

BOIL WATER ADVISORY SYSTEM ASSESSMENT FORM

Town Name	Greenspond		
Assessor Name	BM		
Assessor Title	Engineer		
Contact Phone #		Date of Assessment	25-Oct-16

Boil Water Advisory Issue Date	20-May-16
BWA Reason Code	D2

Cause(s) of BWA	1.	Cross-Connection to the old source
	2.	
	3.	
	4.	

This assessment tool is designed to identify possible issues and root causes of situations leading to a boil water advisory (BWA). It is designed as a field-level exercise and should be completed by or with the participation of the system operator. This assessment tool is designed to be used in conjunction with the Standard Operating Procedures (SOP) to identify the issue and then correct it.

Instructions

1. Tables 1.1 and 1.2 have been provided to log disinfection parameters and to identify disinfectant residual trends. For best results take readings at approximately the same time of day on a daily basis.

2. The main assessment worksheet asks a series of questions on the condition and operation of each component of the system. Responses are either Yes, No or NA and the Result is identified as being OK, Serious or Critical. 'Critical' indicates that it is a root cause for the current BWA, 'Serious' indicates issue makes system prone to re-occurring BWAs and 'OK' indicates no concerns.

NOTE: Complete entire Assessment worksheet even if appears the cause has been identified.

3. The last page of this assessment tool (BWA System Assessment Summary) is used to document the 'Serious' and 'Critical' issues identified on the worksheet. This sheet is then used in conjunction with the appropriate SOP to mitigate the issue such that the BWA can be lifted.

Code	System Aspects	CR - Critical Issue SR - Serious Issue	
		Response Yes/No/NA	Result CR / SR /OK
Drinking Water System Facility Events			
F-1	Has there been recent operations or maintenance that could introduce bacteria into the system?	Yes	CR
	The cross connection		
F-2	Has system pressures dropped below 20psi recently?	No	OK
	Pressure is always between 30 and 90 psi. I would consider 30 psi to be a bit low, but the community does not view this as an issue.		
F-3	Has there been a recent fire fighting, hydrant flushing or other high-flow event?	No	OK
	Notes:		
F-4	Is the disinfection system and surrounding area free of visible unsanitary conditions?	Yes	OK
	Notes:		
F-5	Has there been a indication from Department of Health and Community Services of a waterborne illness outbreak?	No	OK
	Notes:		
F-6	Has the facility been subject to additional BWAs within the past 12 months? List reason codes.	No	OK
	Notes:		
F-7	Were the last water samples results satisfactory? Explain below.	No	OK
	Total coliforms have been detected.		
F-8	Has the facility been subject to unauthorized access?	No	OK
	Notes:		
F-9	Have maintenance logs been reviewed to identify possible causes?	No	SR
	No logs		
F-10	Has an increased color been noted in the source water?	No	OK
	Notes:		
F-11	Has there been an increase in turbidity in source water or tap water?	No	OK
F-12	Has there been complaints of water taste from residents?	No	OK
	Community seems to be fine with the water as it is.		

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F-13	Has there been complaints of odor in tap water from residents?	No	OK
	Community seems to be fine with the water as it is.		
Operational Change			
O-1	Has there been any additional or backup equipment added to system recently?	No	SR
	Chlorination and pumping system requires upgrades		
O-2	Has there been any significant changes in water demand (eg. additional large consumers such as fish plants)?	Yes	??
	Fish plant no longer has salt water pump and are using more water. Appears that gas chlorination system can keep up with the high demand.		
O-3	Have additional water sources been added recently?	No	??
	Notes:		
Distribution System			
D-1	Do SCADA logs indicate a low pressure event (less than 20 PSI)?	N/A	
	Notes:		
D-2	Are there any known cross-connections on the system?	Yes	CR
	Old source of supply is still connected.		
D-3	Were any unsanitary conditions identified at pump station?	No	OK
	No, although the pumping equipment is not suitable for use in drinking water applications.		
D-4	Has there been recent pump maintenance conducted?	No	SR
	No, although the pumping equipment is not suitable for use in drinking water applications.		
D-5	Are distribution assets secured against unauthorized access?	N/A	
D-6	Have recent water main repairs followed AWWA 651 disinfection protocol?	No	SR
	Not aware of procedure. But have not repaired any breaks recently.		
D-7	Has there been a recent water main branch installation (street, subdivision, large consumer etc.)?	No	OK
	Notes:		
D-8	Has there been a recent water main break?	No	OK
	"Never"		

