



# Overview of ISC - FNIHB Environmental Public Health Services Drinking Water Safety Program



# Presentation Outline

- Mandate of Environmental Public Health Services (EPHS)
- Role of the Environmental Public Health Officer (EPHO)
- Overview of the Drinking Water Safety Program (DWSP)
  - Community-Based Water Quality Monitoring
  - Water System Classifications
  - Drinking Water Advisories
    - Current Advisory Picture for Alberta
  - Regional Drinking Water Advisory Team
  - Next Steps for EPHS



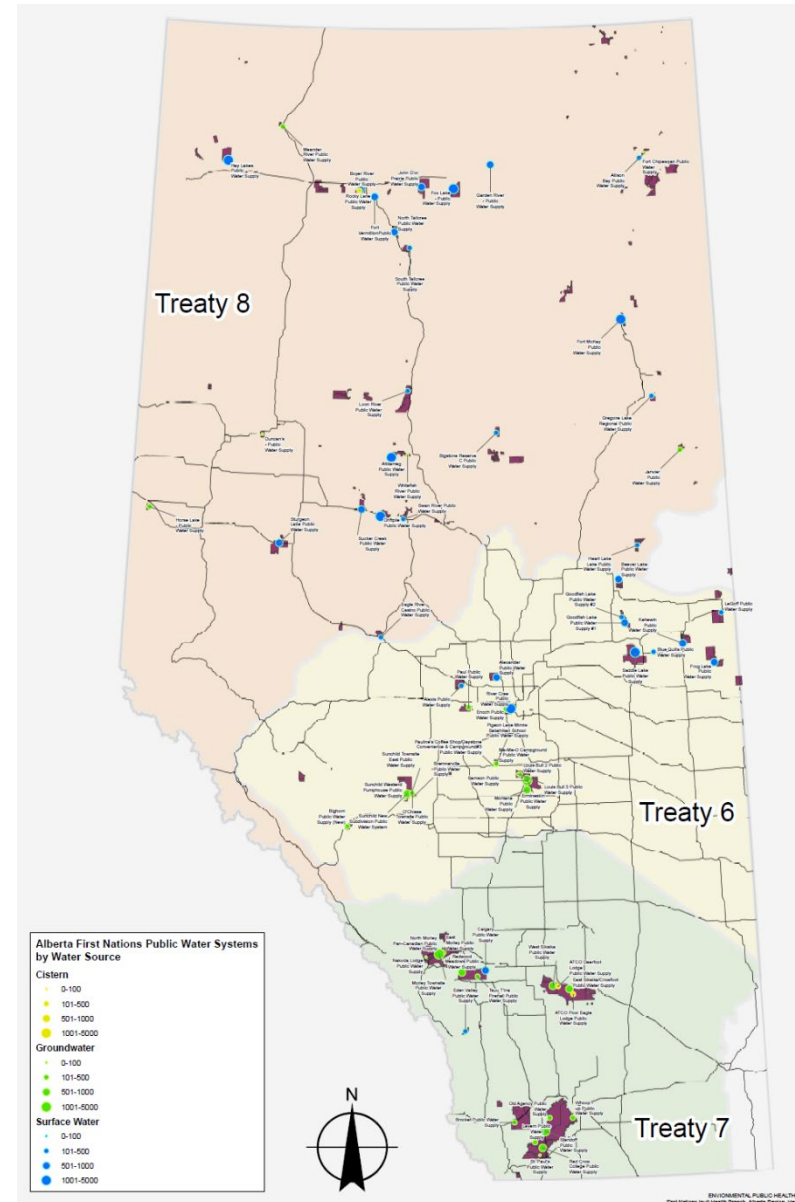
# Mandate of EPHS

- EPHS works to identify and prevent environmental public health risks that could adversely impact the health of a community and its citizens.
- Programming includes: public health inspections, environmental monitoring (e.g. drinking water quality), delivering training / building capacity and raising awareness about potential environmental public health risks and providing information to people in order to protect themselves and their families from EPH risks.
- Prevention is a key principle of environmental public health.



# EPHS Alberta Region

- 45 First Nations
- 134 Communities
- 3 Treaty Areas
  
- 1 Regional Manager
- 2 Senior EPHOs (Supervisors)
- 21 Field Environmental Public Health Officers (1 on Assignment)
- 3 Admin. Staff
- 4 Data Team staff
- Offices in Calgary (Tsuut'ina) & Edmonton (Canada Place)



# Role of an Environmental Public Health Officer

- EPHOs provide advice, guidance, education, public health inspections and recommendations to First Nations and their leadership to assist them manage public health risks associated with the environment.
- They gather and analyze data and provide advice on health protection and promotion activities in First Nations communities.
- Have a role in training and building capacity within First Nations communities in environmental health programming.
- All EPHOs are Certified Public Health Inspectors In Canada and hold the professional designation of CPHI(C) and are regulated by a professional body (CIPHI)



# Role of an Environmental Public Health Officer

- Conduct Environmental Public Health Inspections and Provide public health resources and community specific data/information.
- Investigations.
- Review and approvals (e.g. private sewage disposal systems).
- Plan Reviews
  - EPHS contracts public health engineers for review of community infrastructure plans such as new facilities or upgrades to water plants, wastewater facilities, solid waste facilities etc.
  - Purpose is to ensure public health guidelines and standards are adhered to and considered with new and upgraded infrastructure.



# Role of an Environmental Public Health Officer

- **Training**
  - Community-Based Water Monitors
  - Water Truck Drivers
  - Food Safety & Sanitation
- **Advocacy**
  - Supporting communities on any environmental public health issues.
- **After-Hours Support**
  - An On-Call EPHO is available 24/7 to respond to community needs outside of normal office hours: (780) 719-8782.





