Canadian Nuclear Safety Commission | Commission canadienne de sûreté nucléaire

CMD 25-H9.14A

Date: 2025-11-24

Supplementary Information

Presentation from the Saskatchewan Environmental Society and the Nuclear Transparency Project

In the matter of

Denison Mines Corporation

Licence Application to Prepare Site and Construct for Denison Mines' Wheeler River Mine and Mill Project

Commission Public Hearing
Part 2

December 8-11, 2025

Renseignements supplémentaires

Présentation de la Saskatchewan Environmental Society et du Projet de transparence nucléaire

À l'égard de

Denison Mines Corporation

Demande de permis pour la préparation de l'emplacement et la construction du projet de mine et d'usine de concentration d'uranium Wheeler River de Denison Mines

Audience publique de la Commission
Partie 2

8-11 décembre 2025

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Canada

Comments on the Wheeler River Project proposal of Denison Mines and the review by CNSC staff from Saskatchewan Environmental Society and Nuclear Transparency Project

Presented by Carroll Chubb, PhD

Saskatoon, Saskatchewan

December 9, 2025

No licence for the Wheeler River Project should be issued at this time by the CNSC.

Concerns

- Problems with the consultation process.
- Information gaps.
- Plans for management of toxic waste are inadequate.
- Likely that restoration of environment unobtainable.
- Need a better plan for future monitoring and communication with public.

Geology and groundwater hydrodynamics

- Rock above and below ore zone forms "discontinuous envelop" (EIS).
- Overlying rock that underwent silicification has lower permeability and is prone to brittle fracturing (EIS)—What fractures may occur due to proposed mining practices?
- Groundwater hydrodynamics should be studied, and the effects of mining technology options on movement of water and toxic substances analyzed.
- The chemistry of interactions of the mining solution with the rock overlying and under the uranium ore zone should be evaluated.

Alternative mining techniques

- More comparative analysis of ISR methods against alternative mining techniques.

- Comparative analysis of ISR mining solutions:
  - acid leaching, weak acid leaching, alkaline leaching, CO_2-O_2 leaching, and bioleaching.

- Better analysis of the effects of proposed permeability enhancing techniques.
  - Including careful study of blasting-enhanced permeability and the risk of fracturing rock, resulting in movement of toxic substances into groundwater close to the earth's surface and surface waters.

Remediation

- Remediation goals are not clear, and a summary of goals is needed.

- The environment should be restored to levels of toxic substances present before mining or healthier levels. This includes groundwater close to the earth's surface, which can serve as a source of drinking water.

- Remediation efforts are likely to **fail** to restore the environment.
  - A study from the U.S. Geological Survey on in 27 ISR mines in south Texas:
    - All mining areas had their restoration goals amended for at least one element after significant efforts to remediate.
    - In 68% of the mining areas, the final uranium concentrations exceeded baseline level.

Waste management

- More specific information on waste management plans, including estimated duration for “temporary” the storage of wastes.

- For hazardous waste that will be removed from temporary storage, information should be provided on the locations to which it will be moved.

- A discussion showing that CNSC staff have assessed the appropriateness of the designs for process ponds, waste storage, and effluent discharge lines.

- Better plans for containment of hazardous waste materials in the proposed landfill.

Additional information gaps

- The chemical names, properties, concentrations, and proportions for the various substances that would be used in Wheeler River's operations.

- Discussion and evaluation of ore processing method is needed.

- More detailed assessment of residual effects for valued components and key indicators. This should include a breakdown of uncertainty predictions from various sources.

Additional information gaps — 2

- More estimates of volumes for water expected to be used for each phase of the proposed project should be provided.

- An estimate of the total effluent volume expected to be emitted by the Industrial Wastewater Treatment Plant and of amount of water expected to be recycled in this process.

- A more detailed description of Whitefish Lake south (depth, flow rates or assimilative capacity), along with an explanation of why it is best suited to receiving effluent.

- To evaluate Denison's liquid effluent objectives, a discussion of the assimilative capacity of Whitefish Lake and Russel Lake for identified contaminants of concern.
  - Among the concerns are discharge concentrations of chloride, cadmium, copper, uranium, zinc, lead-210, polonium-210, radium-226, and thorium-230.

Sediment quality and aquatic biota

- Further explanation of how the risk to sediment quality was evaluated and how it compares in validity to other approaches.

