

# Teck Frontier Oil Sands Mine Project



## Agenda

- Introduction
- Alberta Oil Sands Overview
- Teck Frontier Mine
- Wood Buffalo National Park
- CPAWS Northern Alberta's Role
- What's happening now



# 1

## Introduction



Who am I?



- Graduate student studying at Wageningen University in the Netherlands
- MSc. in Forest and Nature Conservation
- Internship with CPAWS Northern Alberta
- Lead on the Teck Frontier file

# 2

## **Alberta Oil Sands Overview**



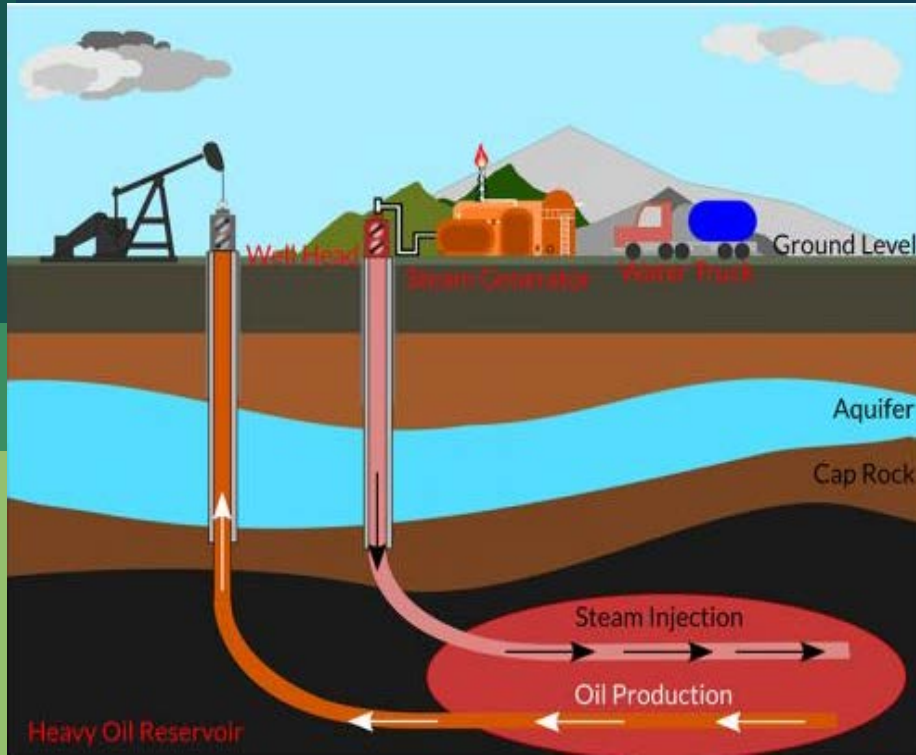
## Open-Pit Mining



- Reservoirs between 50-70m
- Truck and shovel
- Bitumen separated
- Everything else sent to tailings ponds
- 3.1 barrels of water/barrel of bitumen



## Thermal In-Situ Production



- Reservoirs  $>200\text{m}$  below ground
- Injects steam into oil reservoir, reduces viscosity
- Require 0.4 barrels of water/barrel of bitumen
- No tailings ponds
- Cyclic steam stimulation (CSS) – one well
- Steam-Assisted Gravity Deposit (SAGD) – two wells