# Core Program Areas

- Food Safety Program
- Drinking Water Quality
- Wastewater (private & community systems)
- Health and Housing
- Communicable Disease Control / Animal Exposures
- Emergency Preparedness and Response
- Solid Waste (transfer stations, landfills)
- Facilities Inspections and Risk Assessments



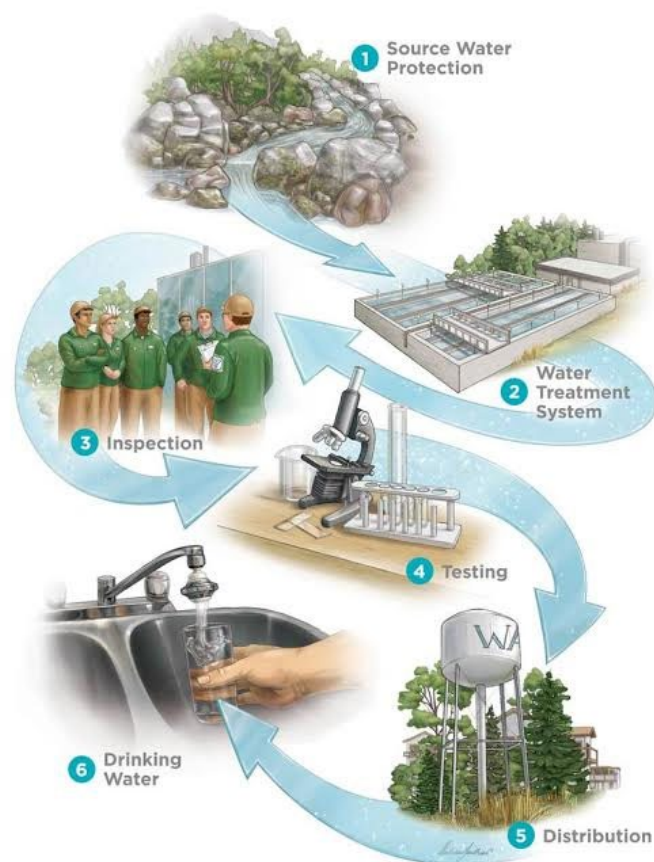


# Drinking Water Safety Program – Stakeholders

- Drinking water safety is a shared responsibility between EPHS, FN communities and key government partners (TSAG – Technical Services Advisory Group, Regional Operations, ISC).
- Each partner has a role to play with respect to the Multi-Barrier Approach to safe drinking water – this ensures water remains as safe as possible from source to tap.



# Drinking Water Safety Program – The Multi-Barrier Approach



**Environmental Public Health Services**  
In First Nations communities

**Services de santé environnementale et publique**  
dans les communautés des Premières Nations



# Drinking Water Safety Program

- EPHS mandate is to implement and oversee a drinking water monitoring program in First Nation (FN) communities across Canada (the final barrier in the multi-barrier approach). This is in partnership with FNs and carried out by Community Health Representatives (CHR) and/or Community-Based Water Monitors (CBWM).
- The purpose of the monitoring program is to ensure safety of the drinking water supply and to protect public health. Therefore, routine sampling must occur at the required levels.
- If monitoring activities indicate a potential risk to the public, EPHS will investigate the concern and, if necessary, issue an advisory.



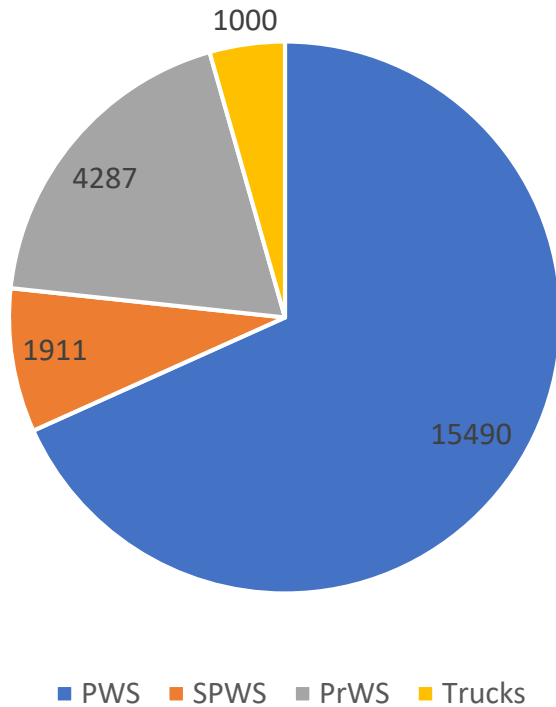
# Drinking Water Safety Program

- Roughly 30,000 samples per year are submitted for microbiological analysis.
  - Collection and submission of samples is conducted by CHR/CBWM.
  - Analyses carried out by a fully accredited lab, the Provincial Laboratory for Public Health, ProvLab (MOA).
- Comprehensive chemical analysis also done on PWS, SPWS twice per year (quarterly for Disinfection By Products where required).
  - Chemical sampling is carried out by EPHOs and analysis done by accredited contract laboratory.
- Private wells and cisterns monitored for bacteriological quality and chemical quality (wells only).
- All data and reports are provided directly to the communities.

