyl chloride, Manganese, Temperature
94 FO	Pederson Rd (94F0)	
35D91K	Carson Pit	

<i>ANNUALLY (Wells)</i>		
94 ED	Well A Sword Rd	Parameters: Enhanced Potability, Metals, Langelier saturation index (LSI) Volatile Organic Compounds, Temp.
94 D1	Well 3 Rolph at Roddis	
94 DC	Well 6 Rolph at Robertson	
94 EO	Well 7 N. Fraser Drive	
94 E1	Well 8 Hilborn Rd	
94 DF	Well 9 Carson Sub	
28000	Well 10 Hilborn Rd	

# Attachment "B"

Water sample result reports (in pdf format):

- Main System Coliform/Ecoli Statistics 2020
- Main System Coliform/Ecoli Exceedances 2020
- Main System Summary
- Main System - May Semi-Annual Summary 2020
- Main System - November Semi-Annual Summary 2020
- Wells - Manganese

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	366	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	366	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	366	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	2	<b>max:</b>	1 counts/100ml
<b># non-detects:</b>	364	<b>Geometric Mean:</b>	1 counts/100ml (based on 2 numerical results)
<b># of Exceedences:</b>	2		

**Result Legend:**

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no,  
TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

- < means less than lower detection limit shown
- > means greater than upper detection limit shown
- « means detected & less than number shown
- » means detected & greater than number shown

\* **Indicates Criteria is exceeded**



**Main System Ecoli/Coliform Exceedences**  
**01/01/2020 - 12/31/2020 (mm/dd/yyyy)**

**Facility:** Distribution System  
**Sampling Point:** Bulk Water Site #1 (7-15-QC, 21D9B)

**Facility:** Distribution System  
**Sampling Point:** S- Airport (7-1-MR, 94E4)

**Facility:** Distribution System  
**Sampling Point:** S- Carradice Rd (7-3-MR, 94E6)

**Facility:** Distribution System  
**Sampling Point:** S- Chew Rd (7-13-MR, 94F7)

**Facility:** Distribution System  
**Sampling Point:** S- Dennis Road (7-14-MD, 179CA)

**Facility:** Distribution System  
**Sampling Point:** S- Dixon (7-8-MR, 94F1)

**Facility:** Distribution System  
**Sampling Point:** S- Marsh Drive (7-4-MD, 94E7)

**Facility:** Distribution System  
**Sampling Point:** S- Mills Rd (7-2-MR, 94E5)

Total Coliforms (counts)	Criteria		
* 10/20/2020 10:00	1 counts/100ml	<=0, OG, P	User-Defined

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	1	<b>max:</b>	1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	1 counts/100ml (based on 1 numerical results)
<b># of Exceedences:</b>	1		

**Facility:** Distribution System  
**Sampling Point:** S- N. Star Dragon Hill (7-11-MD, 94F4)

**Facility:** Distribution System  
**Sampling Point:** S- N.Star South Hill (7-12-MD, 94F6)



**Main System Ecoli/Coliform Exceedences**  
**01/01/2020 - 12/31/2020 (mm/dd/yyyy)**

<b>Facility:</b>	Distribution System
<b>Sampling Point:</b>	S- Nason (7-10-MD, 94F3)
<b>Facility:</b>	Distribution System
<b>Sampling Point:</b>	S- Pederson Rd (7-7-MD, 94F0)
<b>Facility:</b>	Distribution System
<b>Sampling Point:</b>	S- West Fraser Rd (7-6-MR, 94E9)
<b>Facility:</b>	Distribution System
<b>Sampling Point:</b>	S-Carson Pit (7-16-MR, 35D91)
<b>Facility:</b>	Distribution System
<b>Sampling Point:</b>	S-Graham Ave (7-5-MD, 94E8)
<b>Facility:</b>	Distribution System
<b>Sampling Point:</b>	S-Hospital (7-9-MD, 94F2)
<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-1 Shadow Heights (8-1-MR, 94EA)
<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-2 Pinecrest (8-4-MR, 94F9)
<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-3 Sugarloaf (8-5-MR, 94FA)
<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-4 Abbott Dr 1 (8-2-MR, 94EB)

<b>Total Coliforms (counts)</b>		<b>Criteria</b>	
* 02/25/2020 15:00	1 counts/100ml	<=0, OG, P	User-Defined
<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	1	<b>max:</b>	1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	1 counts/100ml (based on 1 numerical results)
<b># of Exceedences:</b>	1		