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D-9	Is the system being regularly flushed (unidirectional, spot)?	Yes**	OK
	Flushes all day every day. No actual pipe scouring type of flushing though.		
D-10	Is there evidence of intentional contamination such as forced access?	No	OK
	Notes:		
D-11	Are there any components of the water distribution system near on-site septic systems?	No	OK
	Notes:		
D-12	Are there any known leaks in municipal sewage system (if applicable)?	No	OK
	Notes:		
D-13	Are there any high-volume users on system (ex. fish plant)?	Yes	OK??
	Notes:		
D-14	List any known or suspected leaks within the distribution system	N/A	
	1		
	2		
	3		
Storage Tanks			
S-1	Are overflows and vents secured and screened?	N/A	
	Notes:		
S-2	Is the facility secured against unauthorized access?	N/A	
	Notes:		
S-3	Do openings, hatches and ports have gaskets as required?	N/A	
	Notes:		
S-4	Is tank in suitable condition without cracks or excessive rust?	N/A	
	Notes:		
S-5	Has prescribed maintenance and inspection been performed on storage tanks and pressure tanks?	N/A	
	Notes:		

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S-6	What maintenance has been conducted recently? Including painting or coating application.	N/A	
	Notes:		
S-7	Is there a maintenance plan in place, and if so was it followed?	N/A	
	Notes:		
S-8	Have leaks been observed from the tank or connections?	N/A	
	Notes:		
S-9	Is there evidence of intentional contamination such as forced access?	N/A	
	Notes:		
S-10	Are vents protected from debris and rainwater with a minimum 300 mm clearance between adjacent surfaces?	N/A	
	Notes:		
S-11	Have chlorine residuals been measured at tank intake and output?	N/A	
	Notes:		
Treatment Processes (including disinfection)			
T-1	Does water treatment include an operational disinfection system? Describe system below.	Yes	OK
	While the disinfection system is operational, it is not functioning as designed. Residual analyzer is not connected, scale is not functioning properly.		
T-2	Is there any water treatment processes beyond disinfection? Describe treatment processes below.	No	OK??
	Notes:		
T-3	Are all treatment devices operational? List those out of service.	No	SR
	Chlorination systme is not functioning as designed. Scale and analyzer not working		
T-4	Is there adequate disinfectant chemicals in storage or have supplies been ordered?	Yes	OK
	Notes:		

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T-5	Is there a maintenance plan in place, and if so was it followed?	No	SR
	No plan		
T-6	Have there been any recent equipment installations?	No	??
	Notes:		
T-7	Have there been any treatment interruptions? List their date and duration.	No	OK
T-8	Is free chlorine residual measured immediately downstream from the point of application?	No	SR
	Measured in community. Records not taken. (NOTE: in later call, operator said they are being recorded).		
T-9	Are flow rates at or below the rated capacity of system?	Below	OK
	but still very high given the size of the community.		
T-10	Is the chlorine system flow-proportioning?	yes	OK
	Notes:		
T-11	Have any changes in raw water quality been recently noted?	no	OK
	Notes:		
T-12	Have C x T requirements been met (free chlorine residual of at least 0.3 mg/l after 20 minutes or equivalent CT)?	yes	OK
	Notes:		
Source - Well			
S-1.1	Is ground graded away from casing?	N/A	
	Notes:		
S-1.2	What is the typical flow?	N/A	
	Notes:		
S-1.3	Is the sanitary seal intact?	N/A	
	Notes:		

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S-1.4	Are vents protected from debris and rainwater with a minimum 300 mm clearance between adjacent surfaces? Notes:	N/A	
S-1.5	Does casing extend 600mm above ground? Notes:	N/A	
S-1.6	Is there evidence of standing water at the wellhead? Notes:	N/A	
S-1.7	Is the casing sealed with a bentonite, grout or other approved seal? Notes:	N/A	
S-1.8	Is the wellhead secured to prevent unauthorized access? Notes:	N/A	
S-1.9	What is the distance to nearest known septic field? Notes:	N/A	
S-1.10	What is the distance to new excavations in area? Notes:	N/A	
S-1.11	Has there been a recent spill in the area (septic or other)? Notes:	N/A	
S-1.12	What is the distance to farms or livestock? Notes:	N/A	
S-1.13	What is the general condition of the well? Notes:	N/A	
Source - Surface Water			
S-2.1	Have there been any reports of beavers or muskrat in the water supply? Or concentration of wildlife or birds using the water supply? Notes:	No	
S-2.2	Are there any on-site septic systems near the water source and intake? Notes:	No	

