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# Continual Improvement of Water Use at Suncor

Gord Lambert, VP Sustainable Development

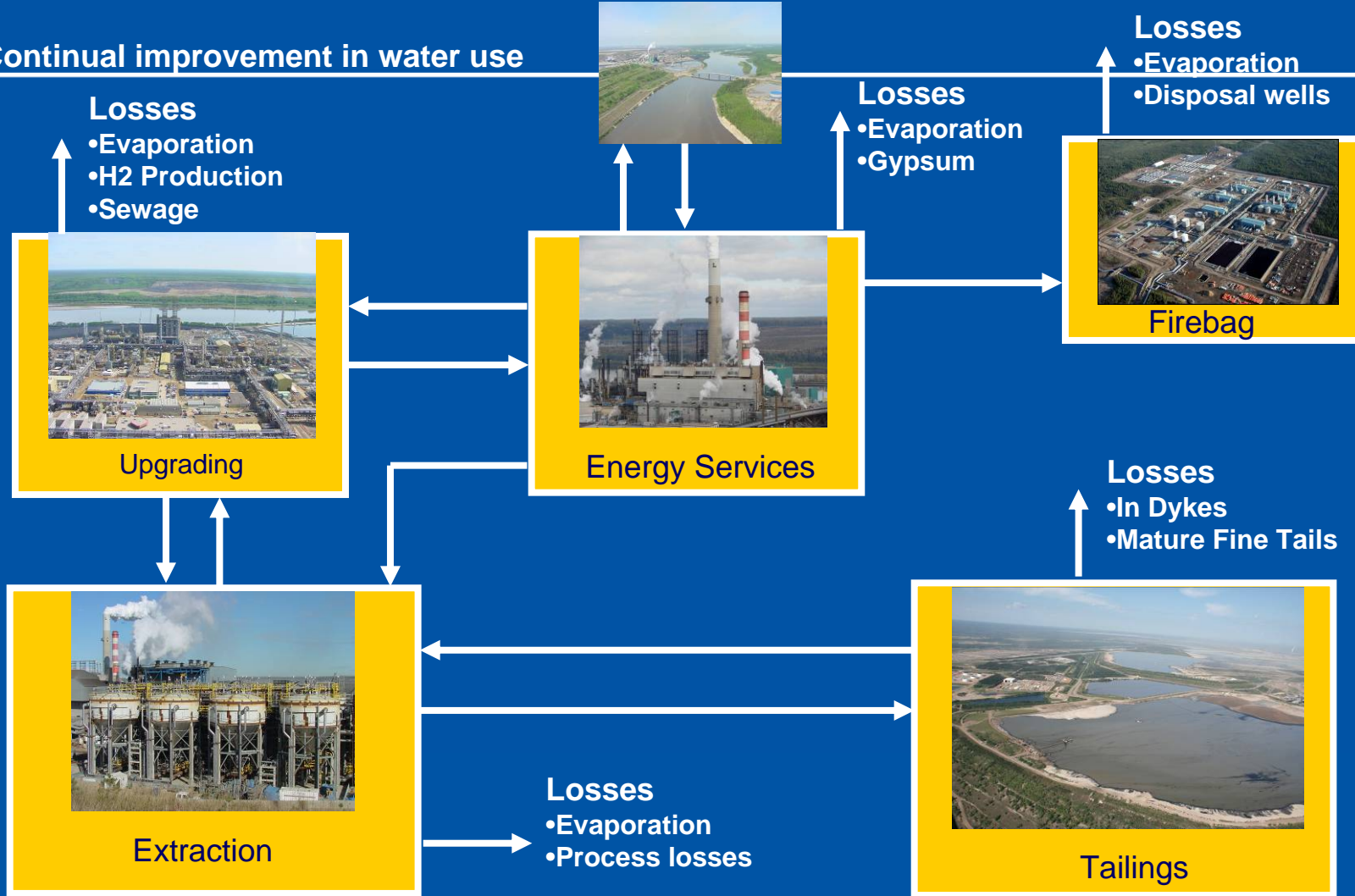


## Performance Improvement Drivers

- Our Strategy:
  - *By applying Suncor's sustainability strategy we will double oil sands production utilizing our existing water withdrawal license helping to reduce our overall environmental impact*
- Our Actions:
  - *Improve plant operations and reliability thus minimizing disposal requirements to tailings ponds and impact to the Athabasca River*
  - *Meet or exceed tailings reclamation performance requirements reducing water make-up needs*
  - *Improve recycle and reuse capability by improved system design and deployment of enabling technologies*
  - *Develop and optimize progressive dry reclamation technologies thus eliminating the need to store water in tailing ponds*