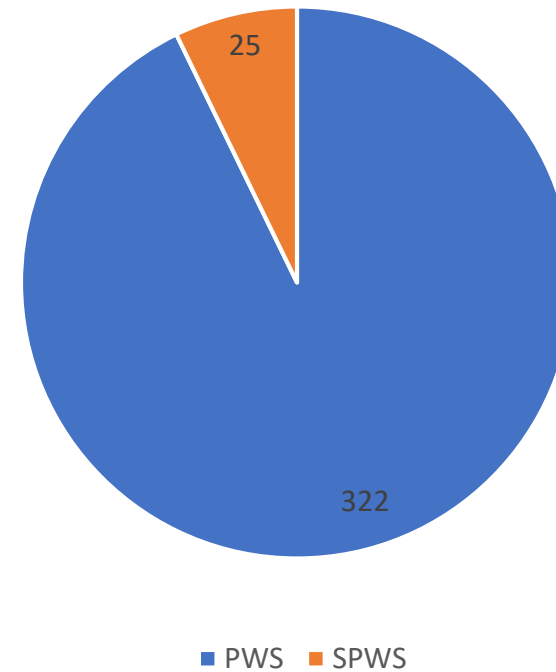


# Drinking Water Safety Program

Number of Samples Analyzed for Bacteriological Parameters 2023/2024



Number of Samples Analyzed for Routine Chemical Parameters 2023/2024



**Environmental Public Health Services**  
In First Nations communities

**Services de santé environnementale et publique**  
dans les communautés des Premières Nations

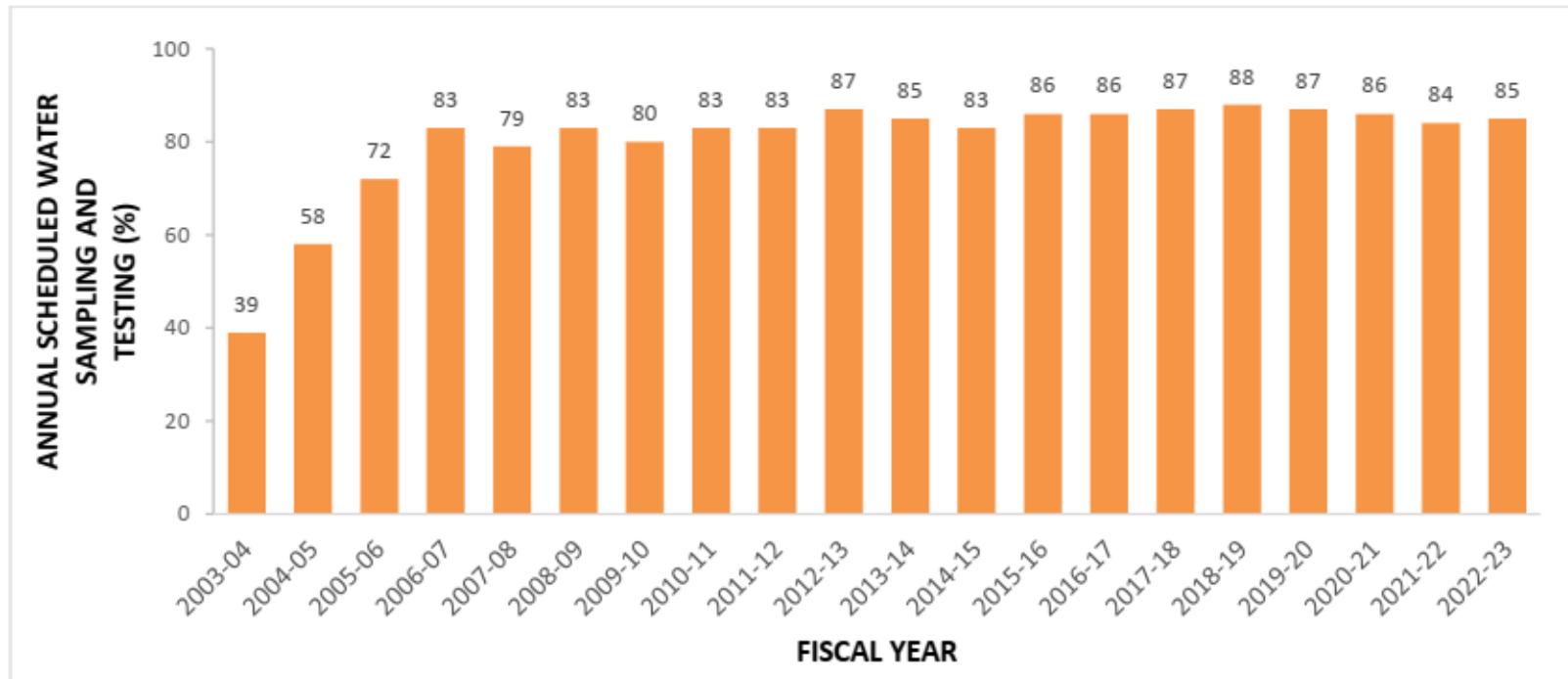


# Drinking Water Safety Program – Community-Based Water Monitors

- The success of the water quality monitoring program hinges on the dedication and hard work of the CHRs and CBWMs.
- All CBWMs must undergo formal training and certification as per the national drinking water program and recommendations provided by the Office of the Auditor General
- Community EPHOs deliver certification training to CBWMs
  - Consists of a 2 day training course with knowledge and practical evaluation.
  - Training offered every 2 years and as needed on ad-hoc basis.
- EPHOs provide ongoing support, communication, collaboration and training.



# Drinking Water Safety Program – Community-Based Water Monitors



*Figure 6-2: Regional annual scheduled microbiological sampling and testing of public and semi-public water supplies achieved by First Nations communities in Alberta, 2003-04 to 2022-23*

Source: ISC FNIHB-Alberta Region, Drinking Water Quality Database via ELPHIS







# Drinking Water Advisories

- The EPHO will issue a drinking water advisory (DWA) when it is determined that there is a significant risk to public health from consuming the water.
- DWAs are a means of health protection and disease prevention.
- DWAs are not indicators of fault or operator neglect, they signify the identification of an issue or event that may adversely impact public health.
  - In most cases, the issue is identified by the operator and communicated to the EPHO and corrective actions follow.



# Drinking Water Advisories

- Each and every advisory issued by our program is based on a thorough risk assessment and site specific knowledge of the EPHO.
- The EPHO consults with water treatment plant operators, community representatives and Circuit Rider Trainers with TSAG.
- Each water system is unique with its own challenges depending on source water and level of treatment.