<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-4 Abbott Dr 2 (8-3-MR, 94EC)
<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-5 Dragon Hill (8-6-MR, 94FC)
<b>Facility:</b>	Reservoirs
<b>Sampling Point:</b>	R-6 New Tatchell Reservoir (8-8-MR, 94FF)
<b>Facility:</b>	Well 10 Hilborn Rd.; Well No 10
<b>Sampling Point:</b>	Well No 10 Hilborn Rd. (9-1-EP, 28000)
<b>Facility:</b>	Well 3 Rolph at Roddis; Well No 3
<b>Sampling Point:</b>	Well 3 Rolph at Roddis (1-2-EP, 94D1)
<b>Facility:</b>	Well 6 Rolph at Robertson; Well No 6
<b>Sampling Point:</b>	Well 6 Rolph at Robertson (3-2-EP, 94DC)
<b>Facility:</b>	Well 7 N. Fraser Dr; Well No 7
<b>Sampling Point:</b>	Well 7 N. Fraser Dr (4-2-EP, 94E0)
<b>Facility:</b>	Well 8 Hilborn Rd; Well No 8
<b>Sampling Point:</b>	Well 8 Hilborn Rd (5-1-EP, 94E1)
<b>Facility:</b>	Well 9 Carson Sub; Well No 9
<b>Sampling Point:</b>	Well 9 Carson Sub (6-2-EP, 94DF)

**Result Legend:**

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no, TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

- < means less than lower detection limit shown
- > means greater than upper detection limit shown
- « means detected & less than number shown
- » means detected & greater than number shown

\* Indicates Criteria is exceeded



**Facility:** Distribution System  
**Sampling Point:** Bulk Water Site #1 (7-15-QC, 21D9B)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Airport (7-1-MR, 94E4)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Carradice Rd (7-3-MR, 94E6)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Chew Rd (7-13-MR, 94F7)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Dennis Road (7-14-MD, 179CA)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Dixon (7-8-MR, 94F1)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
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<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Marsh Drive (7-4-MD, 94E7)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Mills Rd (7-2-MR, 94E5)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	1	<b>max:</b>	1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	1 counts/100ml (based on 1 numerical results)
<b># of Exceedences:</b>	1		

**Facility:** Distribution System  
**Sampling Point:** S- N. Star Dragon Hill (7-11-MD, 94F4)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- N.Star South Hill (7-12-MD, 94F6)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Nason (7-10-MD, 94F3)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- Pederson Rd (7-7-MD, 94F0)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S- West Fraser Rd (7-6-MR, 94E9)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S-Carson Pit (7-16-MR, 35D91)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
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<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S-Graham Ave (7-5-MD, 94E8)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Distribution System  
**Sampling Point:** S-Hospital (7-9-MD, 94F2)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		



**Facility:** Reservoirs  
**Sampling Point:** R-1 Shadow Heights (8-1-MR, 94EA)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	11	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	11	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	11	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	11	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Reservoirs  
**Sampling Point:** R-2 Pinecrest (8-4-MR, 94F9)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Reservoirs  
**Sampling Point:** R-3 Sugarloaf (8-5-MR, 94FA)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**



<b># samples:</b>	12	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Reservoirs  
**Sampling Point:** R-4 Abbott Dr 1 (8-2-MR, 94EB)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	1	<b>max:</b>	1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	1 counts/100ml (based on 1 numerical results)
<b># of Exceedences:</b>	1		

**Facility:** Reservoirs  
**Sampling Point:** R-4 Abbott Dr 2 (8-3-MR, 94EC)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Reservoirs  
**Sampling Point:** R-5 Dragon Hill (8-6-MR, 94FC)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 CFU/100ml
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<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Reservoirs  
**Sampling Point:** R-6 New Tatchell Reservoir (8-8-MR, 94FF)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	12	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	12	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 10 Hilborn Rd.; Well No 10  
**Sampling Point:** Well No 10 Hilborn Rd. (9-1-EP, 28000)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 3 Rolph at Roddis; Well No 3  
**Sampling Point:** Well 3 Rolph at Roddis (1-2-EP, 94D1)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	14	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	14	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 6 Rolph at Robertson; Well No 6  
**Sampling Point:** Well 6 Rolph at Robertson (3-2-EP, 94DC)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 7 N. Fraser Dr; Well No 7  
**Sampling Point:** Well 7 N. Fraser Dr (4-2-EP, 94E0)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 8 Hilborn Rd; Well No 8  
**Sampling Point:** Well 8 Hilborn Rd (5-1-EP, 94E1)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 9 Carson Sub; Well No 9  
**Sampling Point:** Well 9 Carson Sub (6-2-EP, 94DF)

