Penticton Airport – Former Fire Training Area (FTA) Per-and Polyfluoroalkyl Substances (PFAS) Assessment Overview

August 15, 2023

Our Understanding



Syilx Nation *Siwɬkʷ* Declaration

Water is life.
Water is our relation.
Water bonds us to our ancestry, our descendants and our land.
July 31 2014
ONA AGA Spaxomin, BC

Introduction and Overview

- What are Per and Polyfluoroalkyl Substances (PFAS)?
- What do we know about the use of PFAS at the Penticton Airport?
- PFAS testing at the Penticton Airport
- How TC and the PIB can work together moving forward.
- Well water use for household activities

What are Per and Polyfluoroalkylated Substances (PFAS)?

- They are a family of human-made chemicals that have been widely used in a variety of industrial and consumer products.
  - Food packaging
  - Teflon pans
  - Textiles
  - Fire fighting foams
  - Stain- and water-repellant coatings

What do we know about PFAS at the Penticton Airport?

- Test wells at the Penticton Airport have shown PFAS in the shallow groundwater.

- Firefighting foam is the suspected source. Firefighting foams containing PFAS were used at Transport Canada airports from the 1970s onwards (1972-1993 in Penticton).

- Historically, foams were used in training exercises, but not used exclusively by Transport Canada.

PFAS Testing at the Airport



Timeline of PFAS Use and Investigations at Former FTA

- The former FTA at the Penticton Airport was operational from 1972 to 1993. Aqueous Film Forming Foams (AFFF) containing PFAS was used at the FTA during fire training exercises.
- March 2017 – Monitoring wells installed at the FTA. PFAS > federal drinking water criteria identified in area of the former FTA. See next slide for details.
- March 2018 – Wells installed at downgradient/east airport boundary but not sampled.
- March 2019 – Wells along east airport boundary sampled. PFAS > federal drinking water criteria identified. PFAS < federal drinking water criteria in well adjacent to mobile home park.
- 2021-2022 – Wells installed in airport operational areas and along east airport boundary. PFAS sampling conducted in airport operational areas only. PFAS > federal drinking water criteria identified.
- November 2022 – Various existing wells sampled. PFAS > federal drinking water criteria identified at east airport boundary. PFAS < federal drinking water in well adjacent to mobile home park.
- February-March 2023 – Wells installed along east airport boundary including one deeper well. Sampled new & select existing wells. PFAS > federal drinking water criteria identified.

2023 Groundwater Results Summary

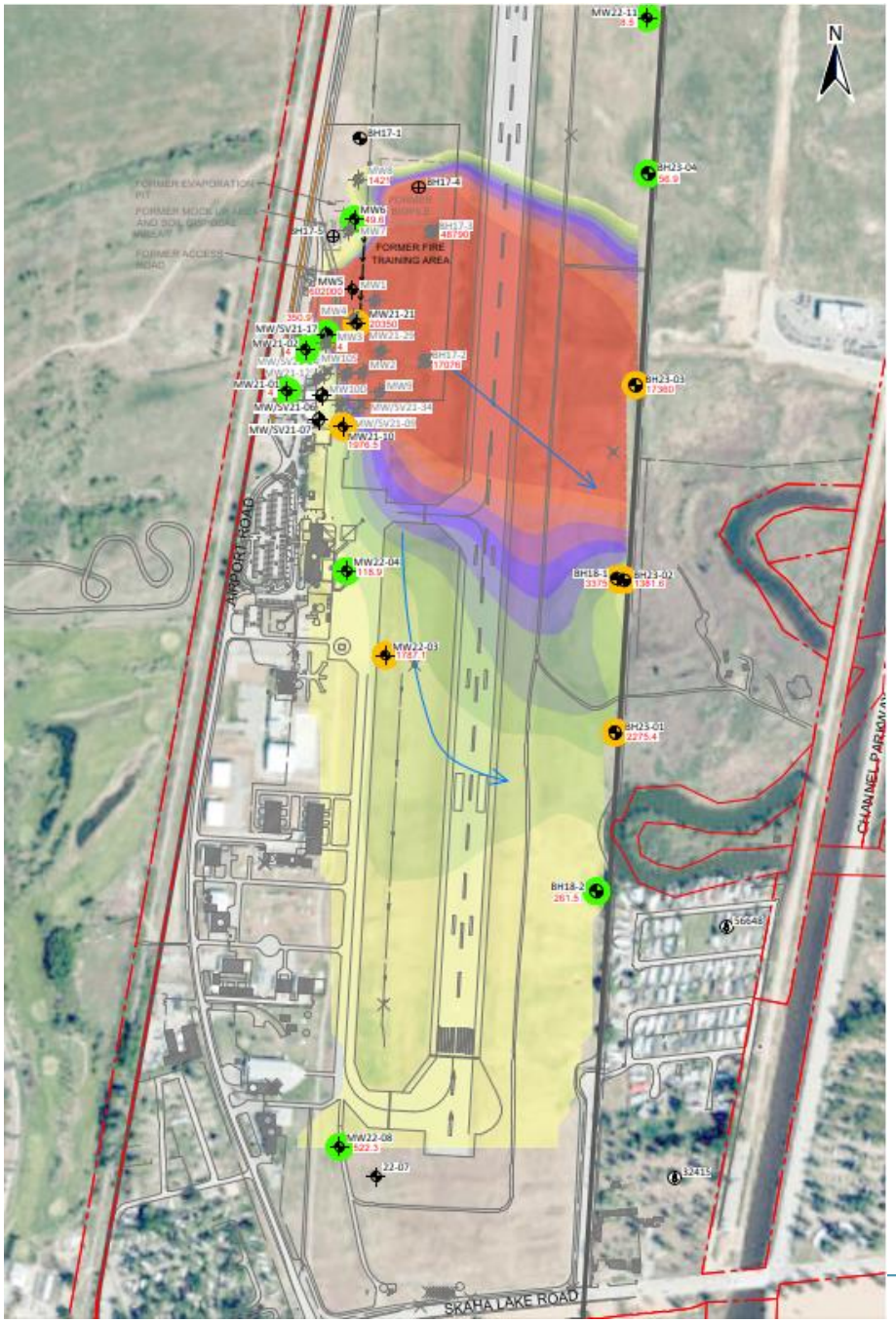
- → Blue Arrow; Inferred Direction of Groundwater Flow
- Green = Concentrations less than or equal to federal environmental criteria.
- Orange = Concentration(s) greater than federal drinking water criteria.