# Conditions that Lead to Advisories

- Reasons may include a single, or combination of adverse conditions that result in an advisory:
  - Treatment system compromised (e.g. lack of chemicals, filter failure, emergency events).
  - Lack of (trained) operator.
  - Lack of monitoring.
  - Source water challenges (e.g. Blue-green algae, elevated turbidity).
  - Distribution system failure or pressure loss (e.g. dist. pump failure, line break, scheduled maintenance, quantity/volume issues).
  - Unacceptable microbiological quality (e.g. detection of TC or EC).
  - Lack of chlorine residual or excessive chlorine residual.
  - Outbreak of disease where water may be implicated.



# Types of Drinking Water Advisories

- **Boil Water Advisory (BWA)**
  - Most common advisory issued.
  - Water must be brought to a rolling boil for 1 minute to destroy or inactivate pathogens.
  - Once water has been boiled and cooled it may be used for drinking, cooking and cleaning.
  - This type of advisory is only issued for biological risks; boiling water will not address chemical contaminants (e.g. nitrates).



# Types of Drinking Water Advisories

- **Do Not Consume (DNC) Advisory**

- May be issued if the levels of disinfection residuals or naturally occurring chemicals (nitrates) are too high—these would not be removed by boiling.
- While a *Do Not Consume Advisory* is in place, water should not be used for anything that could create a risk that it would enter the body (brushing teeth, cooking, washing dishes, etc.).
- It can still be used for fighting fires, flushing toilets, etc. or other non – potable purposes.



# Types of Drinking Water Advisories

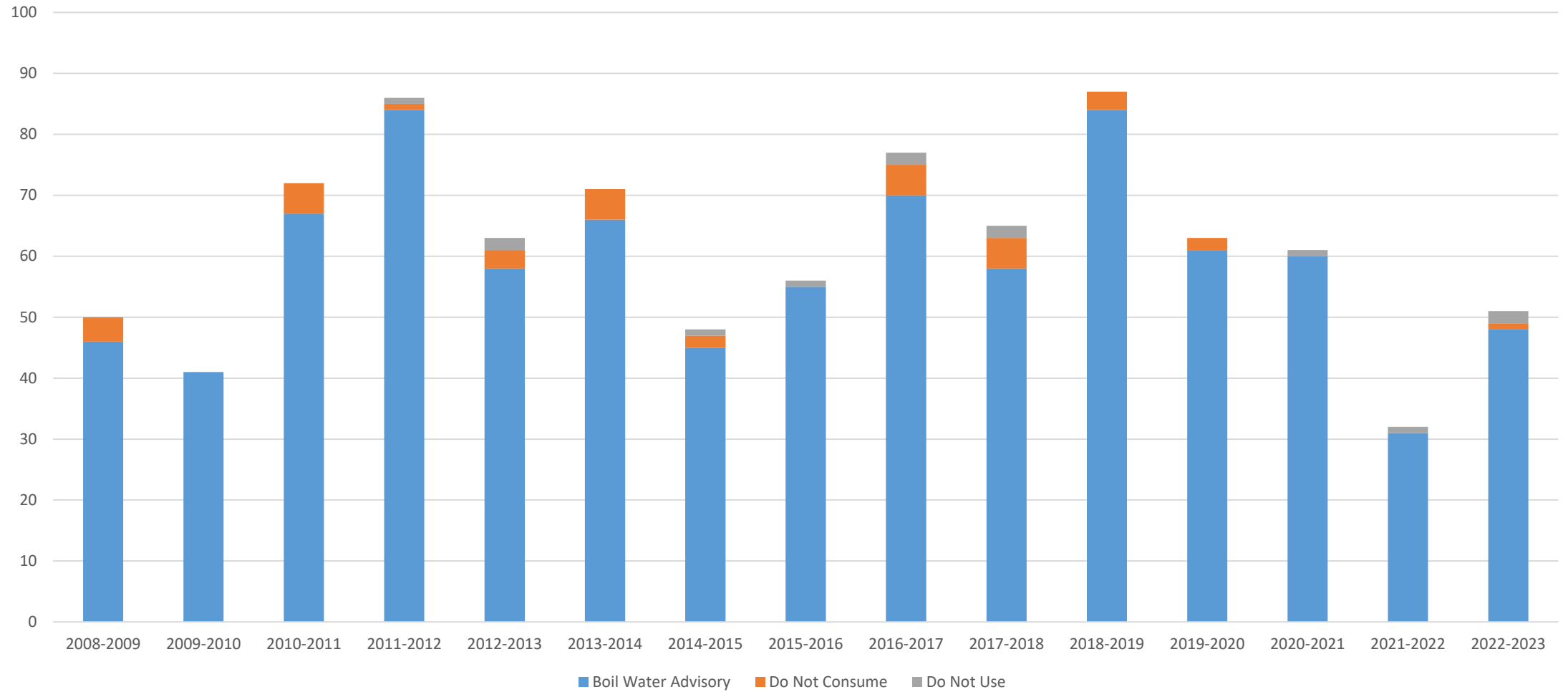
- **Do Not Use (DNU) Advisory**

- Issued when any contact either through dermal absorption and / or ingestion of water is unsafe.
- Circumstances warranting a DNU Advisory include toxins from Blue-Green algae blooms, or excessive levels of chlorine in the water supply.