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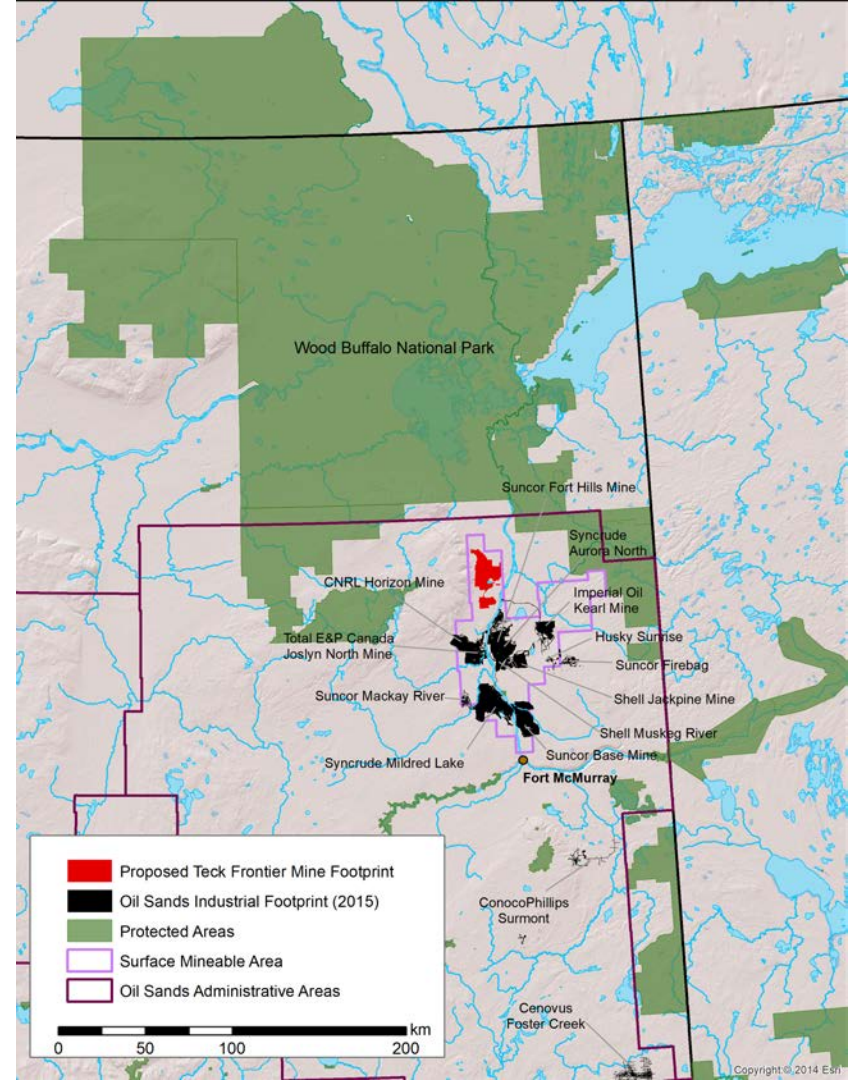
# Teck Frontier Mine

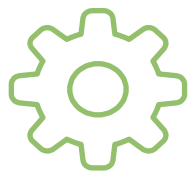




## About

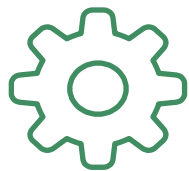
- Proposed by Teck Resources Limited
- Open pit oil sands mine
- Located ~30km south of the southern border of Wood Buffalo National Park





