



CBWM Workshop

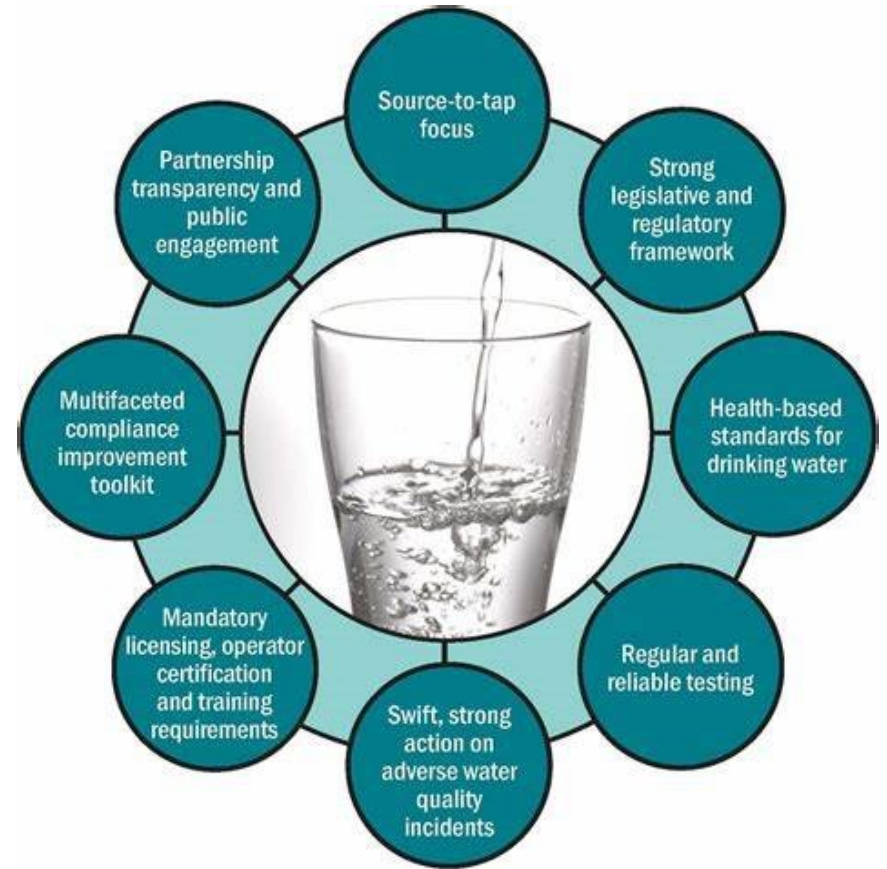
CBWM Workshop

November 22, 2023

John Vandenberg, Regulatory Compliance
Coordinator

Multi-Barrier Approach

- What is the multi-barrier approach?
- How do operators support this approach?
- What are the points in the process that implement this approach?
 - SWPP
 - CT monitoring
 - UV monitoring
 - pH monitoring
 - Filter monitoring



AFNWA Sampling and Monitoring Plans

- Lead monitoring program
 - Annual between May 01 and September 30
 - Residential sampling
 - RDT
 - Sequential
 - Number of samples dependent on population served by the PWS
 - MAC 5ug/l
- Corrosion monitoring
 - Quarterly sampling
 - Conductivity and alkalinity used to assess corrosivity
 - Protect infrastructure and plumbing

AFNWA Sampling and Monitoring Plans

- Disinfection By-Products
 - Quarterly sampling
 - Formed by reaction with chlorine and organic material
 - THMs and HAAs
 - MAC-THM-0.1 mg/l HAA-0.08 mg/l
 - Locational Running Annual Average (LRAA)
- Manganese
 - Quarterly sampling
 - MAC-0.12 mg/l AO_≤0.02 mg/l

AFNWA Sampling and Monitoring Plans

Chain of Custody

Records information about the sampling event and tracks the samples movement

- Sample location and identifier
- Sample date and time
- Field Measurements
- Comments/Notes
- Administrative information
- Sample receiver and sample condition/temperature



Sample Submission Form

Chain of Custody Record - SS01.13

Fredericton: 921 College Hill Rd., Fredericton NB E3B 6Z9 T: 506.452.1212 F: 506.452.0594 Toll Free: 800.563.0844
 Moncton: 115A Harrisville Blvd., Moncton, NB E1H 3T3 T: 506.855.6472 F: 506.855.8294

Shaded Areas for Laboratory Use Only

Submission #:

Turnaround Time

Routine:

Varies by analysis

Rush (surcharge applies):

24 Hours 48 Hours

3 Days 4 Days

Specific Date Required

(do not use ASAP):

