

City of Kamloops | June 22, 2010

City of Kamloops Main Community Water System

2009 Annual Report



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Section 1 Utilities Water Treatment

Operational Challenges

No major operational challenges were encountered in 2009 that impacted water quality. Over 23 billion litres of water were produced that exceeded all Federal and Provincial quality guidelines. Peak daily demand of 143, 521 (89% of 160 MLD capacity) was encountered on July 30, 2009.

Accelerated wear of secondary system membranes used solely for residuals treatment (* not used for potable water production) has been noted and may require earlier than anticipated replacement. Despite the accelerated wear of these membranes, water quality continues to meet or exceed all federal and provincial regulations and guidelines.

System Improvements

The Kamloops Centre for Water Quality will continue to set a standard for both qualitative and quantitative excellence in the field of water treatment in 2010.

2009 Capital Works Completed

No major Capital works projects were carried out at the Kamloops Centre for Water Quality in 2009. A spare centrifuge scroll was purchased in 2009 to alleviate down time associated with the centrifuge process.

2010 Capital Works Planned

No major Capital works projects are planned "at this time" for Kamloops Centre for Water Quality in 2009.

As noted above, it is expected that secondary membrane replacement may be required and conducted in late 2010 or in the 2011 calendar year. The scope of the required replacement work will be communicated to IHA upon finalization.

Drinking Water Quality Monitoring Program Summary**Table 1.1 Summary of Kamloops Main Water System Turbidity and Disinfection Monitoring**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Raw Turbidity (NTU)	Min	0.90	1.58	2.32	2.28	1.89	1.84	1.34	1.23	0.97	0.46	0.58
	Max	2.21	4.73	25.05	9.92	7.09	13.50	5.55	2.35	6.47	9.12	3.08
	Avg	1.46	2.33	6.26	3.86	3.85	2.96	1.87	1.90	1.74	1.59	2.02
Treated Turbidity (mNTU)	Min	7.61	7.58	8.31	8.18	7.53	7.50	10.58	10.63	11.33	10.76	10.37
	Max	10.25	8.49	12.20	13.14	85.42	13.36	17.76	17.97	19.86	22.36	41.07
	Avg	7.93	7.97	9.71	9.24	9.50	8.83	12.03	11.77	12.28	11.95	11.27
Treated Chlorine Residual (mg/L)	Min	1.07	1.10	1.02	1.02	1.05	0.97	0.95	0.99	1.04	1.18	1.39
	Max	1.27	1.17	1.37	1.28	1.38	1.26	1.23	1.27	1.26	1.46	1.28
	Avg	1.17	1.13	1.17	1.12	1.19	1.11	1.11	1.10	1.15	1.29	1.75

NTU – Nephelometric Turbidity Units
mNTU – millinTU = NTU/1000
mg/L – milligrams per Litre

Table 1.2 Summary of Treated Water Trihalomethane Sampling

Trihalomethanes ($\mu\text{g/L}$)	Reported Detection Limit	Feb-09	Jun-09	Nov-09
Bromodichloromethane	0.001	0.0012	0.001	0.0016
Bromoform	0.001	ND	ND	ND
Chloroform	0.001	0.0287	0.0217	0.0613
Dibromochloromethane	0.001	ND	ND	ND

 $\mu\text{g/L}$ - micrograms per Litre**Table 1.3 Summary of Bacteriological Testing for Kamloops Main Water System**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Total Coliform tests	Pass	95	95	101	94	100	90	84	83	103	104	84
	Fail	0	0	0	0	0	0	0	1	0	0	0
	Resampled Pass								1			
Fecal Coliform tests	Pass	95	95	101	94	100	90	84	84	103	104	84
	Fail	0	0	0	0	0	0	0	0	0	0	0
	Resampled Pass											

Section 2 Utilities Operation and Maintenance

Operational Challenges

The main operational challenges that the Operation and Maintenance division faced in 2009 were the completion of the uni-directional water main flushing program and the implementation of the contractor water meter and backflow prevention program.