**Escherichia coli / E. coli (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 CFU/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 CFU/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Total Coliforms (counts)**

<b># samples:</b>	13	<b>min:</b>	< 1 counts/100ml
<b># detects:</b>	0	<b>max:</b>	< 1 counts/100ml
<b># non-detects:</b>	13	<b>Geometric Mean:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

**Result Legend:**

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no,  
TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

< means less than lower detection limit shown  
> means greater than upper detection limit shown  
« means detected & less than number shown

» means detected & greater than number shown

\* Indicates Criteria is exceeded

**Facility:** Distribution System  
**Sampling Point:** S- Mills Rd (7-2-MR, 94E5)

**Copper (total)** **Criteria**  
 05/26/2020 11:35 0.00604 mg/L <=1.0 AO

**# samples:** 1 **min:** 0.00604 mg/L  
**# detects:** 1 **max:** 0.00604 mg/L  
**# non-detects:** 0 **avg:** 0.00604 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Iron (total)** **Criteria**  
 05/26/2020 11:35 0.019 mg/L <=0.3 AO

**# samples:** 1 **min:** 0.019 mg/L  
**# detects:** 1 **max:** 0.019 mg/L  
**# non-detects:** 0 **avg:** 0.019 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Lead (total)** **Criteria**  
 05/26/2020 11:35 < 0.00020 mg/L <=0.005 MAC

**# samples:** 1 **min:** < 0.00020 mg/L  
**# detects:** 0 **max:** < 0.00020 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Manganese (total)** **Criteria**  
 05/26/2020 11:35 0.00403 mg/L <=0.02 AO

**# samples:** 1 **min:** 0.00403 mg/L  
**# detects:** 1 **max:** 0.00403 mg/L  
**# non-detects:** 0 **avg:** 0.00403 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Zinc (total)** **Criteria**  
 05/26/2020 11:35 < 0.0040 mg/L <=5 AO

**# samples:** 1 **min:** < 0.0040 mg/L  
**# detects:** 0 **max:** < 0.0040 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0



**Facility:** Distribution System  
**Sampling Point:** S- Pederson Rd (7-7-MD, 94F0)

**Copper (total)** **Criteria**  
 05/26/2020 09:45 0.00299 mg/L <=1.0 AO

**# samples:** 1 **min:** 0.00299 mg/L  
**# detects:** 1 **max:** 0.00299 mg/L  
**# non-detects:** 0 **avg:** 0.00299 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Iron (total)** **Criteria**  
 05/26/2020 09:45 0.012 mg/L <=0.3 AO

**# samples:** 1 **min:** 0.012 mg/L  
**# detects:** 1 **max:** 0.012 mg/L  
**# non-detects:** 0 **avg:** 0.012 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Lead (total)** **Criteria**  
 05/26/2020 09:45 < 0.00020 mg/L <=0.005 MAC

**# samples:** 1 **min:** < 0.00020 mg/L  
**# detects:** 0 **max:** < 0.00020 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Manganese (total)** **Criteria**  
 \* 05/26/2020 09:45 0.0735 mg/L <=0.02 AO

**# samples:** 1 **min:** 0.0735 mg/L  
**# detects:** 1 **max:** 0.0735 mg/L  
**# non-detects:** 0 **avg:** 0.0735 mg/L (based on 1 numerical results)  
**# of Exceedences:** 1

**Zinc (total)** **Criteria**  
 05/26/2020 09:45 < 0.0040 mg/L <=5 AO

**# samples:** 1 **min:** < 0.0040 mg/L  
**# detects:** 0 **max:** < 0.0040 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)



# of Exceedences: 0

Facility: Distribution System  
Sampling Point: S-Carson Pit (7-16-MR, 35D91)

**Copper (total)**  
05/26/2020 14:55      0.00305 mg/L      **Criteria**      <=1.0      AO

# samples: 1      **min:** 0.00305 mg/L  
# detects: 1      **max:** 0.00305 mg/L  
# non-detects: 0      **avg:** 0.00305 mg/L (based on 1 numerical results)  
# of Exceedences: 0