Report To Customer	Bill To Customer (if different)	Project/Submission Information
Company:	Company:	Site Location:
Address:	Address:	Project Number:
Contact:	Contact:	Submission Date:
Telephone:	Telephone:	Sampled by (print):
Fax:	Fax:	Sampler's Initials:
E-mail:	E-mail:	Purchase Order #:
		RPC Quotation #:

LIMS #:	Sample Matrix	Client Sample Identification	Sample Date/Time	Analysis Required					Other Analyses/Comments Special Instructions/Hazards
				I	II	III	IV	V	

	Analysis Required (Description)	Preservatives
I		
II		
III		
IV		
V		

Sample Receiving Checklist

Documentation Sample Volume

Sample Containers Hold Time

Sample Temperature Temperature = _____ °C

Comments:

For more information view RPC's Laboratory Reference Guide at www.rpc.ca/english/pdf/LabRefGuideEN.pdf.
 Label samples carefully and complete all parts of the form.

Chain of Custody

(1) Relinquished by:	Date:	(1) Received by:	Date:
Company:	Time:	Company:	Time:
(2) Relinquished by:	Date:	(2) Received by:	Date:
Company:	Time:	Company:	Time:



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Tel: 709-754-0200 Fax: 709-754-0612 Toll Free: 1-888-492-7227
Tel: 902-567-1255 Fax: 902-539-6504 Toll Free: 1-888-535-7770

CHAIN OF CUSTODY RECORD

ENV COC - 00016v3

Invoice Information				Report Information (if differs from Invoice)				Project Information				LAB USE ONLY - PLACE STICKER HERE															
Invoice to (requires report) <input type="checkbox"/>																											
Company: AFNWA (BV client code 38439)				Company: AFNWA				Quotation #: C26162																			
Contact Name: Accounts Payable				Contact Name: John Vandenberg/Gary West				P.O. #/AFR#: 2022-12																			
Street Address: 13 Treaty Trail				Street Address: 6 Louise Street				Project #:																			
City: Millbrook Prov: NS Postal Code: B6L 1W1				City: Truro Prov: NS Postal Code: B2N2K2				Site #:																			
Phone: 902-664-9996				Phone: 902-664-9996				Site Location:				Rush Confirmation #:															
Email: Finance@afnwa.ca				Email: john.vandenberg@afnwa.ca				Site Location Province: Nova Scotia																			
Copies: john.vandenberg@afnwa.ca				Copies: NA				Sampled By:																			
Regulatory Criteria **Specify matrix for each regulation: surface water (SW)/groundwater (GW)/tap water/sewage/effluent/seawater/potable water/non-potable water/slime/solid/sludge/metal Regulation: Operational Matrix: SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS												Regular Turnaround Time (TAT) <input checked="" type="checkbox"/> 5 to 7 Day <input type="checkbox"/> 10 Day Rush Turnaround Time (TAT) - Surcharges apply <input type="checkbox"/> Same Day <input type="checkbox"/> 1 Day <input type="checkbox"/> 2 Day <input type="checkbox"/> 3 Day <input type="checkbox"/> 4 Day															
Sample Identification		Date Sampled		Time (24hr)		Matrix		FIELD FILTERED	FIELD PRESERVED	LAB FILTRATION REQUIRED	E-COL	TREATMENT	FIELD CHLORINE RESIDUAL	FIELD TURBIDITY	# OF CONTAINERS SUBMITTED	HOLD - DO NOT ANALYZE	Date Required: YY MM DD		Comments								
1						Water - Drinking					X	X	X	X					Residual: Turbidity:								
2						Water - Drinking					X	X	X	X					Residual: Turbidity:								
3						Water - Drinking					X	X	X	X					Residual: Turbidity:								
4						Water - Drinking					X	X	X	X					Residual: Turbidity:								
5						Water - Drinking					X	X	X	X					Residual: Turbidity:								
6						Water - Drinking					X	X	X	X					Residual: Turbidity:								
7						Water - Drinking					X	X	X	X					Residual: Turbidity:								
8						Water - Drinking					X	X	X	X					Residual: Turbidity:								
9																											
10																											
11																											
12																											
*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY																											
LAB USE ONLY		Yes		No		°C		LAB USE ONLY		Yes		No		°C		LAB USE ONLY		Yes		No		°C		Temperature reading by:			
Seal present								Seal present								Seal present											
Seal intact								Seal intact								Seal intact											
Cooling media present								Cooling media present								Cooling media present											
Relinquished by: (Signature/ Print)				DOB				IRIS				Received by: (Signature/ Print)				DOB				IRIS				Special instructions			
				YY MM DD				YY MM DD								YY MM DD				YY MM DD							
1												1															
2												2															

