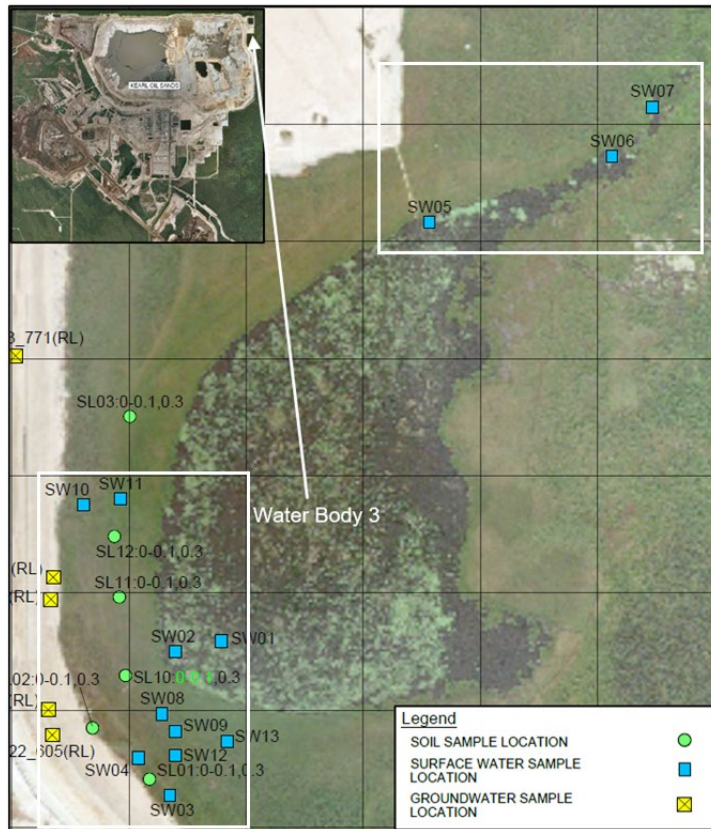


AER Third-Party Sampling 2023

Kearl Oil Sands

Surface Water Quality



Location	Date	PAL Guideline Exceedance*
Receptor (Water Body 3)		
SW01 (receptor-near seep)	26-July-2023	PAL: No exceedances
SW02 (receptor-near seep)	26-July-2023	PAL: No exceedances
SW05 (receptor-near outlet)	26-July-2023	PAL: No exceedances
SW06 (receptor-outlet)	26-July-2023	PAL: No exceedances
SW07 (receptor-outlet)	26-July-2023	PAL: No exceedances
Source		
SW03 (source- seep)	26-July-2023	PAL: F2, total arsenic, total cobalt, total copper, dissolved iron No guideline: naphthenic acids (1.6 mg/L)
SW04 (source- seep)	26-July-2023	PAL: F2, total arsenic, total cobalt, total zinc, dissolved iron, ammonia No guideline: naphthenic acids (2.2 mg/L)
SW08 (source- onshore)	26-July-2023	PAL: F2, toluene, total cobalt, ammonia No guideline: naphthenic acids (0.9 mg/L)
SW11 (source- onshore)	26-July-2023	PAL: toluene, total arsenic, total cobalt, total copper, total zinc, ammonia
SW13 (source- onshore)	26-July-2023	PAL: toluene, dissolved iron

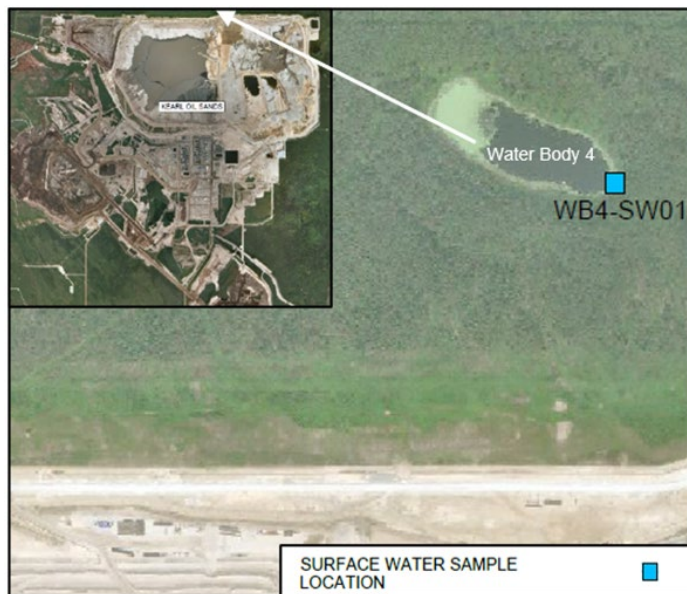
* Environmental Quality Guidelines for Alberta Surface Waters, Surface Water Quality Guidelines for the Protection of Aquatic Life.