System Improvements

Improvements to the Operations and Maintenance division were the hiring of two new staff for the enforcement of the contractor water meter and backflow prevention program and the implementation of the mainline valve exercising program.

2009 Capital Works Completed

None

2010 Capital Works Planned

Capital works planned for the 2010 year are the purchase of a new flusher truck and new inspection camera equipment.

Utilities Operations and Maintenance Activities

Table 2.1 Summary of Operation and Maintenance Activities

2009 ANNUAL INQUIRIES - Operations and Maintenance													
	Jan	Feb	March	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Totals
UNITS	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL	TOTAL
WATER													
Service/Valve Box Repair	No.	0	0	0	0	0	0	0	0	0	0	0	0
Main Flushing (UDF)	Meters	7,370	7,890	3,810	1,570	2,076	0	1,280	0	0	2,070	0	26,066
Main Flushing Operations	Meters	0	0	0	0	0	0	0	0	0	0	0	0
Hydrant Repair	No.	0	0	0	0	0	0	0	0	0	0	0	0
Standpipe Repair	No.	0	0	0	0	0	0	0	0	0	0	0	0
Valve Exercise	No.	0	0	280	888	306	183	209	0	132	0	0	2,300

Section 3 Utilities Construction and Rehabilitation

Operational Challenges

The main operational challenges that the Construction and Rehabilitation division faced in 2009 were juggling development requests and performing operational maintenance issues within existing staff levels.

With the recent roll out of the new CCTV unit, we were able to identify a larger number of existing problems we were not previously aware of. Therefore the urgency to address these and other issues taxed our resources, and made it difficult to prioritize and make these repairs as soon as we would have liked.

System Improvements

Improvements to the Operations and Maintenance division in 2009 would include a strong focus on our requests from the public and other departments and being able to deal with them in a timely fashion. We went into 2010 with only a handful of outstanding requests, which in the past was unachievable.

2009 Capital Works Completed

Capital works completed during the 2009 year include our Local Roads Program which resulted in utility upgrades for Partridge Phase I, Carson Ave Phase I; Oak Hills Blvd, Fleetwood Ave, Singh St and Knox St. There were many development based water installations within the City.

2010 Capital Works Planned

Capital works planned for 2010 include utility upgrades for Sandpiper Phase II, Carson Phase II, Marcel St, Park St, Fort Ave, Marsh Rd, Big Nickel and Peter Rd under our Local Roads Program and water service installations are planned for the network as well.

Utilities Operations and Maintenance Activities**Table 3.1** Summary of Operation and Maintenance Activities

	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec	Totals
WATER	UNITS	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Service/Valve Box Repair	No.	4	15	5	15	20	18	4	15	17	7	18	150
Service Repair	No.	5	6	3	5	3	11	7	5	11	9	3	72
Main Repair	No.	0	0	0	0	0	0	1	0	0	0	4	6
Main Flushing	Meters	0	0	0	0	0	0	0	0	0	0	0	0
Main Valve Repair	No.	0	3	0	0	0	0	2	1	0	1	3	10
Test Holes	No.	0	7	1	1	0	3	22	0	2	6	6	59
Hydrant Repair	No.	0	1	0	0	2	1	0	2	0	2	4	12
Standpipe Repair	No.	1	0	0	1	1	2	1	0	0	0	3	9
Road Base Repair	Man Hours.	0	0	0	0	0	0	0	0	0	0	0	0
Water Service Repair O/T	No.	3	2	1	0	0	0	0	1	2	0	0	9
Water Main Repair O/T	No.	3	0	2	0	0	2	1	1	0	0	0	9
Curb Stop Replacements	No.	0	0	0	0	0	0	0	0	1	0	0	1
Water Main Repair O/T	No.	0	0	0	0	0	0	0	0	0	0	0	0
S.I.A. WATER	UNITS	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total	Total
Commercial	No.	0	0	0	1	2	2	2	0	0	2	2	13
Residential	No.	0	0	0	2	3	3	0	1	1	8	1	27

Section 4 Utilities Pumping Facilities

Operational Challenges

The main operational challenge faced in 2009 was a change in the supervisor for this division; Micheal Firlotte came on board in June, 2009 replacing Norm Johnson. The Water Quality sampling program was revised to have 100 % of the samples tested at an accredited lab. The hydrant program was revised. New staff, including two new crew leaders started with this division.