# Athabasca River

Continual improvement in water use



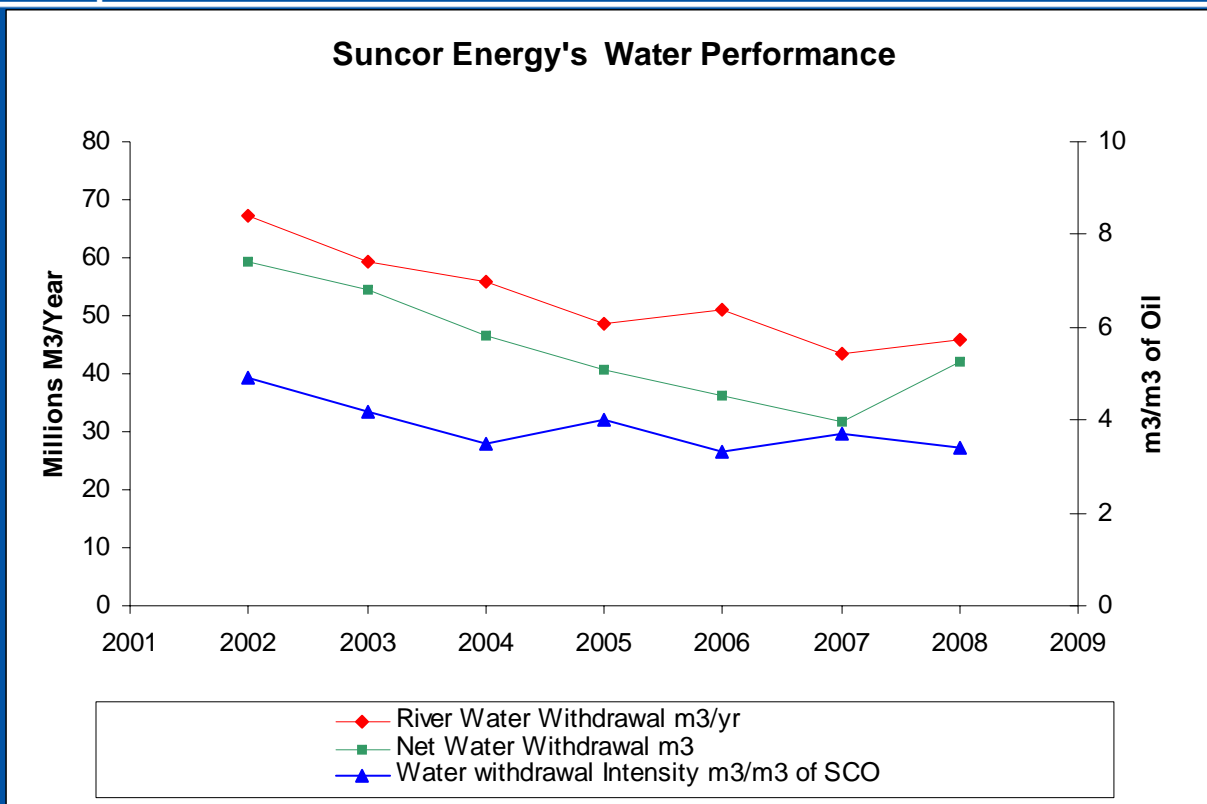
## Water Use at Suncor Energy

m <sup>3</sup> /m <sup>3</sup> of oil	River Withdrawal	Upgrading	Energy Services	Extraction	Tailings	Firebag	River Return
2006-2008	3.47	0.24	0.23	0.10	2.03	0.11	0.76
MCU	2.99	0.23	0.22	0.09	0.87	0.10	1.80
Voyageur	1.67	0.54	0.18	0.02	0.80	0.11	0.03

### Where does the water go?

- To the Eco-system
  - Water Cycle via Evaporation
  - Pond reclamation ?
- Consumed
  - 2% for H<sub>2</sub> for Oil