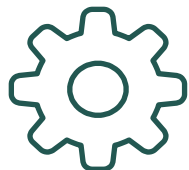
# 29,000 hectares

Size of the Project



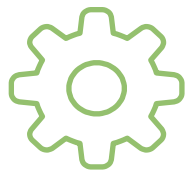
# 6000 hectares

New tailings areas



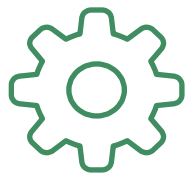
# 41 years

Lifespan



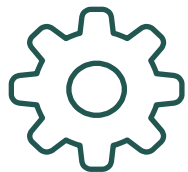
**260,000bpd**

Bitumen



**4 million tons CO<sub>2</sub>**

Per year

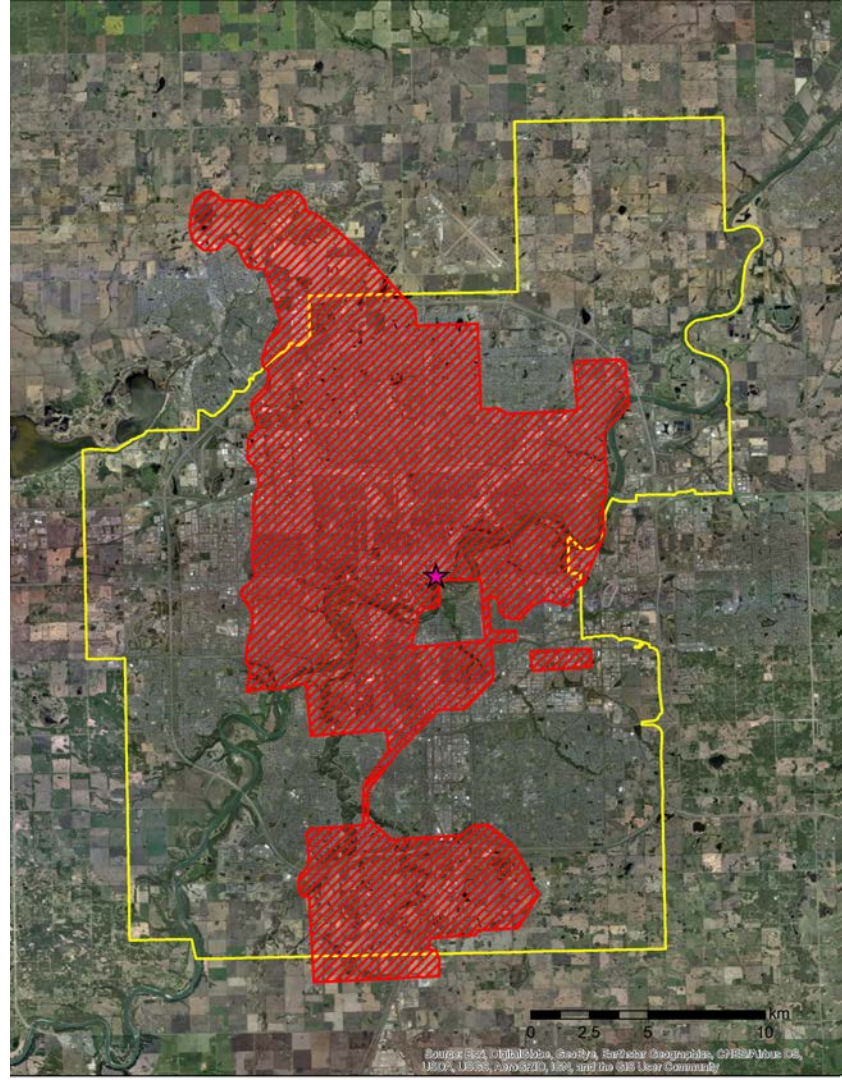


**2.76 billion m<sup>3</sup>**

Equivalent to 24,000 Olympic swimming pools/year



Just exactly how big is Teck?





## Impacts

- Water
- Greenhouse Gases
- Species at Risk
- Wood Buffalo National Park



## Water



- Water withdrawal 2.76 billion m<sup>3</sup>
- Depletes water levels in the Athabasca River
- Downstream impacts in the Peace-Athabasca Delta
- Water body diversion and wetland destruction



## Greenhouse Gases

- ~160 million tonnes CO<sub>2</sub> over lifespan
- 4 million tonnes of CO<sub>2</sub> / year
- 4% of 100 million tonne oil sands limit
- Paris agreement
- Canada's commitment to sustainability