System Improvements

System improvements include the continuation of the volunteer metering program, increased servicing of municipal hydrants, increased water quality sampling and a commitment to increase the staff training. A reservoir cleaning program is currently being developed with Phoenix Marine Services, universal water metering installs and a cross connection program will both start in 2010.

2009 Capital Works Completed

The addition of the Harrington (North Westsyde Zone) booster station, which will connect the City main water system to the residences of Noble Creek and Westsyde Road was completed late in 2009. Construction of the new Alpine Terrace Reservoir started in 2009 and should be in service in early 2010. Rebuilding of all the surge relief valves in the South West Sector was completed to prevent water hammer issues. The completion of the Juniper booster station upgrades was completed in mid 2009. Campbell Creek Water System received a gas chlorine system upgrade as the current system was failing to provide consistent results.

2010 Capital Works Planned

Capital Works planned for 2010 include the addition of 2 new pumps to the River Street Highlift South Zone, also the addition of a new pump for the South East Sector and the upgrading of the pumping capacity for the South West Sector. Standby power will be added to South West # 1 Station. The construction of the Copperhead Booster and Reservoir will start in mid 2010. Other projects include the moving and upgrading of the Hugh Allen PRV Station and construction of Rose Hill Reservoir Twin.

Pumping Facilities Summary of Events**Table 4.1 Summary of Pumping Facilities Activities for 2009**

2009	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept	Oct	Nov	Dec	Totals
River Street Plant Flow (m3)	1,291,061	954,762	1,339,875	1,722,441	2,659,299	3,467,809	2,195,103	1,826,989	1,405,342	810,901	663,234	646,278	18,983,094
Noble Creek Domestic Flow(m3)	3,162	2,810	3,298	5,080	7,314	12,190	14,555	13,495	10,089	3,857	2,850	3,341	82,041
Noble Creek Irrigation Flow (m3)	30,373	29,302	32,156	50,285	318,702	244,657	374,383	354,146	215,538	21,438	21,730	23,438	1,716,148
Campbell Creek Flow (m3)	7,215	6,666	15,064	32,024	49,394	42,944	47,406	61,899	46,896	20,672	14,880	8,617	353,677
North Shore Flow (m3)	43,271	38,143	85,245	127,583	106,185	145,646	163,691	154,410	97,617	54,779	43,698	42,573	1,102,841
Total South East Sector Flow (m3)	182,446	134,590	180,620	246,527	411,398	602,423	367,011	667,758	434,024	208,622	182,883	188,725	3,807,027
Total South Shore Flow (m3)	421,157	376,052	462,472	537,303	875,017	1,206,687	1,344,508	1,306,415	959,724	547,500	438,145	420,477	8,895,457
Hydrants Flushed	0	0	0	0	0	0	13	0	13	13	7	0	46
Hydrants Rebuilds	0	1	0	0	2	1	14	18	13	33	12	0	94
Hydrants Installed	0	0	0	0	0	0	3	1	0	6	7	6	23
Reservoirs Cleaned	0	0	0	0	0	0	0	0	0	0	0	0	0
													-
													-

2009 CITY OF KAMLOOPS UTILITIES SERVICES SUPERVISORS

Chris Jackson	Operation and Maintenance	_____
Greg Cave	Construction and Rehabilitation	_____
David Teasdale	Treatment Plants	_____
Micheal Firlotte	Pumping Facilities (Started July 2009)	_____

UTILITIES SERVICES MANAGER

Tom Marstaller

City of Kamloops

Emergency Response Plan for Potable Water Issues

Scope

This document provides the steps to be followed in situations where the public needs to be notified of changes to the water treatment and distribution system that could potentially impact the quantity and quality of water they receive at their point of use.