## Drinking Water Advisory in Alberta First Nations Communities by Advisory Type (2008 – 2023)

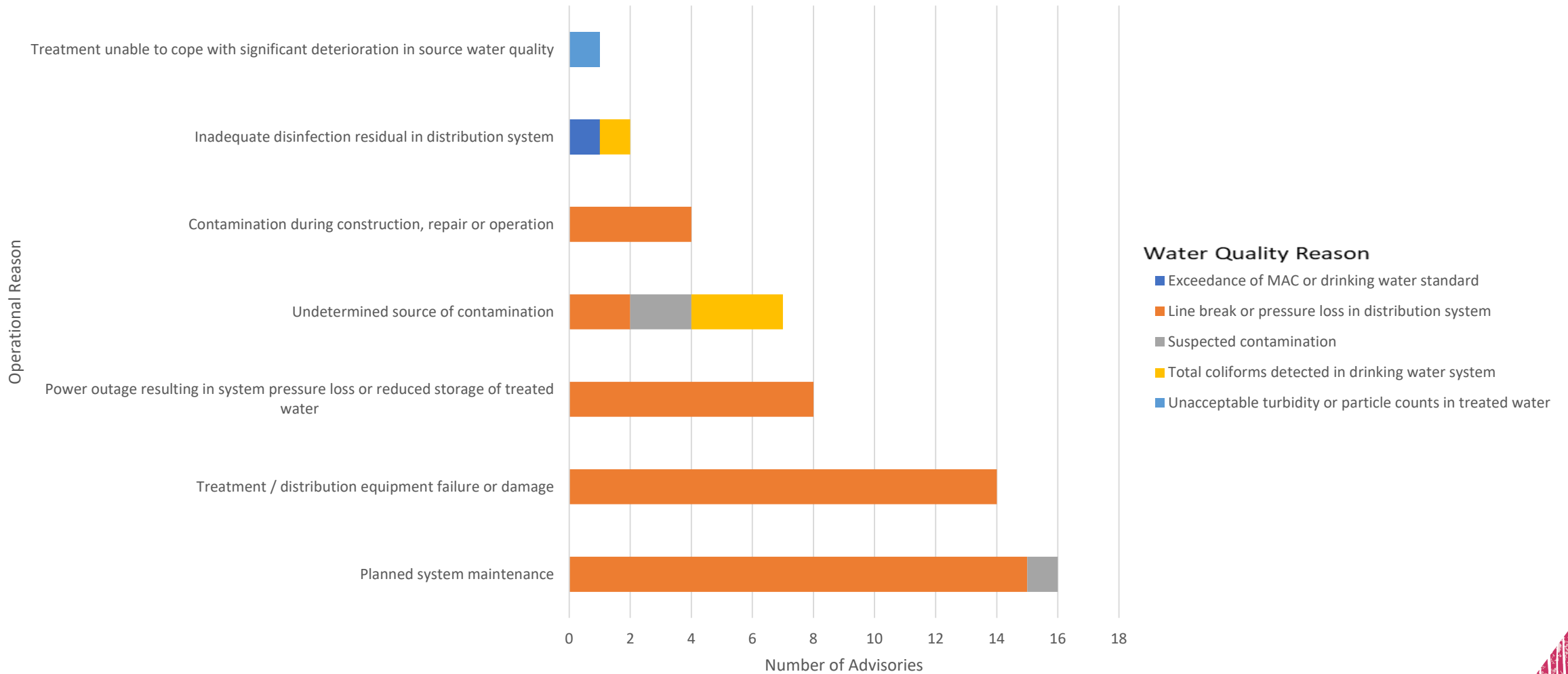


**Environmental Public Health Services**  
In First Nations communities

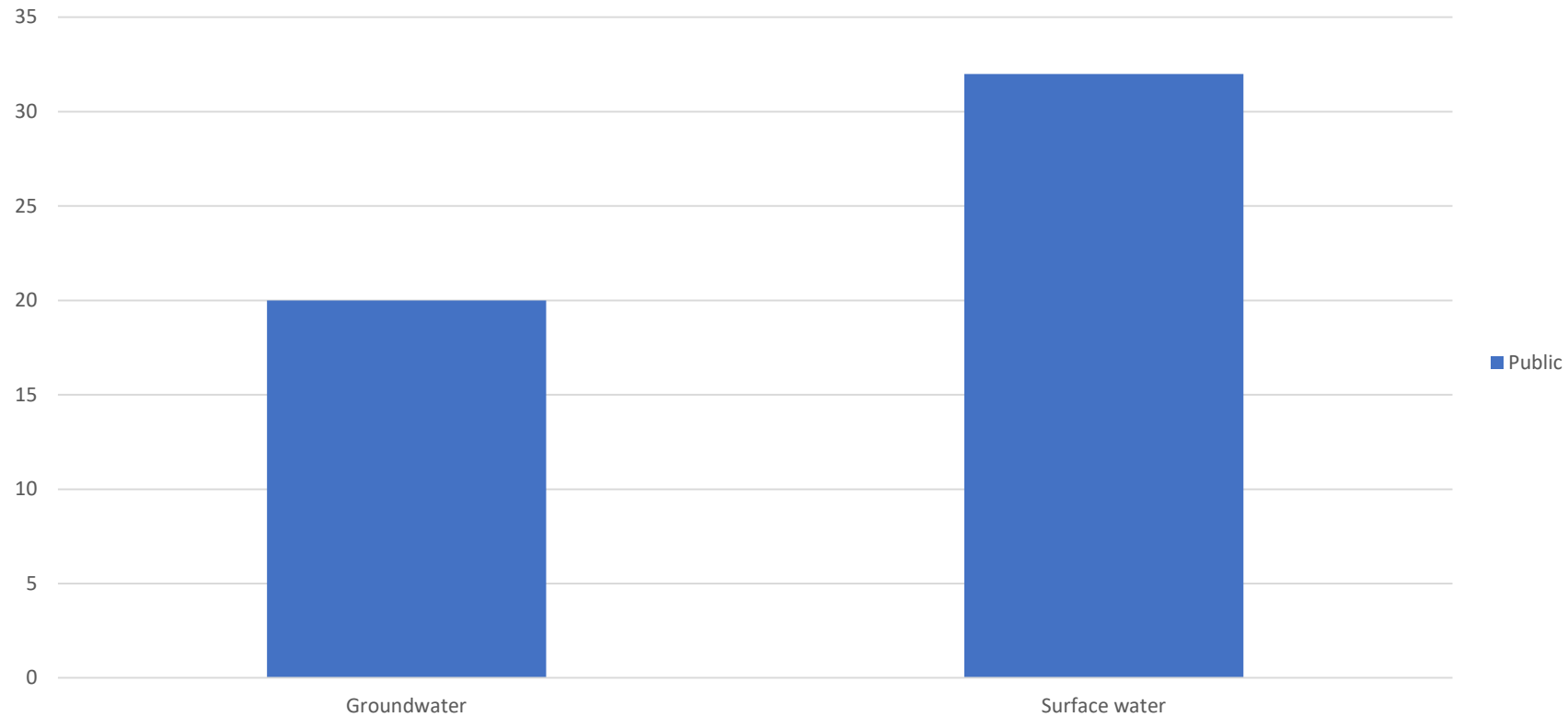
**Services de santé environnementale et publique**  
dans les communautés des Premières Nations