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S-2.3	Are there any new excavations or development activity in the water supply area?	No	
	Notes:		
S-2.4	Are there any farms or livestock in or near the water supply?	No	
	Notes:		
S-2.5	Has there been a recent spill in the area (septic or other)?	No	
	Notes:		
S-2.6	Is the reservoir/watershed area clean and free from potential sources of contamination?	Yes	
	Notes:		
S-2.7	Is there any new human activity in the reservoir/source area?	No	
	Notes:		
S-2.8	Have algal blooms been observed?	No	
	Notes:		
Environmental Event			
E-1	Has there been a heavy rainfall recently?	No	OK
	Notes:		
E-2	Has there been a rapid snow melt recently?	No	OK
	Notes:		
E-3	Has there been overland flooding recently?	No	OK
	Notes:		
E-4	Has there been a significant drop in available source water?	No	OK
	Notes:		
E-5	Has there been recent interruptions to treatment/distribution power supply?	No	OK
	Notes:		
E-6	Has there been extreme heat or cold recently?	No	OK
	Notes:		

Code	System Aspects	CR - Critical Issue SR - Serious Issue	
		Response Yes/No/NA	Result CR / SR /OK
Sampling Location			
L-1	Is the tap from which sample collected clean, free of rust, have good flow? Sample from homes in the distribution system	yes	OK
L-2	Are there any potential nearby sources which could result in contamination of the sampling tap? Notes:	no	OK
L-3	Is the tap used regularly? Notes:	yes	OK
L-4	Has there been repairs to components in area/system since last sampling? Notes:	no	OK
L-5	Are any private treatment devices present? Sample taken: <input type="checkbox"/> Upstream <input type="checkbox"/> Downstream of treatment Notes:	no	OK
L-6	Are backflow preventers installed and if so has the required maintenance been conducted? Notes:	no	OK
L-7	Has there been a recent installation/repair of components within sampling building? Notes:	no	OK
L-8	Has there been any documented/known low pressure events since last testing (main break etc.)? Notes:	no	OK
Sampling Protocol			
P-1	Has the sampling protocol outlined in the Drinking Water Manual - Health and Community Services been followed? just sample for chlorine	Unsure	
P-2	Were aerators, swivels and/or remote hoses removed prior to sampling? Notes:		

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P-3	Were sterile sampling bottles used and adequate storage available at the prescribed temperatures?		
	Notes:		
P-4	Were clean gloves used to handle sample bottles and conduct sampling?		
	Notes:		
P-5	Was tap flushed 5 minutes before beginning to collect samples?		
	Notes:		
P-6	Was sampling completed by a person other than the normal collector?		
	Notes:		
GENERAL NOTES			

BWA System Assessment Summary

Review results of the assessment worksheets to identify likely root cause(s) of the boil water advisory (Critical Issues) and areas of concern which may result in re-occurring BWA (Serious Issues).
Attach additional sheets as required.

Cross connection to the old source water.

Assessed Risk			
<input type="checkbox"/>	System Facility Issue	<input type="checkbox"/>	Source Issue
<input type="checkbox"/>	Operational Issue	<input type="checkbox"/>	Environmental Issue
<input checked="" type="checkbox"/>	Distribution Issue	<input type="checkbox"/>	Sampling Location Issue
<input type="checkbox"/>	Storage Issue	<input type="checkbox"/>	Sampling Protocol Issue
<input type="checkbox"/>	Treatment Issue	<input type="checkbox"/>	Not Identified

Critical Issue	<input checked="" type="checkbox"/>
Serious Issue	<input type="checkbox"/>

Certain disinfection equipment is not functioning as intended. Also, pumps should be replaced and pressure tanks should be added to eliminate need for constant pumping.

Assessed Risk			
<input type="checkbox"/>	System Facility Issue	<input type="checkbox"/>	Source Issue
<input type="checkbox"/>	Operational Issue	<input type="checkbox"/>	Environmental Issue
<input type="checkbox"/>	Distribution Issue	<input type="checkbox"/>	Sampling Location Issue
<input type="checkbox"/>	Storage Issue	<input type="checkbox"/>	Sampling Protocol Issue
<input checked="" type="checkbox"/>	Treatment Issue	<input type="checkbox"/>	Not Identified

Critical Issue	<input type="checkbox"/>
Serious Issue	<input checked="" type="checkbox"/>

Description of Deficiency

Assessed Risk			
<input type="checkbox"/>	System Facility Issue	<input type="checkbox"/>	Source Issue
<input type="checkbox"/>	Operational - Issue	<input type="checkbox"/>	Environmental Issue
<input type="checkbox"/>	Distribution Issue	<input type="checkbox"/>	Sampling Location Issue
<input type="checkbox"/>	Storage Issue	<input type="checkbox"/>	Sampling Protocol Issue
<input type="checkbox"/>	Treatment Issue	<input type="checkbox"/>	Not Identified

Critical Issue	<input type="checkbox"/>
Serious Issue	<input type="checkbox"/>

SEE STANDARD OPERATING PROCEDURES TO ADDRESS THE AREAS OF CONCERN NOTED ABOVE