## Continual improvement in water use



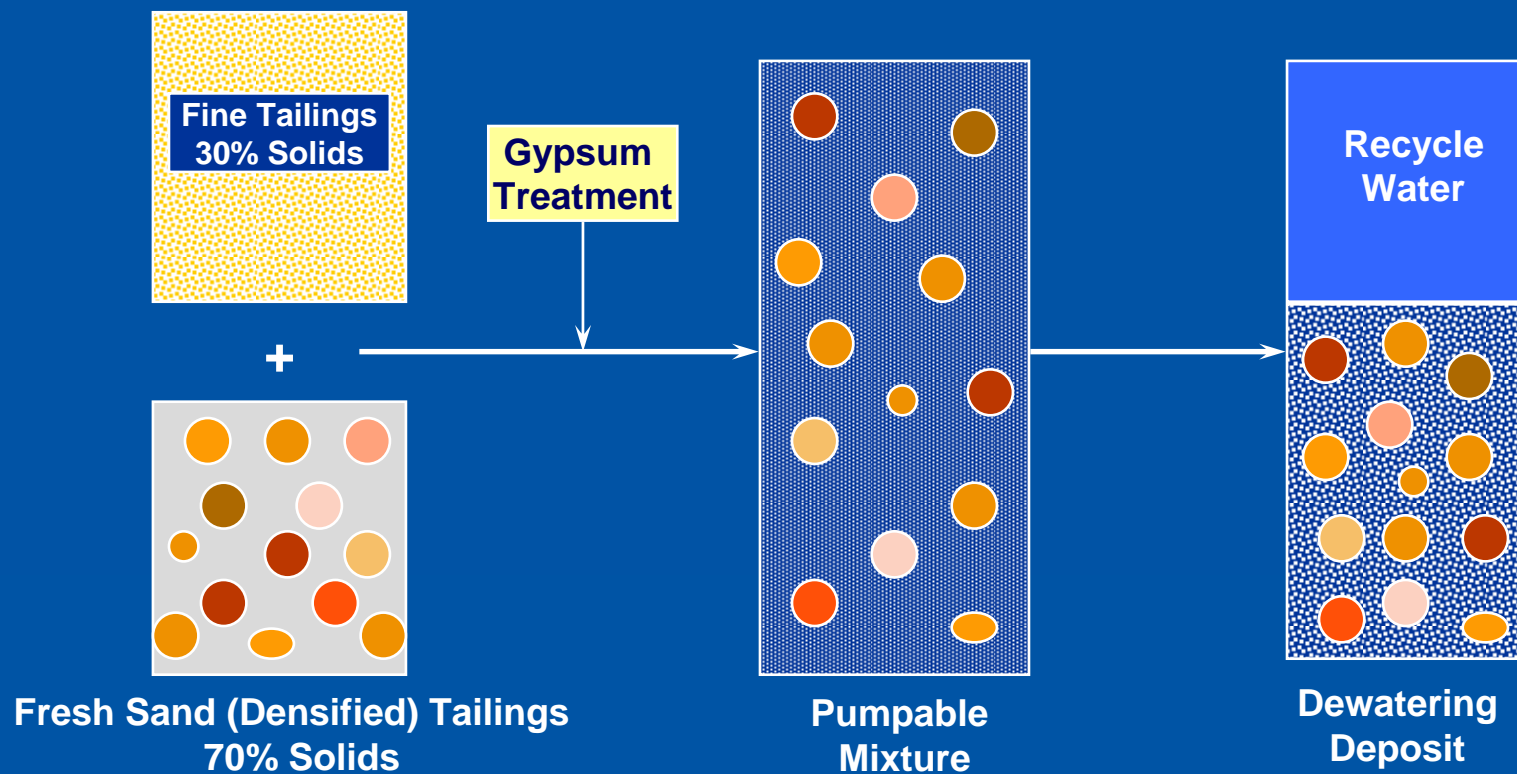
### •Water Facts

- Since 2002 Suncor has reduced water use and intensity by 30%
- Our Current annual License is 59.8 million M3 per year
- Utilize < 85% of license for past 3 years
- Our use is less than 0.5% of the average annual Athabasca river flow
- 2008 increased water use due to plant reliability issues