**Iron (total)**  
05/26/2020 14:55      0.015 mg/L      **Criteria**      <=0.3      AO

# samples: 1      **min:** 0.015 mg/L  
# detects: 1      **max:** 0.015 mg/L  
# non-detects: 0      **avg:** 0.015 mg/L (based on 1 numerical results)  
# of Exceedences: 0

**Lead (total)**  
05/26/2020 14:55      < 0.00020 mg/L      **Criteria**      <=0.005      MAC

# samples: 1      **min:** < 0.00020 mg/L  
# detects: 0      **max:** < 0.00020 mg/L  
# non-detects: 1      **avg:** n/a (based on 0 numerical results)  
# of Exceedences: 0

**Manganese (total)**  
05/26/2020 14:55      0.00187 mg/L      **Criteria**      <=0.02      AO

# samples: 1      **min:** 0.00187 mg/L  
# detects: 1      **max:** 0.00187 mg/L  
# non-detects: 0      **avg:** 0.00187 mg/L (based on 1 numerical results)  
# of Exceedences: 0

**Zinc (total)**  
05/26/2020 14:55      0.0170 mg/L      **Criteria**      <=5      AO

# samples: 1      **min:** 0.0170 mg/L





<b># detects:</b>	1	<b>max:</b>	0.0170 mg/L
<b># non-detects:</b>	0	<b>avg:</b>	0.0170 mg/L (based on 1 numerical results)
<b># of Exceedences:</b>	0		

**Result Legend:**

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no,  
TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

< means less than lower detection limit shown

> means greater than upper detection limit shown

« means detected & less than number shown

» means detected & greater than number shown

**\* Indicates Criteria is exceeded**

**Facility:** Distribution System  
**Sampling Point:** S- Mills Rd (7-2-MR, 94E5)

**Copper (total)** **Criteria**  
 11/12/2020 13:10 0.00628 mg/L <=1.0 AO

**# samples:** 1 **min:** 0.00628 mg/L  
**# detects:** 1 **max:** 0.00628 mg/L  
**# non-detects:** 0 **avg:** 0.00628 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Iron (total)** **Criteria**  
 11/12/2020 13:10 < 0.010 mg/L <=0.3 AO

**# samples:** 1 **min:** < 0.010 mg/L  
**# detects:** 0 **max:** < 0.010 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Lead (total)** **Criteria**  
 11/12/2020 13:10 < 0.00020 mg/L <=0.005 MAC

**# samples:** 1 **min:** < 0.00020 mg/L  
**# detects:** 0 **max:** < 0.00020 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Manganese (total)** **Criteria**  
 11/12/2020 13:10 0.00245 mg/L <=0.02 AO

**# samples:** 1 **min:** 0.00245 mg/L  
**# detects:** 1 **max:** 0.00245 mg/L  
**# non-detects:** 0 **avg:** 0.00245 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Vinyl chloride** **Criteria**  
 11/12/2020 13:10 < 0.0010 mg/L <=0.002 MAC

**# samples:** 1 **min:** < 0.0010 mg/L  
**# detects:** 0 **max:** < 0.0010 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0



**Zinc (total) Criteria**

11/12/2020 13:10 < 0.0040 mg/L <=5 AO

# samples:	1	min:	< 0.0040 mg/L
# detects:	0	max:	< 0.0040 mg/L
# non-detects:	1	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0		

**Facility:** Distribution System  
**Sampling Point:** S- Pederson Rd (7-7-MD, 94F0)

**Copper (total) Criteria**

11/12/2020 10:05 0.00395 mg/L <=1.0 AO

# samples:	1	min:	0.00395 mg/L
# detects:	1	max:	0.00395 mg/L
# non-detects:	0	avg:	0.00395 mg/L (based on 1 numerical results)
# of Exceedences:	0		

**Iron (total) Criteria**

11/12/2020 10:05 < 0.010 mg/L <=0.3 AO

# samples:	1	min:	< 0.010 mg/L
# detects:	0	max:	< 0.010 mg/L
# non-detects:	1	avg:	n/a (based on 0 numerical results)
# of Exceedences:	0		