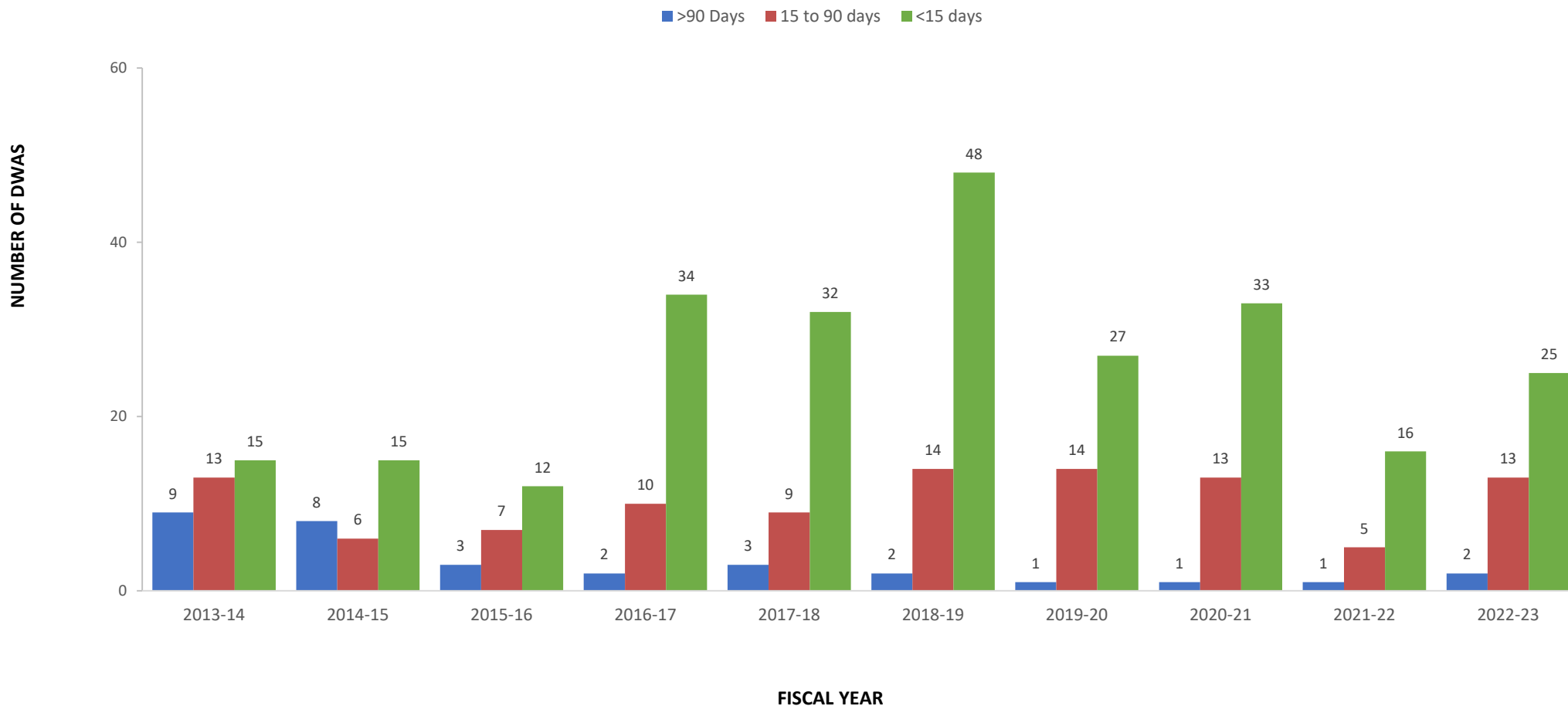
# Underlying Causes of Public Water Systems Drinking Water Advisories in First Nation Communities 2023-2024