Interpretation

- Several metals and major ions exceed guidelines in the area prior to Kearl mine development, based on 2003-2004 baseline sampling. This includes iron, sulphide, zinc.
- Naphthenic acids were analyzed using the FTIR method. Naphthenic acids sampled on July 26, 2023 analyzed using the Orbitrap method is not available for this update.
- Total and dissolved sulphide samples were analyzed by a different lab. Therefore, July 26, 2023 data is not available for this update.

AER Third-Party Sampling 2023

Kearl Oil Sands



Surface Water Quality

Location	Date	PAL Guideline Exceedance*
Water Body 4		
WB4-SW01	26-July-2023	PAL: toluene, total lead, dissolved aluminum

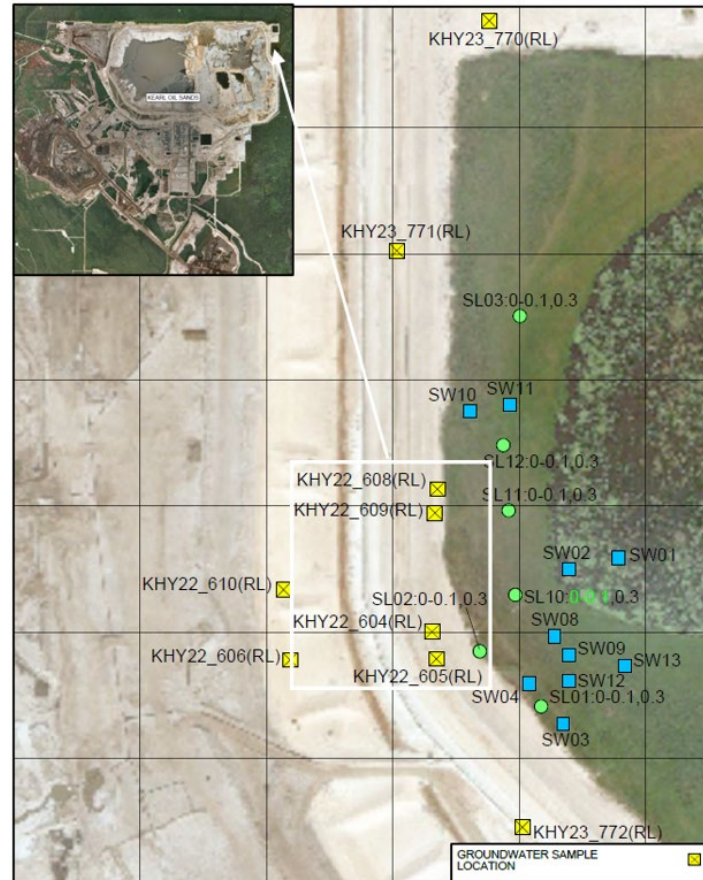
*Environmental Quality Guidelines for Alberta Surface Waters, Surface Water Quality Guidelines for the Protection of Aquatic Life

Interpretation

- Toluene may be biogenic (natural) in origin and is common in wetland areas.
- Naphthenic acids sampled on July 26, 2023 analyzed using the Orbitrap method is not available for this update.
- Total and dissolved sulphide samples were analyzed by a different lab. Therefore, July 26, 2023 data is not available for this update.

AER Third-Party Sampling 2023

Kearl Oil Sands



Groundwater

Source		
KHY22-604 (shallow well)	27-July-2023	AB Tier 1: TDS, sulphate, manganese, iron No guideline: naphthenic acids (5.4 mg/L)
KHY22-605 (deep well)	27-July-2023	AB Tier 1: iron, manganese
KHY22-608 (shallow well)	27-July-2023	AB Tier 1: TDS, sulphate, iron, manganese No guideline: naphthenic acids (6.2 mg/L)
KHY22-609 (deep well)	27-July-2023	AB Tier 1: manganese, iron
KHY23-771 (shallow well)	27-July-2023	AB Tier 1: iron, manganese No guideline: naphthenic acids (0.7 mg/L)
KHY23-772 (shallow well)	27-July-2023	AB Tier 1: TDS, sulphate, iron, manganese, aluminum, arsenic, boron. No guideline: naphthenic acids (43.5 mg/L)

* Alberta Tier 1 Soil and Groundwater Remediation Guidelines

Soil

Last sampled on April 22, 2023. Refer to previous update.

Interpretation

- Exceedances suggest the presence of tailings seepage in shallow groundwater.
- Results from KHY22-605 appeared anomalous based on June 28, 2023 sampling. KHY22-605 and KHY22-609 do not show impacts from tailings seepage in deeper groundwater based on the most recent sampling.