Specifically, this document addresses public notification when

- Water supply is bacteriologically contaminated as indicated by positive E. coli results. (see Figure 1)
- Disinfection of the water supply is not available. (see Figure 2)
- Water supply is chemically or physically contaminated due to a spill upstream of the water intake. (see Figure 3)

The procedures are set up so that action can be initiated by the Site Coordinator before involving other City staff and outside agencies. Site Coordinator is responsible to continue the response steps in the action plans in Figures 1 through 3 until Utility Management are available to assume responsibility for the incident.

The text to be used for a Boil Water Notice is included in Appendix 1 of this document.

Definitions

Provide Temporary Water Supply – can take on many forms from providing bottled water to impacted residents to trucking in water from other municipalities for critical facilities such as the hospital and other care facilities. The response will be dictated by the area impacted and the time required until chlorinated water can be provided.

Parks, Recreation, and Cultural Services Management – Parks, Recreation, and Cultural Services Supervisors as listed in Table 3.

Senior Management – Public Works and Utilities Services Director or alternate.

Site Coordinator – most senior person at the site at the time of the incident or discovery of the incident requiring public notification.

Utility Management – Utility Services Supervisors or Utility Services Manager as listed in Table 1.

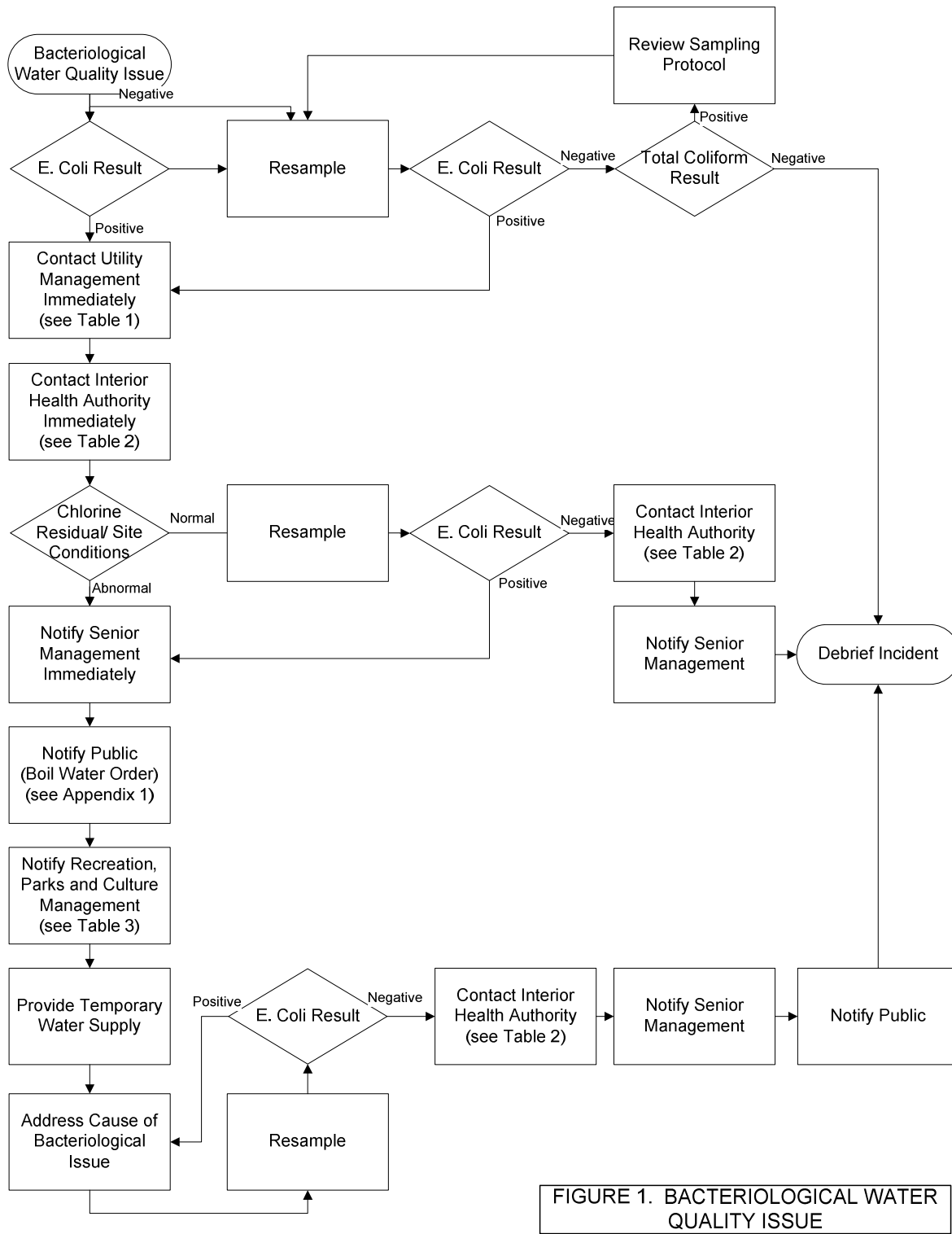


FIGURE 1. BACTERIOLOGICAL WATER QUALITY ISSUE

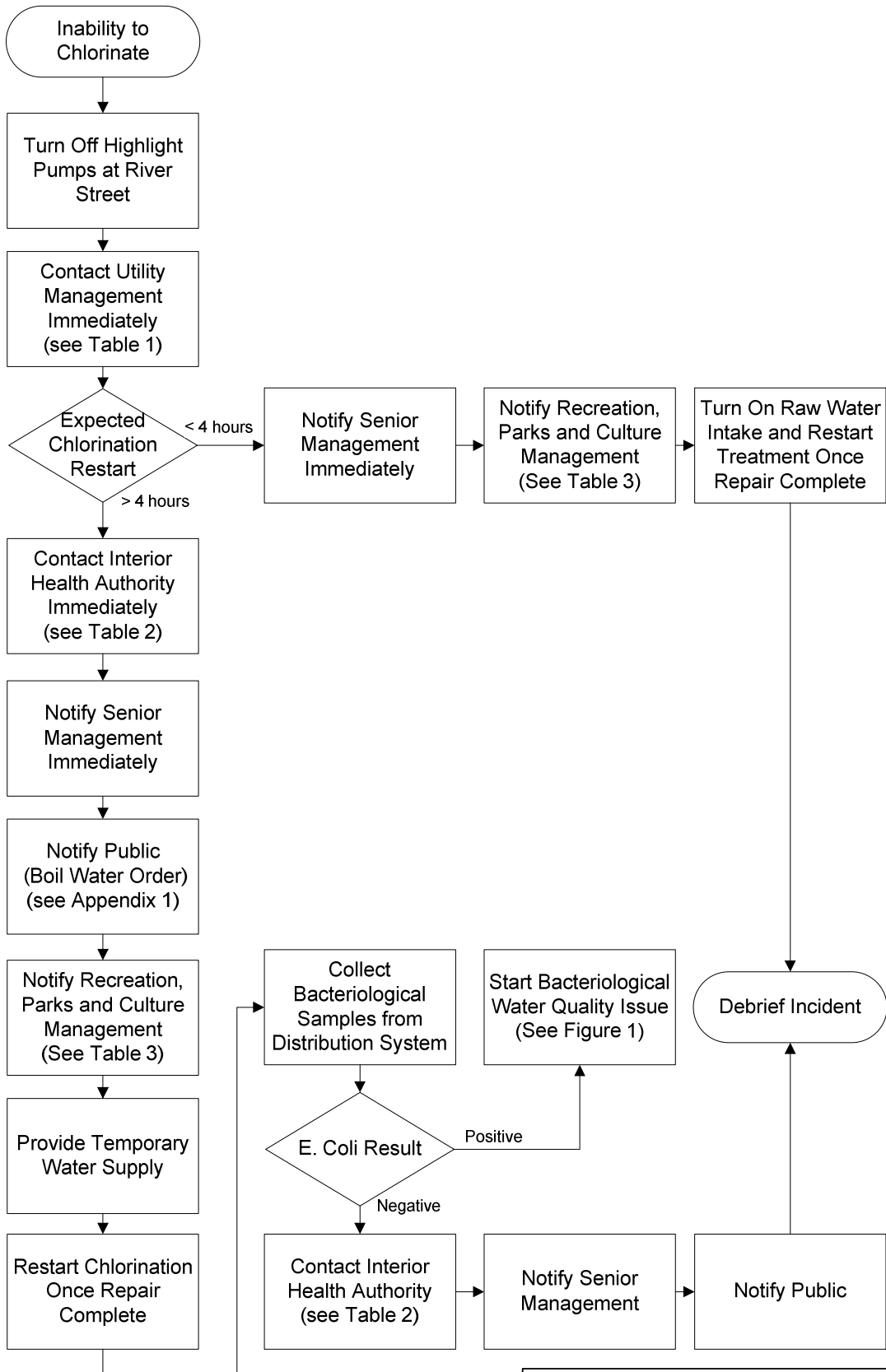


FIGURE 2. INABILITY TO CHLORINATE

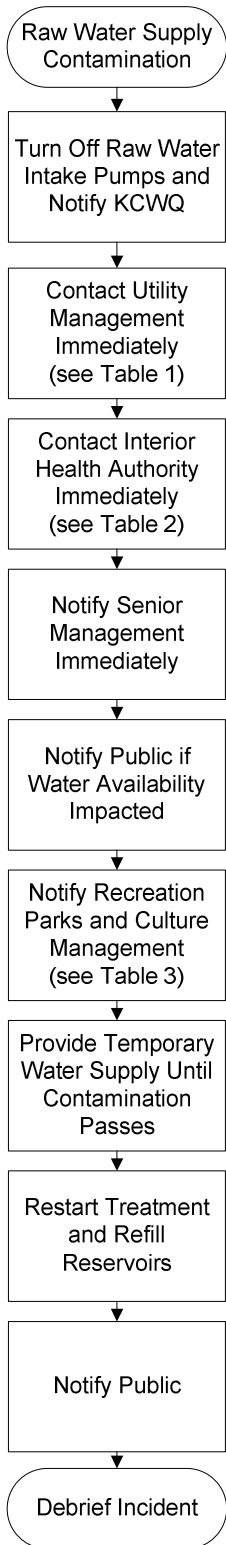


FIGURE 3. RAW WATER SUPPLY CONTAMINATION

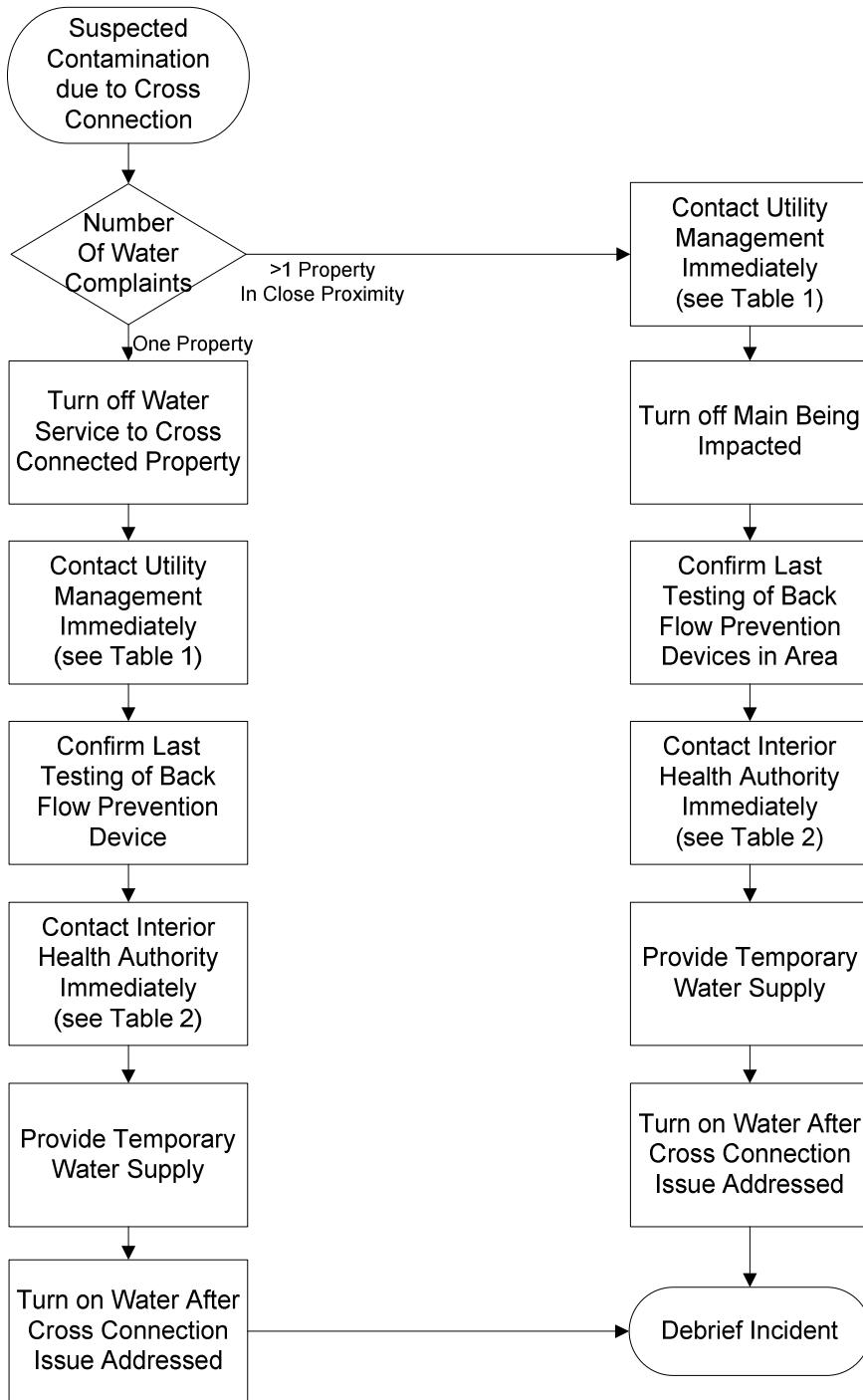


FIGURE 4. SUSPECTED CONTAMINATION DUE TO CROSS CONNECTION ISSUE

Table 1 Utilities Management Contact List

To be contacted in listed order.

1		Utility Services Supervisor – Pumping Facilities
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
2		Utility Services Manager
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