**Lead (total) Criteria**

11/12/2020 10:05 0.00022 mg/L <=0.005 MAC

# samples:	1	min:	0.00022 mg/L
# detects:	1	max:	0.00022 mg/L
# non-detects:	0	avg:	0.00022 mg/L (based on 1 numerical results)
# of Exceedences:	0		

**Manganese (total) Criteria**

\* 11/12/2020 10:05 0.0504 mg/L <=0.02 AO

# samples:	1	min:	0.0504 mg/L
# detects:	1	max:	0.0504 mg/L
# non-detects:	0	avg:	0.0504 mg/L (based on 1 numerical results)



**# of Exceedences:** 1

**Vinyl chloride** **Criteria**  
 11/12/2020 10:05 < 0.0010 mg/L <=0.002 MAC

**# samples:** 1 **min:** < 0.0010 mg/L  
**# detects:** 0 **max:** < 0.0010 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Zinc (total)** **Criteria**  
 11/12/2020 10:05 < 0.0040 mg/L <=5 AO

**# samples:** 1 **min:** < 0.0040 mg/L  
**# detects:** 0 **max:** < 0.0040 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Facility:** Distribution System  
**Sampling Point:** S-Carson Pit (7-16-MR, 35D91)

**Copper (total)** **Criteria**  
 11/12/2020 15:25 0.00269 mg/L <=1.0 AO

**# samples:** 1 **min:** 0.00269 mg/L  
**# detects:** 1 **max:** 0.00269 mg/L  
**# non-detects:** 0 **avg:** 0.00269 mg/L (based on 1 numerical results)  
**# of Exceedences:** 0

**Iron (total)** **Criteria**  
 11/12/2020 15:25 < 0.010 mg/L <=0.3 AO

**# samples:** 1 **min:** < 0.010 mg/L  
**# detects:** 0 **max:** < 0.010 mg/L  
**# non-detects:** 1 **avg:** n/a (based on 0 numerical results)  
**# of Exceedences:** 0

**Lead (total)** **Criteria**  
 11/12/2020 15:25 0.00029 mg/L <=0.005 MAC

**# samples:** 1 **min:** 0.00029 mg/L



<b># detects:</b>	1	<b>max:</b>	0.00029 mg/L
<b># non-detects:</b>	0	<b>avg:</b>	0.00029 mg/L (based on 1 numerical results)
<b># of Exceedences:</b>	0		

<b>Manganese (total)</b>		<b>Criteria</b>	
11/12/2020 15:25	< 0.00020 mg/L	<=0.02	AO

<b># samples:</b>	1	<b>min:</b>	< 0.00020 mg/L
<b># detects:</b>	0	<b>max:</b>	< 0.00020 mg/L
<b># non-detects:</b>	1	<b>avg:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

<b>Vinyl chloride</b>		<b>Criteria</b>	
11/12/2020 15:25	< 0.0010 mg/L	<=0.002	MAC

<b># samples:</b>	1	<b>min:</b>	< 0.0010 mg/L
<b># detects:</b>	0	<b>max:</b>	< 0.0010 mg/L
<b># non-detects:</b>	1	<b>avg:</b>	n/a (based on 0 numerical results)
<b># of Exceedences:</b>	0		

<b>Zinc (total)</b>		<b>Criteria</b>	
11/12/2020 15:25	0.0121 mg/L	<=5	AO

<b># samples:</b>	1	<b>min:</b>	0.0121 mg/L
<b># detects:</b>	1	<b>max:</b>	0.0121 mg/L
<b># non-detects:</b>	0	<b>avg:</b>	0.0121 mg/L (based on 1 numerical results)
<b># of Exceedences:</b>	0		

**Result Legend:**

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no,  
 TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

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- « means detected & less than number shown
- » means detected & greater than number shown

\* Indicates Criteria is exceeded



**Facility:** Well 10 Hilborn Rd.; Well No 10  
**Sampling Point:** Well No 10 Hilborn Rd. (9-1-EP, 28000)

Manganese (total)		Criteria	
* 01/21/2020 09:45	0.644 mg/L	<=0.02	AO
* 02/18/2020 11:20	0.556 mg/L	<=0.02	AO
* 03/10/2020 09:40	6.75 mg/L	<=0.02	AO
* 04/07/2020 13:45	0.571 mg/L	<=0.02	AO
* 05/05/2020 14:10	0.639 mg/L	<=0.02	AO
* 06/02/2020 11:50	0.555 mg/L	<=0.02	AO
* 06/29/2020 09:30	0.603 mg/L	<=0.02	AO
* 07/28/2020 13:20	0.620 mg/L	<=0.02	AO
* 08/26/2020 11:35	0.562 mg/L	<=0.02	AO
* 09/22/2020 15:00	0.227 mg/L	<=0.02	AO
* 10/20/2020 09:15	0.562 mg/L	<=0.02	AO
* 11/17/2020 13:15	0.597 mg/L	<=0.02	AO
* 12/15/2020 10:10	0.587 mg/L	<=0.02	AO

