

Guide for Annual Inspections of First Nations Drinking Water Systems

The inspection report is to be completed once a year for any system that produces water for human consumption, that is funded in whole or in part by INAC, and that serves five or more households or a public facility. The inspection is to be completed by a qualified person and who is not from the band involved [i.e. one of either: PWGSC engineer, Tribal Council engineer, Circuit Rider, engineering consultant, provincial water system inspector; all of whom must be certified (or equivalent) to the level of the system being inspected]. The purpose of this inspection is to assist First Nations in ensuring that their drinking water systems produce safe drinking water. This report concentrates on water system performance as indicated by water quality testing results, operational procedures, and operator certification level. **All fields marked with an asterisk (*) are required by INAC headquarters for central agency reporting.**

1.0 GENERAL INFORMATION

Band Name:

Band Number:

Population served *:

No. of Connections

Inspection Date (yy/mm/dd):

Period being reported:

WATERS data base system #:

Inspector:

Operator(s) or other person(s) interviewed: Primary Operator
Back up –

Operating authority: Band
 Service provider
 MTA
 Other

Type of source: Surface water
 Groundwater
 GUDI
 Other

Treatment System Type: Pressure filters
N/A Greensand filters
 Sand filters
 Membranes
 Other

Wellhead protected? Yes No
 Bollards
 Capped
 Graded
 Other

Source water protection plan (SWPP) in place ? Yes No (if no target date (yy/mm/dd):

Location where Annual Report will be available for public review:

2.0 WATER SYSTEM PERFORMANCE

2.1 First Nation Water Quality Testing Results

For the period since the last inspection, the operator should provide a summary of all water quality testing results in accordance with INAC's *Protocol for Safe Drinking Water in First Nations Communities*. Also provide a summary of operational and water quality testing (water chemistry, flow rates, etc.).

1. See "ANNEX A" of this document for a summary of dates and test results for any exceedance or deficiency (i.e., chlorine residual) in measured (raw, treated, and distribution system) water quality parameters since the last inspection.
2. See "ANNEX A" of this document for a description of the remedial actions taken in response to adverse chlorine results.
3. See "ANNEX A" of this document for a summary of dates and test results for any exceedance or deficiency for turbidity in measure (raw, treated, and distribution system) water quality parameters since the last inspection.
4. See "ANNEX A" of this document for a description of the remedial actions taken in response to adverse turbidity results.

2.2 Health Canada Water Quality Testing Results

For the period since the last inspection, the operator should obtain from a Health Canada representative a summary of test result exceedances or deficiencies for all water quality testing conducted by Community-Based Water Monitors (CBWMs) or Environmental Health Officers (EHOs) as part of Health Canada's third-party monitoring from a public health perspective and in accordance with sections 4 and 5 of Health Canada's *Procedure Manual for Safe Drinking Water in First Nations Communities South of 60°*. A suggested format for summarising data is shown in Annex B.

1. Were water quality monitoring data obtained from health Canada? Yes No
2. If no why not? (HC did not collect data / Collected HC data not provided / Other
3. See "ANNEX B" of this document for a summary of dates and test results of any exceedance or deficiency in respect to microbiological testing measured in water quality parameters.
4. See "ANNEX B" of this document for a description of the remedial actions taken in response to adverse Microbiological results.

2.3 Drinking Water Advisories / Remedial Actions

Within one week of a drinking water advisory (DWA) being issued, the water system operator (WSO) must forward to the EHO and INAC/PWGSC representatives a written plan for remedying the problem(s) associated with the DWA. Since the last inspection, provide a summary listing of dates and durations (i.e. start dates and end dates) of drinking water advisories (DWAs) as well as follow-up actions, and the results of the actions (in terms of whether or not the DWA was lifted). Do not include DWAs arising from (non-public building) cistern problems, as these are private systems.

1. Is there a record of communications/reminders between the EHO and WSO regarding remedial actions taken in response to DWA's. Yes No

3.0 SYSTEM MAINTENANCE AND OPERATIONS

3.1 Maintenance

1. a.) Is there a functional maintenance management plan (MMP) for the water system? Yes No *
b.) If no, is there a plan to develop an MMP for the system? Yes No
c.) If yes, what is the target date? (yy/mm/dd)

2. Are maintenance activities scheduled and performed? Yes No

3. Is there an annual budget allocated by the band for day-to-day operation and maintenance (not major capital) costs of the water system? Yes No