3		Utility Services Supervisor – Operations and Maintenance
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
4		Utility Services Supervisor – Construction and Rehabilitation
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
5		Utility Services Supervisor – Treatment Facilities
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	

Table 2 Interior Health Authority Contact List

To be contacted in listed order.

1		Drinking Water Officer
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
2		Medical Health Officer
	Work phone	
	After hours phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
3		Director, Health Protection
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
4		Assistant Director. Health Protection(Thompson)
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	

Table 3 Parks, Recreation, and Cultural Services Management Contact List

To be contacted in listed order.

1		Parks Operations Supervisor
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
2		Parks Operations Supervisor
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	
3		Parks Operations Supervisor
	Work phone	
	Cell phone	
	Home phone	
	Work fax	
	Email	

Appendix 1 Contaminated Boil Water Notice



**City of Kamloops
Public Works and Utilities Department**

Press Release

CONTAMINATED BOIL WATER NOTICE

DATE

For Immediate Release

As a result of **description of what led to boil water notice**, the following is a notice for the users of the City of Kamloops water system in the following area(s)

- **List area 1**
- **List area 2 etc.**

For precautionary reasons, all customers are requested to boil water for at least two minutes before drinking. It is particularly important for consumers who are susceptible to infection, including those with immune system deficiency, young children and the elderly. The boil water advisory will remain in effect until further notice.

Residents may call the City of Kamloops Public Works and Utilities Department at 250-828-3461 or visit the City's official website at www.kamloops.ca for information on current boil water advisories.

MEDIA CONTACT:

Tom Marstaller
Utility Services Manager
City of Kamloops