AFNWA Sampling and Monitoring Plans

Sample Bottles

Microbiological

Bottle Types/Preservatives:

- 500ml acid-washed PE with sodium thiosulphate

Sample Collection:

- Follow SOP

Sample Storage:

Samples should be kept cold (less than 10°C – ideally at 4°C) during collection/storage and while shipping to the laboratory. Do not allow samples to freeze. Hold for 24 hours

AFNWA Sampling and Monitoring Plans

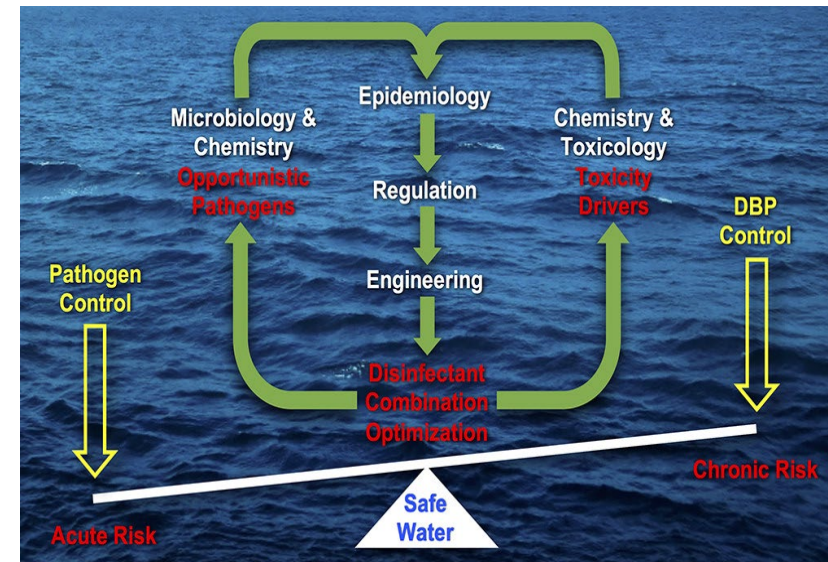
Sample Bottles

DBPs

Bottle Types/Preservatives:

HAAAs: 2 x 40ml clear glass vials (green tops) with 4mg Ammonia Chloride (NH₄CL) per vial. Vials come pre-charged with the preservative.

THMs: 2 x 40ml amber glass vials with 2mg Sodium Thiosulphate per vial. Vials come pre-charged with the preservative.



AFNWA Sampling and Monitoring Plans

Sample Collection:

Sample bottles for both HAAs and THMs should be filled to the top with no headspace or air bubbles taking care not to overflow and lose the pre-charged preservatives out of the bottles.

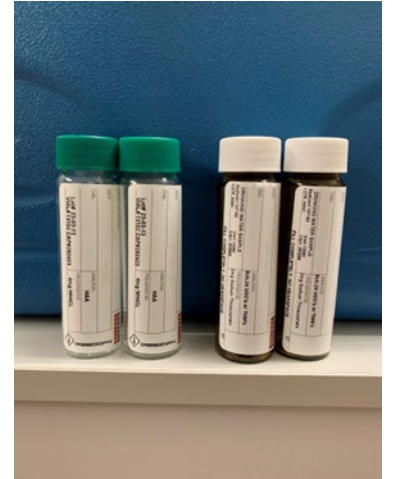
Sample Storage:

Samples should be kept cold (less than 10°C – ideally at 4°C) during collection/storage and while shipping to the laboratory. Do not allow samples to freeze.

Holding time:

14 days for both HAAs and THMs from time of sampling until analysis at the laboratory.

Bottles with preservatives, reactants, etc must not be overfilled and provide air space where required. Always fill to the fill-line.



SOPs and supporting documents

SOPs

- SOP-S-2 WEEKLY COMPLIANCE SAMPLING
- SOP-C-1 HACH DR900 CALIBRATION – CHLORINE RESIDUAL
- SOP-C-2 HACH 2100Q CALIBRATION – TURBIDITY
- SOP-C-3 HACH PH POCKET PRO+ MULTI 2 CALIBRATION – PH
- SOP-S-6 OUT-OF-RANGE DISTRIBUTION RESULTS
- SOP-S-3 QUARTERLY COMPLIANCE SAMPLING