- More information regarding EIS statement that "predicted exposure levels may affect lower trophic level aquatic biota on a population or community level within some isolated lakes in the SSA."

Additional information gaps — 3

- More information on whether computer models used to predict effects of the project are available to scientists around the world and the views of experts regarding the limitations and strengths of these models.

- A comprehensive evaluation of the cumulative impacts from climate change, mining, and other industrial developments in the region.

- Consideration of pollution effects thousands of years in the future.

Risks to human health

- More information on the levels of toxic substances in plants and animals used for food by people.

- Information on baseline and future levels of toxic substances in people living near the proposed project and their health.

- More adequate analysis of the effects on children, pregnant women, elderly, and especially vulnerable people.

Conclusion

No licence for the Wheeler River Project should be issued at this time by the CNSC.

- Substantial information gaps in the application.
- Available evidence suggests the project would result in severe damage to the environment.
- Need for better examination of the risks to the environment and human health from the proposed project and alternative ways of mining the Phoenix deposit.

Thank you.

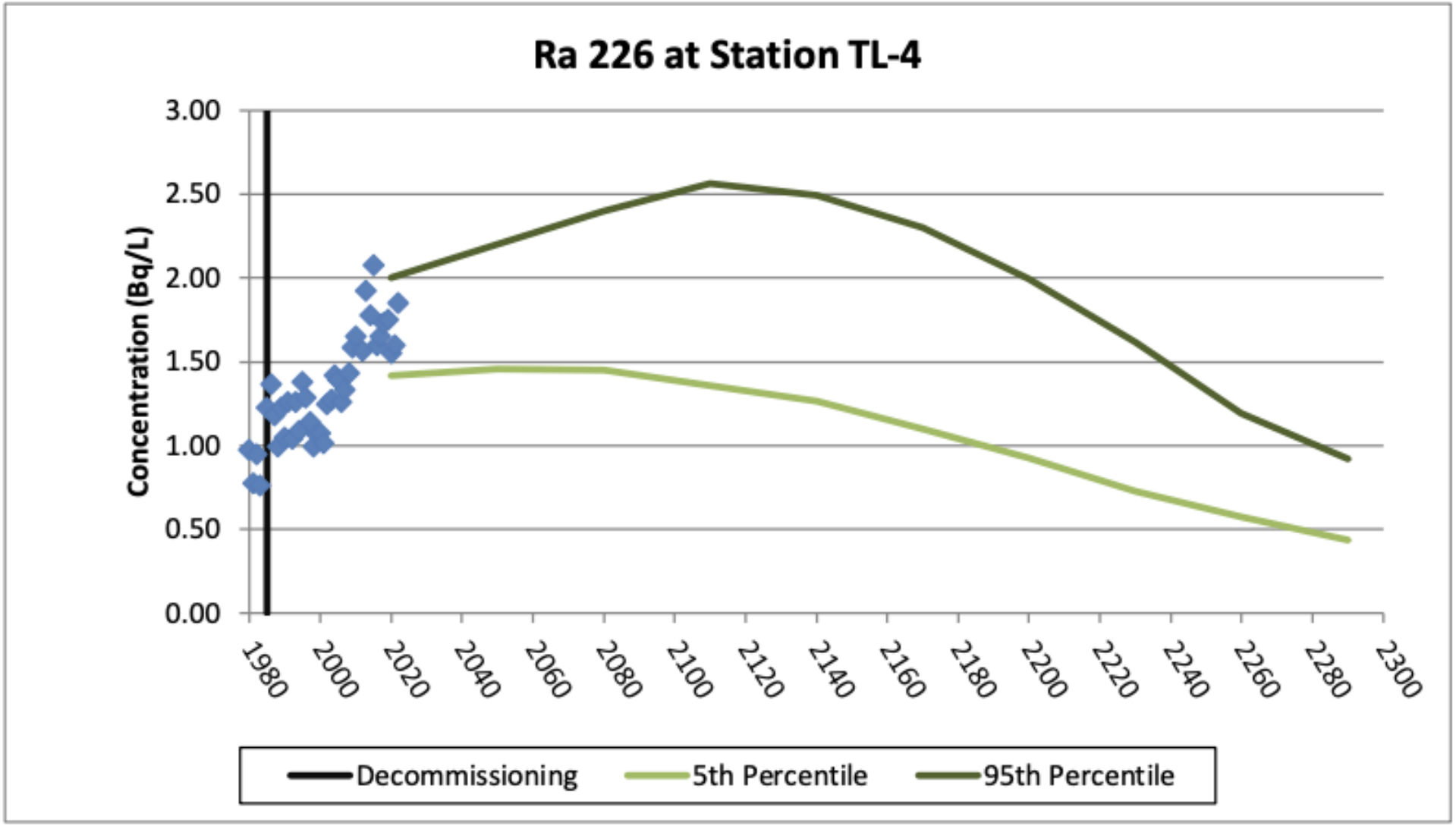

Figure 14: Ra-226 Performance Indicator at TL-4

Reference: Final Closure Report Beaverlodge Properties

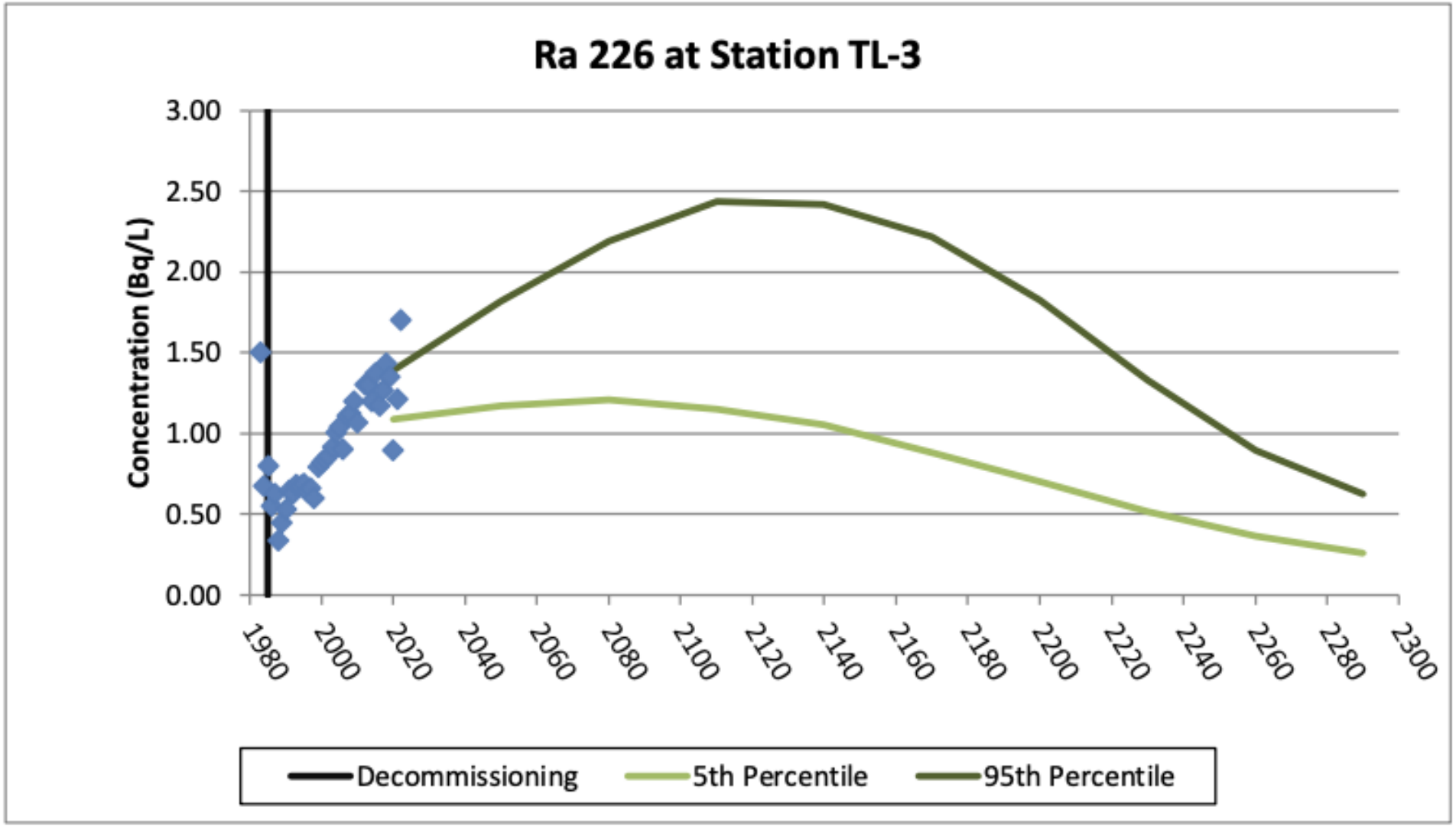

Figure 9: Ra-226 Performance Indicator at TL-3

Reference: Final Closure Report Beaverlodge Properties

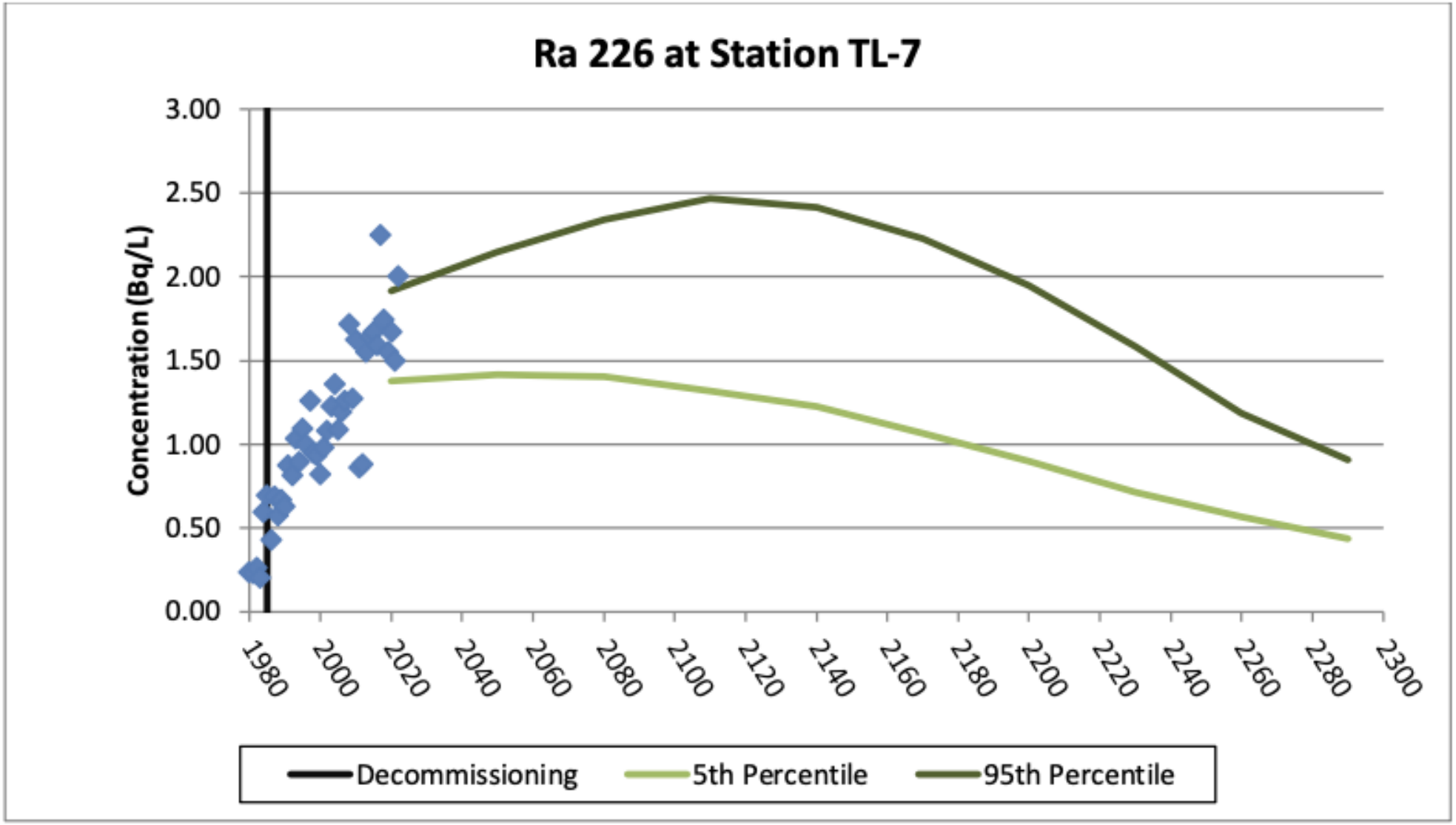

Figure 19: Ra-226 Performance Indicator at TL-7

Reference: Final Closure Report Beaverlodge Properties