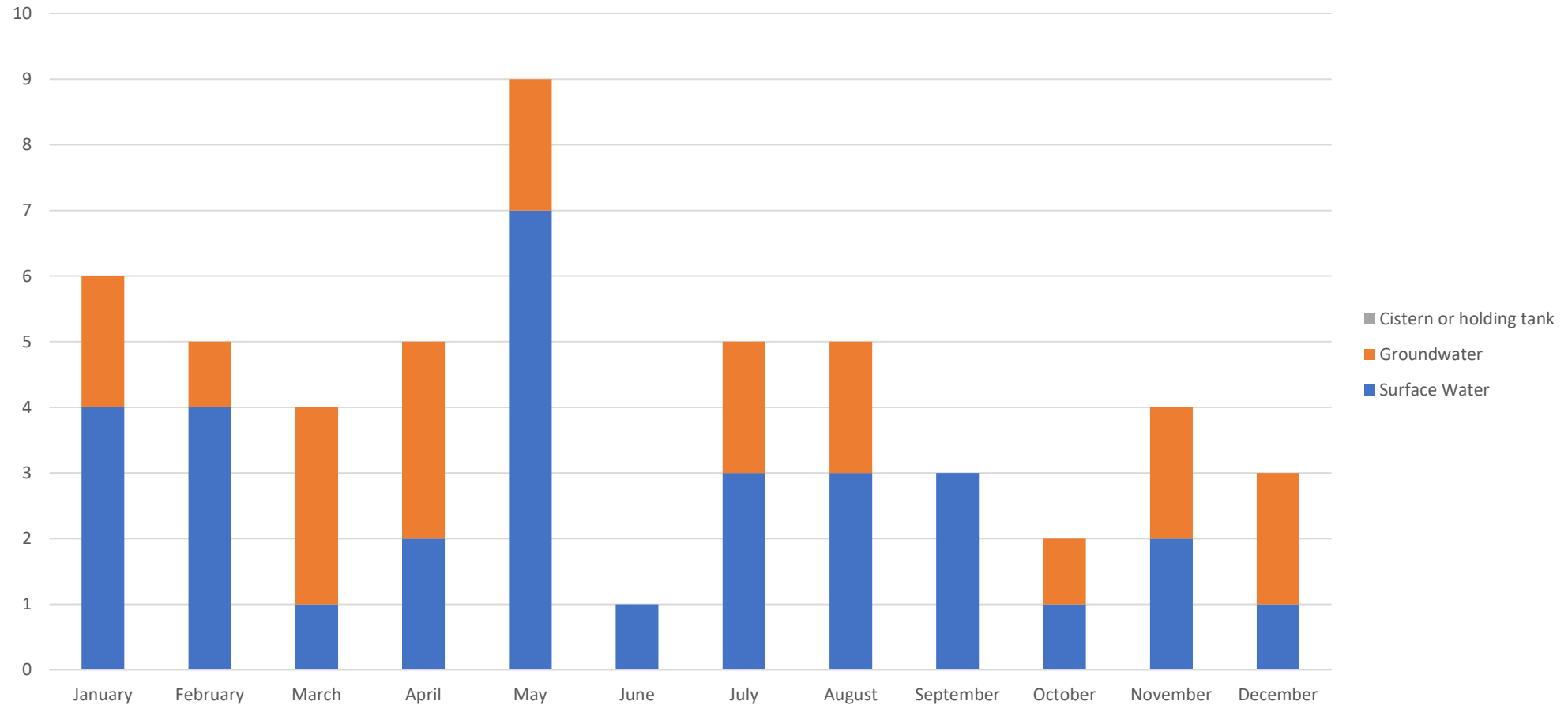
## Alberta Region Public Water System Drinking Water Advisories by Water Source 2023 - 2024



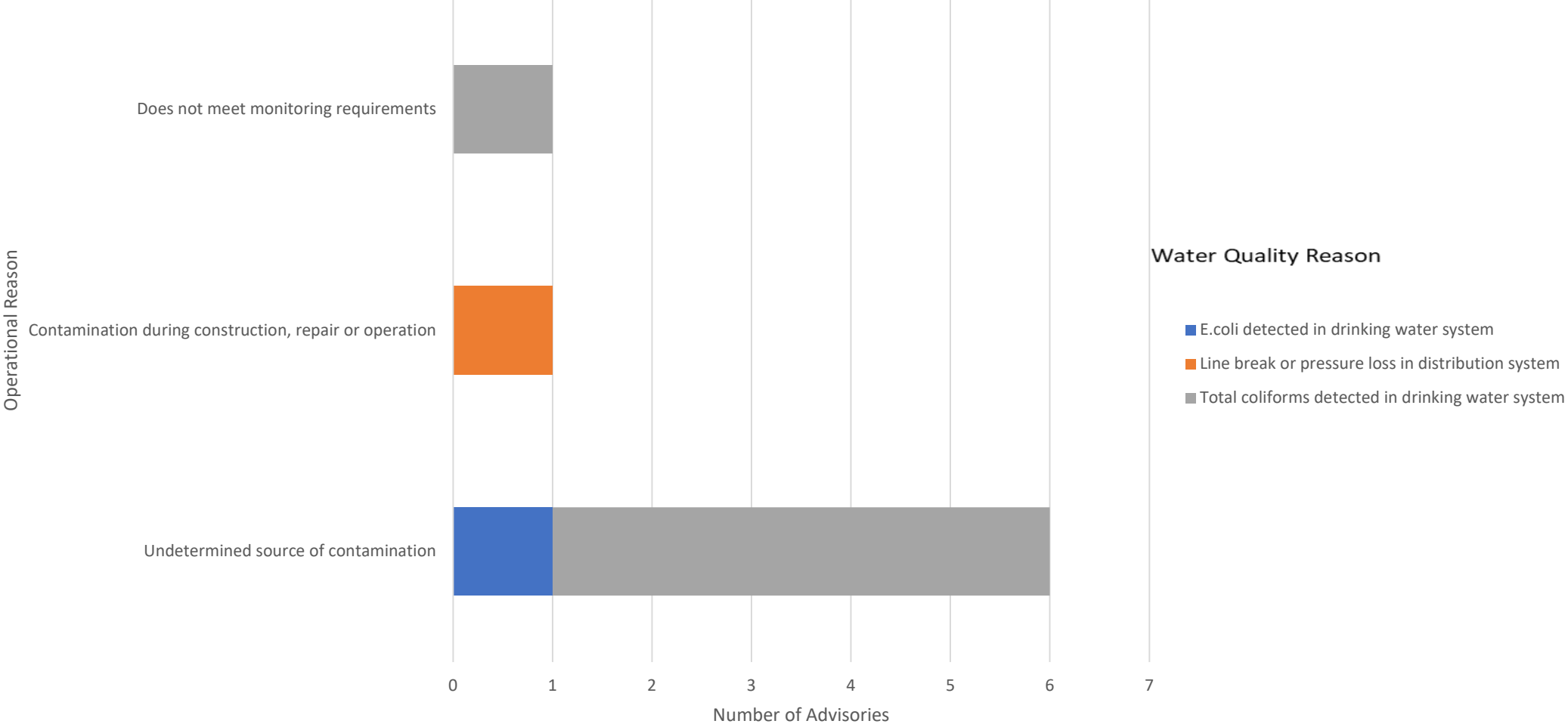
# Duration of drinking water advisories for public water supply type, First Nations communities in Alberta, 2013-14 to 2022-23