2023 Groundwater Summary – Total PFAS

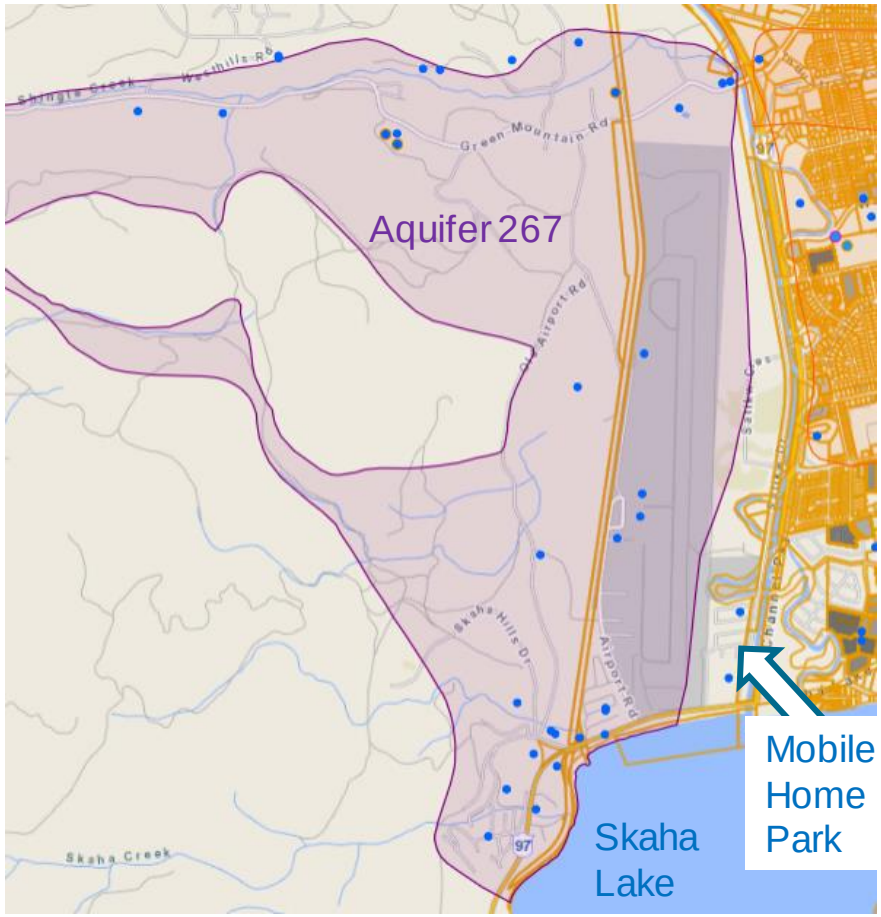
- → Blue Arrow; Inferred Direction of Groundwater Flow
- PFAS concentrations are highest at the FTA and monitoring wells to east/southeast.
- Concentrations listed at wells are in units of ng/L.

