

IMWA 2010: Mine Water and Innovative Thinking

Oil Sands Mining (Athabasca River) Water Use and Management

By Michael Bendat, Dejiang Long, Murray Fitch (Golder Associates, Calgary)



Acknowledgements

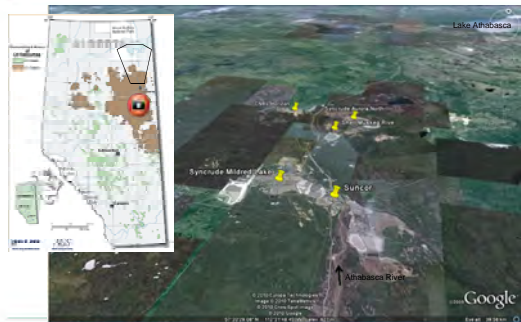
- Information available from ...
 - Alberta Environment
 - Oil Sands Developers Group (OSDG)
 - Canadian Association of Petroleum Producers (CAPP)

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2



Canadian oil sands mining operations



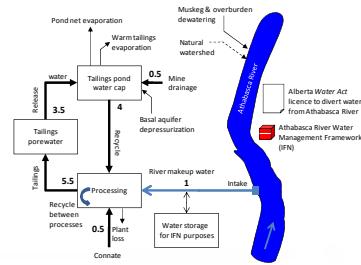
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3



Typical oil sands mine-site water balance

- 4:1 ratio of tailings recycle to river makeup.
- Additional recycle within extraction plant (80+%).
- Mine drainage increases over time.
- Licensed withdrawal from river.
- Seasonal limits on river withdrawal due to IFN.
- Separate licensing for other water uses/diversions.
- Tailings porewater depends on selected tailings products.

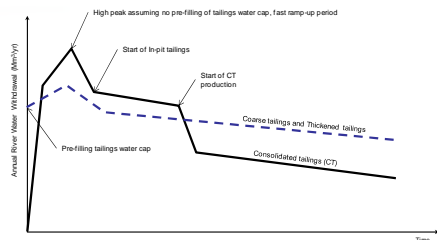


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4



Typical oil sands mine life water requirements

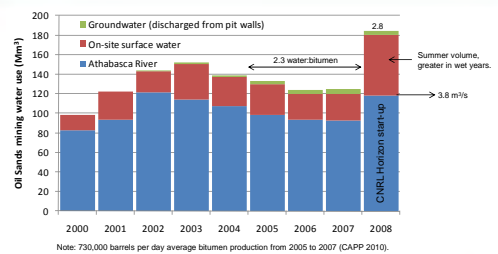


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5



Historical oil sands mining water use

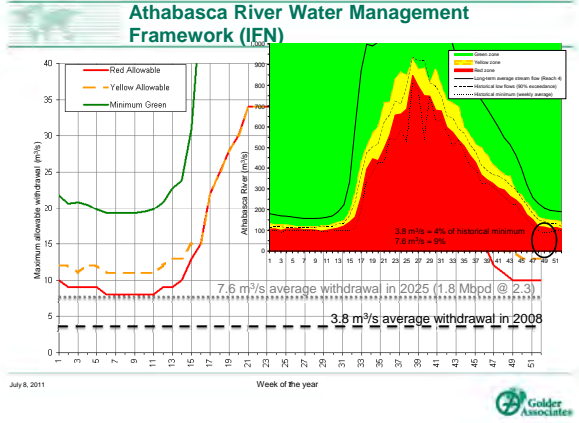


Note: 730,000 barrels per day average bitumen production from 2005 to 2007 (CAPP 2010).
Not including licensed diversions for muskeg/overburden dewatering, basal aquifer dewatering.

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6





- ### Future oil sands mine water use
- Future oil sands mining development
 - Continued reliance on Athabasca River for water supply
 - Additional mines, bitumen production, water use
 - Short-term increases due to startup conditions
 - 7.6 m³/s by 2025, based on 1.8 Mbd production
 - Key water management topics
 - Potential changes to the IFN in 2011 - *may affect seasonal water use.*
 - Potential changes to tailings products to meet ERCB Directive 074 for landscape reclamation - *may impact the mine site water balance.*
 - Water release criteria (currently being developed) - *may affect the return flow volume to the river.*