4. Is the operator involved in the budget preparation process for operation and maintenance? Yes No

5. Is the operator involved in tracking billing and expenditures related to the system? Yes No

6. Does the budget appear to be adequate for normal operations and maintenance for this system?
Yes No

7. Is there a responsible and qualified party to ensure that operations and maintenance work is being undertaken? Yes No

8. Are records kept of system repairs and upgrades and their costs? Yes No

9. Are instruments and equipment calibrated on an appropriate schedule and used for their intended purpose? Yes No

10. Summarise the status (# planned / budgeted /scheduled / underway / completed) of health & safety projects (ACRS Group 2, Type 1) that were identified in and since the last ACRS inspection

Project Description	STATUS OF PROJECT (Check one box for each project list at left)				
	Planned	Budgeted	Scheduled	Underway	Completed

11. State the number and percent of outstanding health and safety projects (ACRS Group 2, Type 1) addressed for this year under review. Number: _____ Percent: _____
*

Project	Status of Project

12. Using a range from 0 to 3, estimate the O&M effort: _____
(Where 0 = nonexistent, 1 = substandard, 2 = acceptable, 3 = exemplary)

INSPECTOR RATES O&M EFFORT AS:

0 NONEXISTENT

1 SUBSTANDARD

2 ACCEPTABLE

3 EXEMPLARY

3.2 Operations

1. Is there a current copy of standard operating procedures (SOPs) on site? Yes No
Backwash, turbidity calibration
2. Are there adequate quantities of treatment chemicals onsite? Yes No
3. Are treatment chemicals stored properly? Yes No (if no, provide details)
4. Are there any work-related health & safety issues? (ex: confined space) Yes No (if yes provide details)
5. Are there any worker compensations safety issues that need to be addressed? Yes No (if yes provide details)
6. Are there any significant changes to the plant since the last inspection? Yes No (if yes provide details)
7. Are all major components of the system operating (ex: pumps filters, chlorinators)? Yes No (if no provide details)
8. Is secondary disinfection (chlorination) system in constant operation and performing adequately? Yes No

9. Are the following maintenance activities being performed?

System equipped with Hydrants or Flushing Stations

Yes No Date: Line Flushing

Yes No Date: Line swabbing

Yes No Date: Hydrant flushing Aug 2010

Yes No Date: Reservoir cleaning July 2010

Yes No Date: Stand-by generator test runs

Date : Stand-by generator service hours

Yes No Date: Fire pump tests

10. Equipment Calibration

Yes No Date: Flow Meter

Yes No Date: Chlorine dosing pump

Yes No Date: Chlorine residual meter

Yes No Date: Turbidity meter

Yes No Date: pH Meter

Yes No Date: DR 890

Yes No Date: 2100P Turbidimeter

Yes No Date: Other

3.3 Testing & Record Keeping

1. Is adequate water quality testing equipment available? Yes No

2. Are records being kept of daily meter readings for water volume flow rate? Yes No

3. Are records being kept of daily test results of chlorine residual in treated water? Yes No

4. Are records being kept of daily test results of chlorine residual in the distribution system water?
Yes No

5. Are records being kept of types, dosages, usage dates, and total amounts of chemicals used?
Yes No

6. Are records kept of operation problems (power failure, does pump failure, low chlorine residual, high turbidity, etc.) and the actions that were taken to remedy the problem? Yes No

7. Were anomalies and missing records properly explained? (Ex: operator away on sick leave)
Yes No N/A

8. Are there records that should have been kept but were not? Yes No N/A

3.4 System Classification and Operator Training

1. Treatment plant classification:
2. Distribution system classification:
3. Operator (s):
4. a) Operator certification level (copy of certification must be made available to inspector)

Primary Operator: WT: WD

Back Up: WT: WD:

Third (if applicable) WT: WD:

b) If any of the operators are not certified to the classification level of both the treatment plant and distribution system, has the band created a training plan to prepare the operator for certification or to increase the level of certification? Yes No Pending N/A

c) If yes, what is the target date (yy/mm/dd):

3.5 Trucked water systems (if no trucked water system, go to section 3.6)

1. Does the band truck water? Yes No 8 houses
2. Are maintenance activities such as tank inspection and cleaning scheduled and performed?
Yes No
3. Are adequate operation records being kept? Yes No
4. a) Does the bulk water truck operator possess appropriate training? Yes No
b) If not, has the band created a training plan for the operator? Yes No Pending
5. Is printed information on cleaning and safety of individual cisterns and tanks made available to householders? Yes No

3.6 Circuit rider trainer report

Summarise the previous circuit rider trainer (CRT) report in terms of issues recommendations, actions taken, and outstanding issues, including:

1. Did the operator provide CRT reports during site visit? Yes No

Number of Callouts Made By CRT:	Number of Unscheduled Emergency Call-outs
2	

3.7 Emergency response plan

1. Is there an emergency response plan (ERP) in place? Yes No * (Note: if no ERP in place, operator may obtain a sample plan from regional office of PWGSC for INAC)
- b.) If no, what is the target date for an ERP to be prepared?
2. Do key players, including provincial government, INAC, and HC regional offices have a copy of the ERP? Yes No
3. When was it last updated or reviewed? (yy/mm/dd):

ANNEX A

SUMMARY OF FIRST NATION OPERATIONAL WATER QUALITY TESTING RESULTS

Operational water quality test results may be provided using the following tabular formats.