See the Groundwater PFAS Summary Drawings (Figure 3) for more details



Penticton Airport Hydrogeology

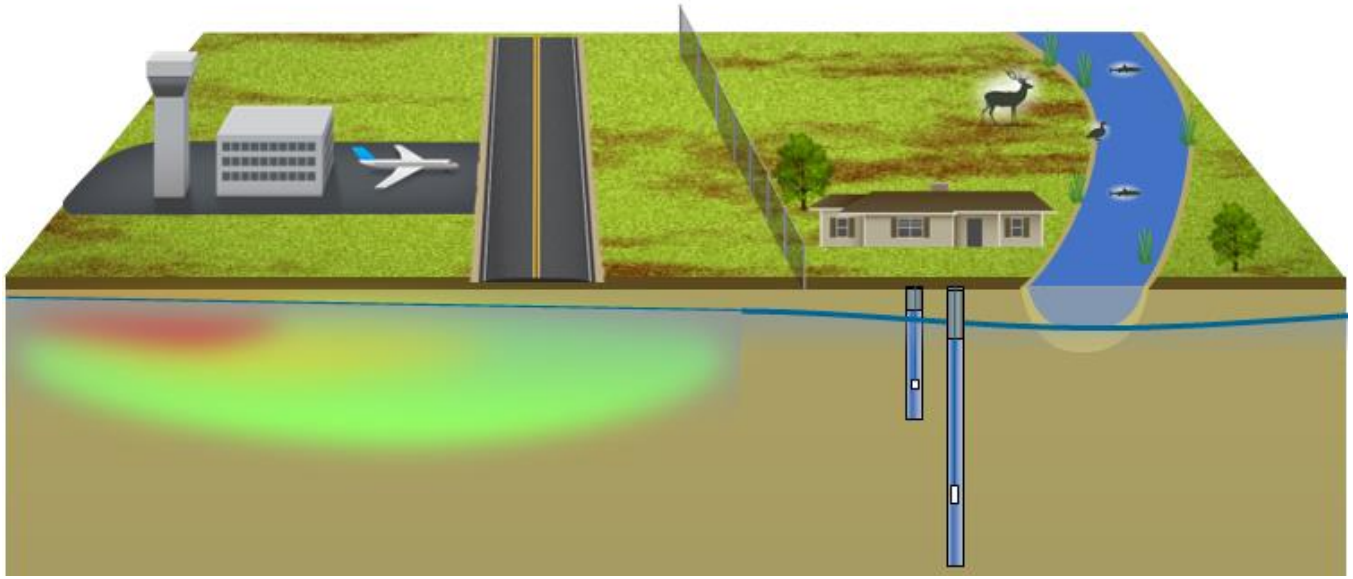
- A sand and gravel aquifer (#267) underlies the Penticton Airport and the surrounding Penticton Indian Band area.
- There are two water wells, shown outside of Aquifer #267, that provide potable water to the residents of the Sun Leisure Mobile Home Park.
- The shallow groundwater within the Airport flows east/southeast, towards the Okanagan River Channel, the Mobile Home Park, and Skaha Lake.



Potential Exposure Pathways for PFAS in Groundwater

1. Human Health – Groundwater flow to the nearest down-gradient drinking water wells, which are located at the Sun Leisure Mobile Home Park.

2. Ecological Health – Groundwater flow to surface water and exposure to terrestrial and aquatic organisms (plants, insects, fish & wildlife, etc.). Oxbows immediately to the east of the Penticton Airport boundary and Okanagan River Channel.



Health Effects of PFAS Detections in Drinking Water

- Ingesting water, such as through drinking, using it in food preparation and in infant formula, does not pose a health risk so long as the levels of PFAS in drinking water do not exceed the guidelines or screening values over an extended time.
- High levels of PFAS have been linked with negative health effects in animal studies, including liver damage and impacts on neurological development. However, there is little information available on human health risks associated with PFAS.

Next Steps

TC would like to work with the PIB to determine appropriate next steps with regards to:

1) Ensuring residents of the Sun Leisure Mobile Home Park are drinking clean and safe water

   - Testing well water for the presence of PFAS
   - If water contains PFAS in concentrations greater than the Health Canada drinking water guidelines and screening values, Transport Canada will provide bottled water immediately.

2) Monitor the extent of PFAS present at the airport and near the Oxbow Lakes or Mobile Home Park

Proposed *Immediate* Sampling Plan to protect human health - To be designed in collaboration with PIB

1. Confirm other uses of water east/southeast of airport and water distribution service on PIB lands.

2. Test potable water wells in direction of groundwater flow (Sun Leisure MHP) – see Sampling Plan document.

Compare to Health Canada drinking water criteria.

Supply bottled water to homes if PFAS greater than drinking water criteria.

3. Sample monitoring wells on eastern airport boundary for other potential contamination based on available airport data.

Compare to Health Canada drinking water criteria.

Conduct further testing of potable water wells as needed.

Proposed Near Term Sampling Plan to assess risks to human health and the environment - To be designed in collaboration with PIB

1. Install additional wells along east airport boundary and install monitoring wells east/southeast of airport in direction of groundwater flow including:
   - Deep monitoring wells along east airport boundary
   - Shallow wells toward OK Channel & Skaha Lake
   - Deep wells (if needed) along OK Channel

→ Compare to federal environmental guidelines. Use information to evaluate potential risks to human health and environment and to inform next steps.

2. Collect sediment and water samples from closest watercourses in direction of groundwater flow (oxbows). Sample sediment and surface water at reference urban areas to support evaluation of results.

→ Compare to federal environmental guidelines and to reference areas. Use information to evaluate potential risks to human health and environment and to inform next steps.

Questions?