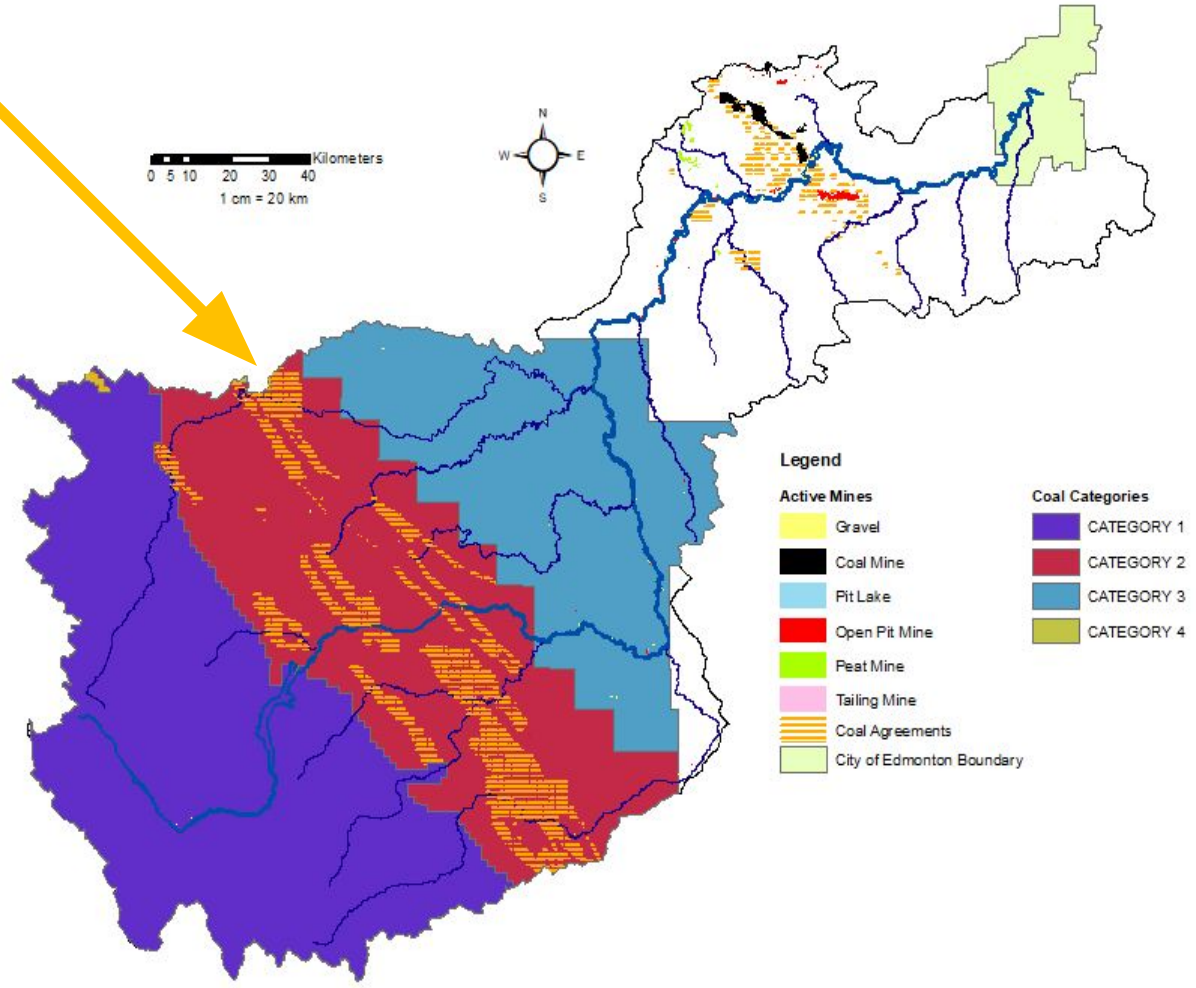
Coal Mining Risk Assessment: The Issue

- Surface mining is possible on ~5% of the watershed where it previously not allowed (Category 2) 350 km upstream of Edmonton
- Current coal mining is <0.3% of the watershed and is largely contained within the Wabamun Lake watershed
- Surface mining can cause leaching of metals and in particular selenium, which bioaccumulates and is difficult to remediate
- This could negatively affect water quality and aquatic health
- The City of Edmonton asked EPCOR to complete a risk assessment on the potential effects of coal mining



Coal Mining Risk Assessment: Science

- Elevated selenium and other metals downstream is clearly linked to mining runoff and exposed wasterock close to mining activities (5 µg/L- 20 µg/L; high as 70 µg/L), persists for decades, but dissipates downstream

- It is difficult to achieve surface water quality guidelines for the protection of aquatic life (2 µg/L) and have coal mining on the landscape but the drinking water guideline of 50 µg/L is infrequently exceeded

Category	Water Use	Guideline	Source
Water Quality for Aquatic Life	Protection of Aquatic Life - Alert Concentration	1 µg/L	AEP (2018), Based on BC MOE (2014)
	Protection of Aquatic Life - Guideline	2 µg/L	AEP (2018), Based on BC MOE (2014), NSR SWQMF
	Protection of Aquatic Life	1 µg/L	CCME 1987
Drinking Water	Drinking Water Quality Guideline	50 µg/L	Health Canada (2014)
	Drinking Water Quality Guideline	10 µg/L	Health Canada (2006), BC MOE (2020)

Coal Mining Risk Assessment: Conclusions

- **Headwater effects are expected:** If ~1-5% of the NSR watershed is surface mined local effects upstream are likely and effects on fish and aquatic biota could be seen in Edmonton
- Effects on drinking water are not expected
- Accurate and rigorous pre-mining modelling of surface water quality changes is needed
- Adherence to protection of aquatic life guidelines would mitigate most risk
- Coal development should also be based in science and should be precautionary in its approach as there is a threat of irreparable harm.

Coal Mining Risk Assessment: Watershed Management Approaches

- The Environmental Impact Assessment process at the provincial level does not guarantee impacts will be addressed in time nor does Surface Water Quality Management Framework

- The City of Edmonton and EPCOR have had a long history of watershed management

- However, watershed management is complex and there are multiple land ‘planners’ on the landscape. There is an opportunity to improve integration.

Current Watershed Management in Alberta

Regulations and Standards

EPCOR's Source Water Protection Plan for City of Edmonton (2020)

EPCOR Drinking Water Safety Plan

EPCOR's Integrated Watershed Management Strategy and Total Loadings Plan

Advisory

Water for Life

-safe, secure drinking water

-healthy aquatic ecosystems

-reliable, quality water supplies for a sustainable economy

- Large Urban: CoE rep
- Lake Conservation: EPCOR Watershed Manager

North Saskatchewan Watershed Alliance

EPCOR representative/CoE (advisory)

- Headwater Alliance (EPCOR rep)

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Statutory

Cumulative Effects Management

Act

draft

- Water quality limits and triggers

Industrial Heartland and Capital Region WMF

Surface Water Quality Management Framework

EPCOR and City Representation

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