<b># samples:</b>	13	<b>min:</b>	0.227 mg/L
<b># detects:</b>	13	<b>max:</b>	6.75 mg/L
<b># non-detects:</b>	0	<b>avg:</b>	1.036 mg/L (based on 13 numerical results)
<b># of Exceedences:</b>	13		

**Facility:** Well 3 Rolph at Roddis; Well No 3  
**Sampling Point:** Well 3 Rolph at Roddis (1-2-EP, 94D1)

Manganese (total)		Criteria	
* 01/21/2020 14:20	0.769 mg/L	<=0.02	AO

Manganese (total)		Criteria	
* 02/18/2020 14:10	0.759 mg/L	<=0.02	AO
* 03/10/2020 11:45	0.713 mg/L	<=0.02	AO
* 04/07/2020 10:50	0.708 mg/L	<=0.02	AO
* 05/05/2020 10:40	0.835 mg/L	<=0.02	AO
* 06/02/2020 09:30	0.781 mg/L	<=0.02	AO
* 06/29/2020 10:50	0.849 mg/L	<=0.02	AO
* 07/28/2020 11:20	0.906 mg/L	<=0.02	AO
* 08/26/2020 15:30	0.651 mg/L	<=0.02	AO
* 09/22/2020 14:00	0.237 mg/L	<=0.02	AO
* 10/20/2020 10:45	0.675 mg/L	<=0.02	AO
* 11/17/2020 11:30	0.708 mg/L	<=0.02	AO
* 12/15/2020 13:10	0.709 mg/L	<=0.02	AO

# samples:	13	min:	0.237 mg/L
# detects:	13	max:	0.906 mg/L
# non-detects:	0	avg:	0.715 mg/L (based on 13 numerical results)
# of Exceedences:	13		

**Facility:** Well 6 Rolph at Robertson; Well No 6  
**Sampling Point:** Well 6 Rolph at Robertson (3-2-EP, 94DC)

Manganese (total)		Criteria	
* 01/21/2020 15:20	0.242 mg/L	<=0.02	AO
* 02/18/2020 11:55	0.246 mg/L	<=0.02	AO
* 03/10/2020 11:20	0.266 mg/L	<=0.02	AO
* 04/07/2020 10:00	0.231 mg/L	<=0.02	AO



Manganese (total)		Criteria	
* 05/05/2020 12:45	0.224 mg/L	<=0.02	AO
* 06/02/2020 13:30	0.226 mg/L	<=0.02	AO
* 06/29/2020 11:25	0.253 mg/L	<=0.02	AO
* 07/28/2020 10:45	0.256 mg/L	<=0.02	AO
* 08/26/2020 10:20	0.200 mg/L	<=0.02	AO
* 09/22/2020 11:45	1.49 mg/L	<=0.02	AO
* 10/20/2020 13:05	0.209 mg/L	<=0.02	AO
* 11/17/2020 14:30	0.341 mg/L	<=0.02	AO
* 12/15/2020 11:10	0.237 mg/L	<=0.02	AO

# samples:	13	min:	0.200 mg/L
# detects:	13	max:	1.49 mg/L
# non-detects:	0	avg:	0.340 mg/L (based on 13 numerical results)
# of Exceedences:	13		

<b>Facility:</b>	Well 7 N. Fraser Dr; Well No 7
<b>Sampling Point:</b>	Well 7 N. Fraser Dr (4-2-EP, 94E0)