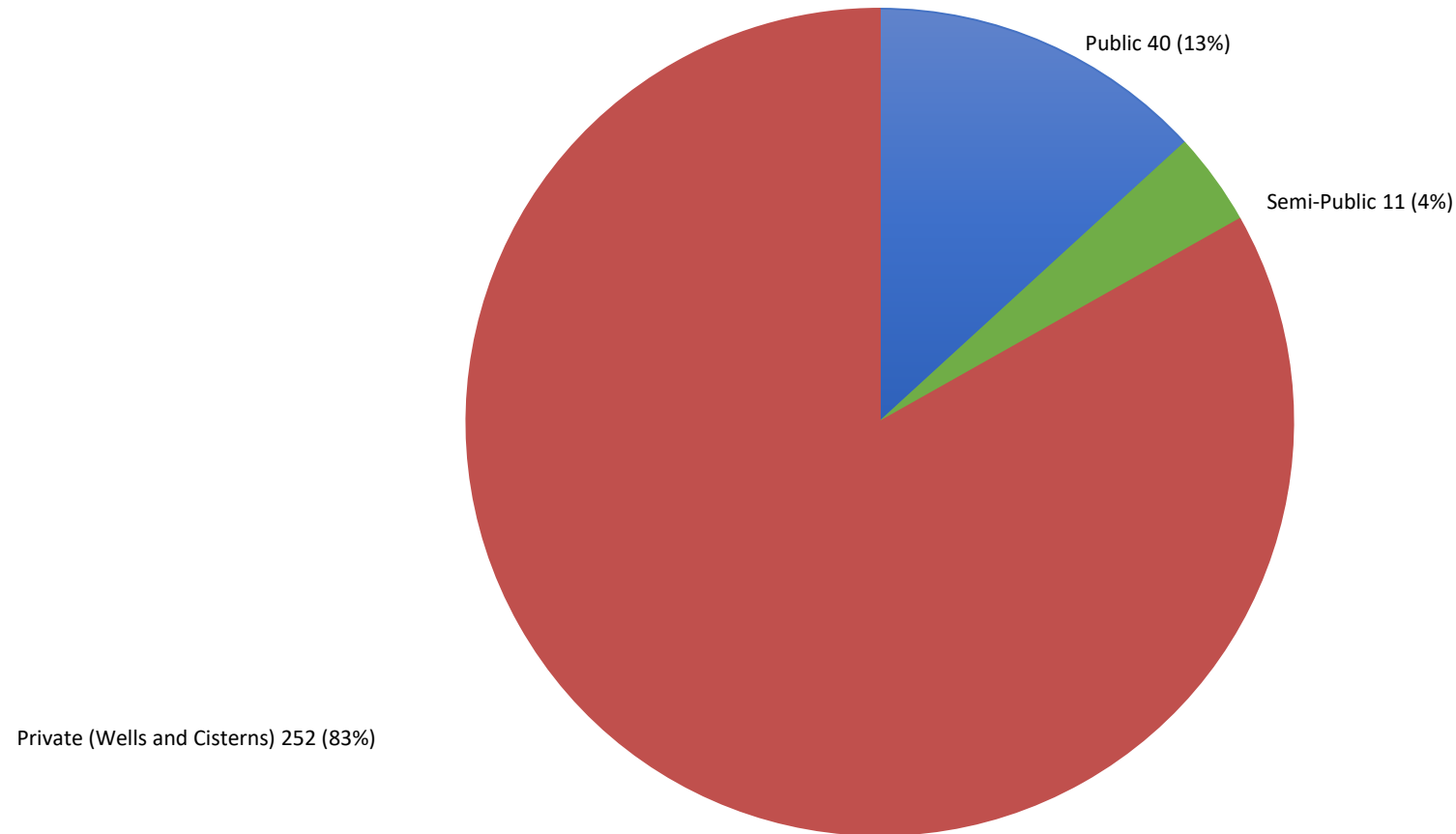
## Distribution of Public Water System Drinking Water Advisories by Month of Issue and Source, 2023-2024



# Underlying Causes of Semi-Public Drinking Water Advisories in First Nation Communities 2023-2024



# Drinking Water Advisories (DWA) By Water Supply Type 2022-2023





# Regional DWA Team Update

- The regional DWA working group has been in place in 2007 as a way to bring stakeholders together on this common issue.
- Consists of representation from:
  - ISC Regional Operations (RO)
  - ISC First Nations & Inuit Health Branch (FNIHB)
  - TSAG Circuit Rider Training Program (CRTP)
- Meet weekly to discuss all DWAs in the region and collaborate towards potential solutions.
- Proactive and team based approach to the issue that has been effective.



# Next Steps for FNIHB-EPHS

- Continued focus and emphasis community and regional sampling goals and CBWM training and certification.
- Re-establishing and enhancing Community Drinking Water Teams
- Focus on enhancing community capacity, training and education on wells and cisterns (private systems) as outlined in the findings of the 2020 water forum.
- Continue updating assessment and information on wells and cisterns in the region.
- Enhance opportunity and support for community capacity, training and education on wastewater.
- Continued collaborative work to reduce the overall number of drinking water advisories with the ultimate goal of improving access to safe drinking water.



# Discussion & Questions?



**Environmental Public Health Services**  
In First Nations communities

**Services de santé environnementale et publique**  
dans les communautés des Premières Nations