Table 1 - Summary of chlorine residual deficiencies (i.e. less than 0.1 mg/L free chlorine) and turbidity exceedances (as per Appendix F of the Drinking Water Protocol) in treated water sampled by the operator after a minimum 15 minutes contact time with disinfectant

Date	Location	Chlorine residual	Total chlorine	Turbidity (if applicable)	Missing Records
April 10					
May					
June					
July					
Aug					
Sept					
Oct					
Nov					
Dec					
Jan 11					
Feb					
Mar					
TOTALS					

ANNEX B

SUMMARY OF FIRST NATION OPERATIONAL WATER QUALITY TESTING RESULTS

Health Canada water quality test results obtained from EHOs or CBWMs may be provided using the following tabular formats.

Table 1 - Summary of microbiological exceedances in the distribution system as measured by Health Canada's EHOs or by CBWMs

Sampling Location	Total # of samples tested for E. coli or Fecal Coliform	Number of samples containing E. coli or Fecal Coliform	Total # of samples tested for Total Coliforms	Number of samples containing Total Coliforms	Total # HPC samples tested	Range of measured HPC test results	
						Min	Max
Distribution system							

Table 2 - Summary of chlorine residual deficiencies (less than 0.1 mg/L free chlorine) and turbidity exceedances (as per Appendix F of the Drinking Water Protocol) measured by Health Canada's EHOs or by CBWMs

Date	Location	Free Chlorine Residual	Total Chlorine	Turbidity (NTU's)
total				

Table 3 - Results of routine chemical monitoring as per Section 4 of Health Canada's Procedure Manual for Safe Drinking Water in First Nations Communities South of 60°

Parameter	Sampling Locations		Criterion Guideline Value from GCDWQ**	Type of Criterion (i.e.: MAC, IMAC, AO)
	Source Water	Distribution System		
Alkalinity			n/a	--
Aluminium			0.1	--
Ammonia (as nitrogen)			n/a	--
Arsenic			0.01	MAC
Barium			1.0	MAC
Benzene			0.005	MAC
Boron			5	MAC
Cadmium			0.005	MAC
Calcium			n/a	--
Chloride			≤ 250	AO
Chromium			0.05	MAC
Colour(in true colour units)			≤ 15 TCU	AO
Copper			≤ 1.0	MAC
Corrosivity (saturation index at 4° C)			n/a	--
Cyanide			0.2	MAC
Fluoride			1.5	MAC
Hardness			n/a	--
Iron			≤ 0.3	MAC
Lead			0.010	MAC
Magnesium			n/a	--
Manganese			≤ 0.05	MAC
Mercury			0.001	MAC
Nitrate			45	MAC
pH			6.8 – 8.5	AO
Phenols			--	--
Phosphorous			n/a	--
Potassium			n/a	--
Selenium			0.01	MAC
Silver				
Sodium			≤ 200	MAC
Sulphate			≤ 500	MAC
Total dissolved solids			≤ 500	MAC
Total solids			--	--
Turbidity (in NTUs)			See Appendix F	MAC/ AO
Uranium			0.02	MAC

Vinyl chloride			0.002	MAC
Zinc			≤5.0	AO

Note: Please record the unit of measure used if it is **not** milligrams per litre.

** - Guideline criterion values listed above are per the *Guidelines for Canadian Drinking Water Quality* published by Health Canada as of the date of issue of this Guide. Please check with Health Canada's web site to obtain the latest criterion values of drinking water parameters.

Footnotes:

1. See Appendix C of this Protocol for a definition of groundwater under direct influence of surface water. See Appendix B of this Protocol for an explanation of Source Water Protection Plans
2. An adverse test result is one in which the concentration of the water quality parameter being measured exceeds the guideline criterion value listed in Health Canada's *Guidelines for Canadian Drinking Water Quality* published by Health Canada. Please check with Health Canada's web site to obtain the latest criterion values of drinking water parameters.