## Species at Risk



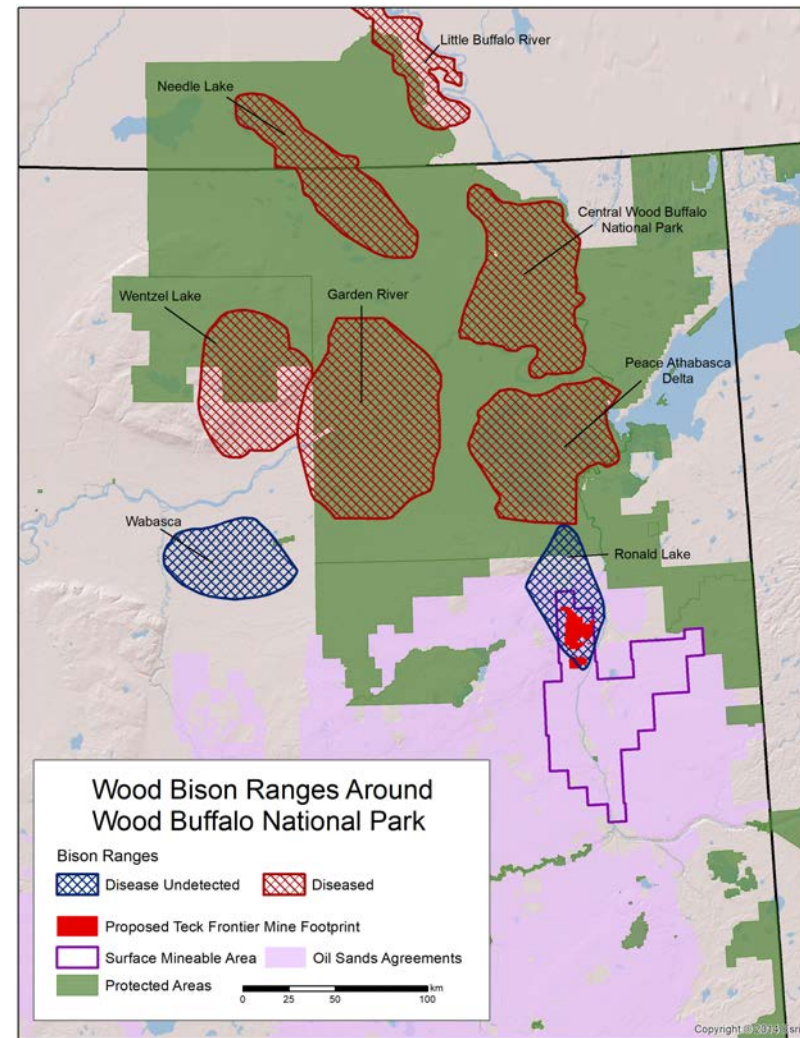
- Wood Bison
- Caribou
- Migratory Birds
- Whooping Crane





## Wood Bison

- Displacement of the Ronald Lake Bison herd
  - Limited food availability
  - Avoid human disturbance
- Increased risk of disease transmission
- Increased risk of predation





## Woodland Caribou



- At risk from habitat loss and fragmentation
- Encroach on extended range of Red Earth herd
- Increased predation among mine lines
- Could affect sustainability of herd



## Migratory Birds



- Tailings Ponds
  - Direct and indirect mortality
  - Limited effectiveness of bird deterrent systems
- Reduced stopover sites
  - Impacts fitness
- Lower water levels
  - Increased predation



## Whooping Cranes



- Critically endangered
- Aransas-Wood Buffalo Population
- Decreased stopover, food, habitat availability
- Tailings Ponds
- Detrimental to sustainability and recovery

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# **Wood Buffalo National Park**





## About



- Canada's largest national park at 44,807 km<sup>2</sup>
- World Heritage Site since 1983
- Ramsar Wetland of International Importance
- Threatened



## Processes in Wood Buffalo National Park

Mikisew Cree First Nation petitions to have Wood Buffalo National Park placed on the List of World Heritage Sites in Danger

Canada invites UNESCO/IUCN to complete a Reactive Monitoring Mission to assess the state of conservation of the OUVs

Canada conducts a Strategic Environmental Assessment to assess the cumulative impacts of development and climate change to the world heritage values of the park.

Canada has until December 2018 to complete an Action Plan for Wood Buffalo National Park to address concerns raised by RMM and SEA



## Peace-Athabasca Delta



- Largest inland boreal delta in the world
- Outstanding Universal Value
- Home to rich biodiversity
- Used by migratory birds from 4 different flyways
- Cultural significance to Indigenous Groups





## Teck Threats



- Peace-Athabasca Delta
  - Water levels
  - Surface water quality
  - Ground water quality
  - Air quality

# 5

## **CPAWS Northern Alberta's Role**



## Intervenors



- Following this file since 2014
- Raising awareness for Wood Buffalo National Park
- Granted intervenor status in Teck Hearing
  - 3<sup>rd</sup> party

# 6

**What's  
Happening  
Now?**



## Hearing

- Started September 25, 2018
- Estimated timeline of 5 weeks
- CPAWS will present their expert data
- Hope the mine will not get approved

THANKS!

**Any questions?**

You can find me at [borealnab@cpaws.org](mailto:borealnab@cpaws.org)



## Sources

<https://www.studentenergy.org/topics/oil-sands-mining>

<https://www.energy.alberta.ca/OS/AOS/Pages/Recovery.aspx>

<https://www.epmag.com/sagd-big-data-help-cenovus-gain-steam-1664056>

Strategic Environmental Assessment – Milestone 3 – Final  
SEA Report