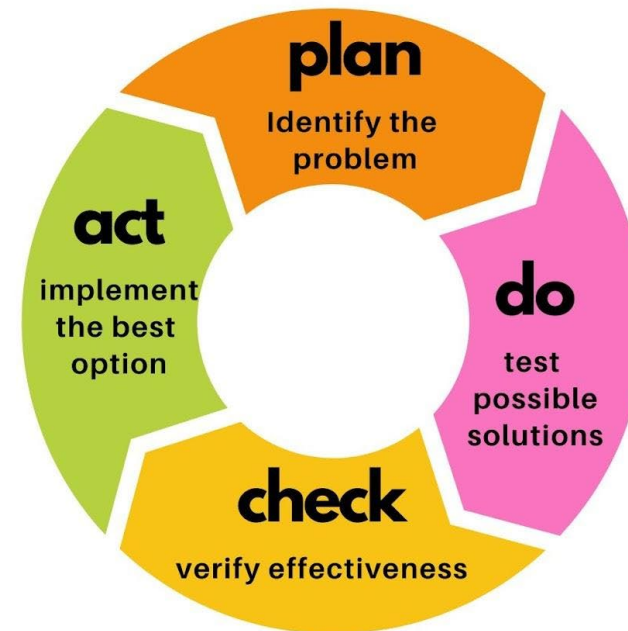
Distribution System Compliance Sampling
Standard Operating Procedures and Supporting Documents

Date, 2023

SOPs and supporting documents

SOPs

- Continually in development and review
- System/process-specific SOPs
- OMS SOPs
- Compliance SOPs

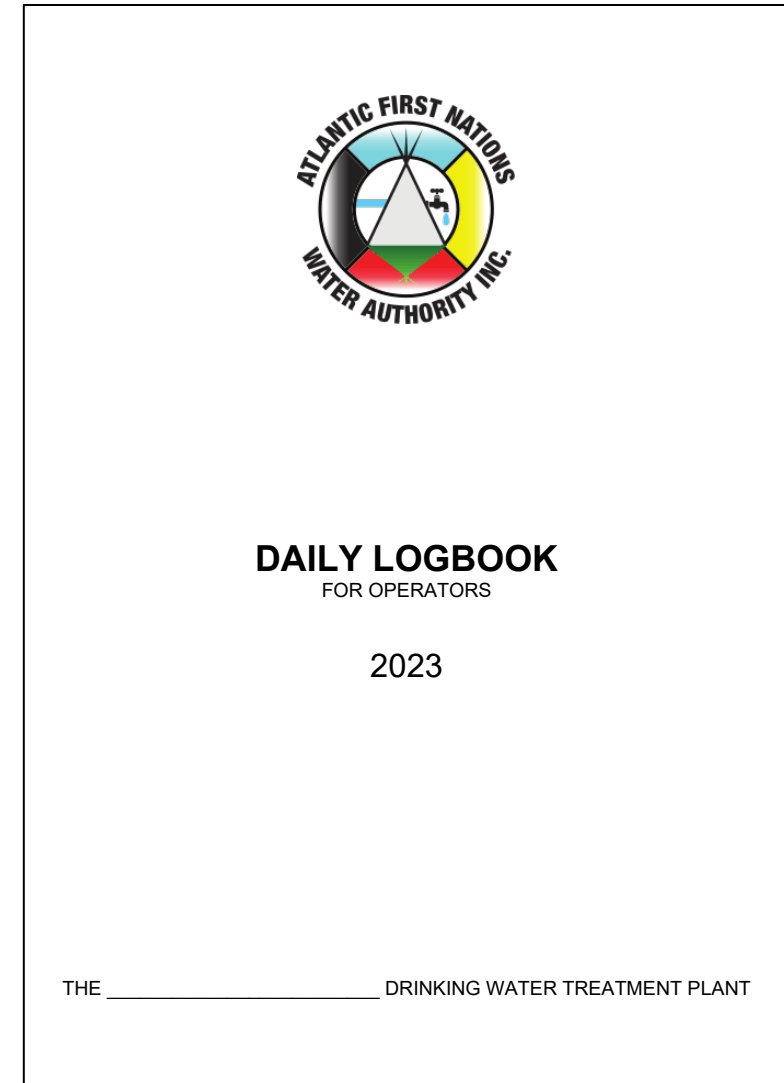


**The 4 Stages of
Continuous
Improvement**

BetterUp

Log Sheets/Books and Supporting Documents

- Facility System Compliance Document
- Sampling Checklist
- Calibration and Validation Logs
 - Turbidimeter
 - Colourimeter
 - pH Probe
 - Various instruments, sensors and machinery in the plants
- Field Log Books
- Facility Log Books
- Annual Sampling Plans and Calendars



Wela'lin!



Woliwon!

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