Manganese (total)		Criteria	
01/21/2020 11:30	0.0147 mg/L	<=0.02	AO
02/18/2020 10:45	0.0124 mg/L	<=0.02	AO
03/10/2020 10:40	0.0130 mg/L	<=0.02	AO
04/07/2020 09:40	0.0125 mg/L	<=0.02	AO
05/05/2020 11:25	0.00986 mg/L	<=0.02	AO
06/02/2020 10:35	0.0105 mg/L	<=0.02	AO
06/29/2020 11:55	0.0109 mg/L	<=0.02	AO
07/28/2020 12:00	0.0118 mg/L	<=0.02	AO
08/26/2020 09:10	0.0103 mg/L	<=0.02	AO
09/22/2020 10:40	0.0106 mg/L	<=0.02	AO
10/20/2020 11:20	0.0101 mg/L	<=0.02	AO
11/17/2020 09:55	0.0104 mg/L	<=0.02	AO
12/15/2020 13:50	0.0109 mg/L	<=0.02	AO





<b># samples:</b>	13	<b>min:</b>	0.00986 mg/L
<b># detects:</b>	13	<b>max:</b>	0.0147 mg/L
<b># non-detects:</b>	0	<b>avg:</b>	0.01138 mg/L (based on 13 numerical results)
<b># of Exceedences:</b>	0		

**Facility:** Well 8 Hilborn Rd; Well No 8  
**Sampling Point:** Well 8 Hilborn Rd (5-1-EP, 94E1)

<b>Manganese (total)</b>		<b>Criteria</b>	
* 01/21/2020 13:40	0.228 mg/L	<=0.02	AO
* 02/18/2020 13:20	0.234 mg/L	<=0.02	AO
* 03/10/2020 09:30	0.253 mg/L	<=0.02	AO
* 04/07/2020 13:15	0.259 mg/L	<=0.02	AO
* 05/05/2020 09:40	0.255 mg/L	<=0.02	AO
* 06/02/2020 11:20	0.217 mg/L	<=0.02	AO
* 06/29/2020 13:25	0.226 mg/L	<=0.02	AO
* 07/28/2020 09:30	0.245 mg/L	<=0.02	AO
* 08/26/2020 11:00	0.234 mg/L	<=0.02	AO
* 09/22/2020 09:30	0.144 mg/L	<=0.02	AO
* 10/20/2020 09:40	0.236 mg/L	<=0.02	AO
* 11/17/2020 13:40	0.241 mg/L	<=0.02	AO
* 12/15/2020 09:35	0.201 mg/L	<=0.02	AO

<b># samples:</b>	13	<b>min:</b>	0.144 mg/L
<b># detects:</b>	13	<b>max:</b>	0.259 mg/L
<b># non-detects:</b>	0	<b>avg:</b>	0.229 mg/L (based on 13 numerical results)
<b># of Exceedences:</b>	13		

**Facility:** Well 9 Carson Sub; Well No 9  
**Sampling Point:** Well 9 Carson Sub (6-2-EP, 94DF)

Manganese (total)		Criteria	
* 01/21/2020 10:40	0.150 mg/L	<=0.02	AO
* 02/18/2020 09:45	0.145 mg/L	<=0.02	AO
* 03/10/2020 13:20	0.145 mg/L	<=0.02	AO
* 04/07/2020 11:50	0.140 mg/L	<=0.02	AO
* 05/05/2020 13:20	0.141 mg/L	<=0.02	AO
* 06/02/2020 08:45	0.135 mg/L	<=0.02	AO
* 06/29/2020 14:00	0.143 mg/L	<=0.02	AO
* 07/28/2020 14:10	0.150 mg/L	<=0.02	AO
* 08/26/2020 15:30	0.139 mg/L	<=0.02	AO
* 09/22/2020 13:15	0.568 mg/L	<=0.02	AO
* 10/20/2020 13:50	0.138 mg/L	<=0.02	AO
* 11/17/2020 10:50	0.145 mg/L	<=0.02	AO
* 12/15/2020 11:45	0.133 mg/L	<=0.02	AO

# samples:	13	min:	0.133 mg/L
# detects:	13	max:	0.568 mg/L
# non-detects:	0	avg:	0.175 mg/L (based on 13 numerical results)
# of Exceedences:	13		

**Result Legend:**

P=present, A=absent, PR=presumptive, ND=non-detect, OR=over-range, OG=overgrown, Y=yes, N=no, TNTC=too numerous to count, NR=no result, NT=not tested, IG=ignore, ER=external report, SC=see comment

- < means less than lower detection limit shown
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- » means detected & greater than number shown

\* Indicates Criteria is exceeded