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# Performance Drivers

## The Consolidated Tails (CT) Process

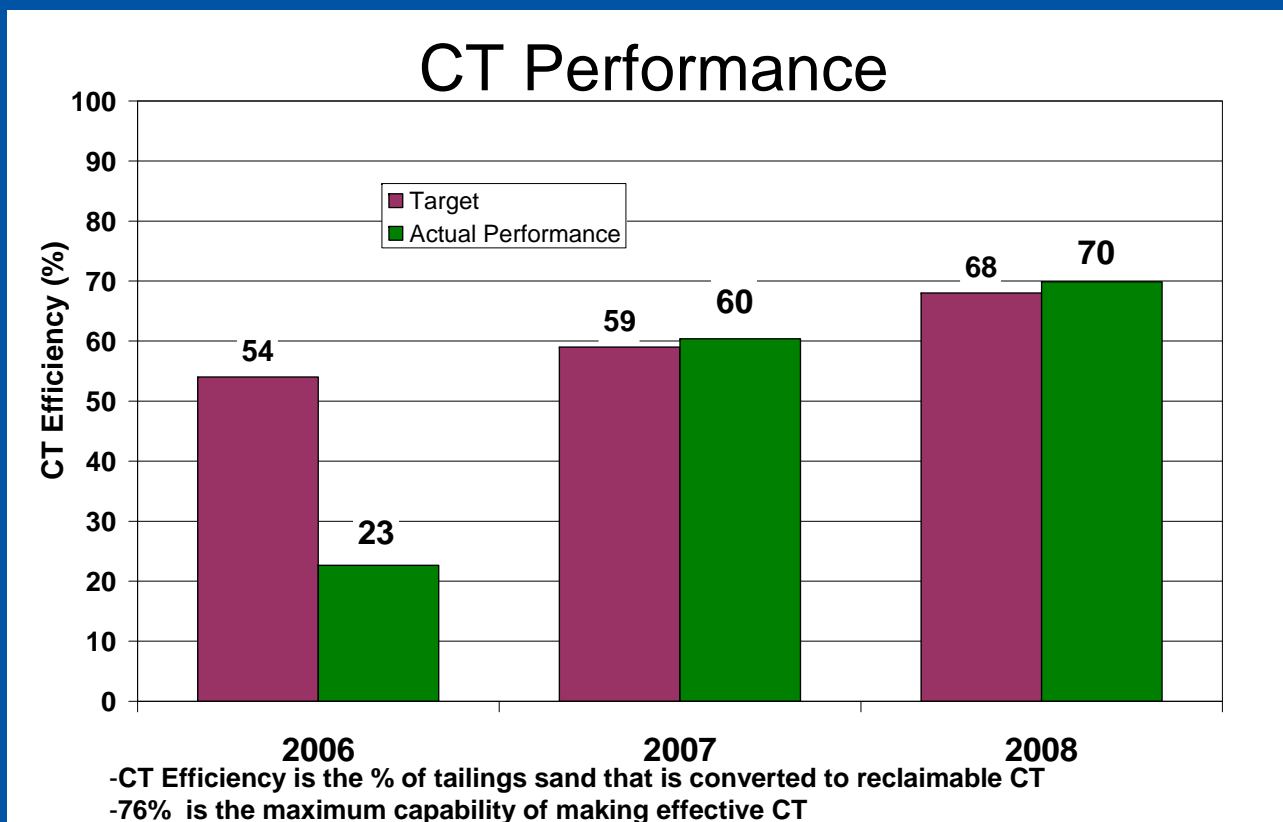


## Continual improvement in water use

### Performance Drivers

### The Consolidated Tails (CT) Process

"Step change improvement was made through Suncor focus and proper resources and past learning's"



## Projects for Further Water Use Improvement

- Reduce Water Use: Install 3<sup>rd</sup> Cooling Tower
  - *Benefit : 4,000 USGPM less river water usage*
- Reuse Wastewater: Recycle water to Cokers
  - *Benefit : 1,000 USGPM less river water to tailings*
- Treat and Recycle Wastewater: Pond B/C Treatment
  - *Benefit: 8,000 GPM treated water to be returned to river*
- Projects Costs to implement ~ \$100 Million

## Further Improvements to Tailings Performance

- Dry Tailings
  - *Develop, test and implement technologies that minimize or eliminate the need for additional tailings storage space at Suncor's facility*
  - *Evaluating both chemical and mechanical solutions*
  - *Working with regulators to ensure we meet the new expectations*
- Pond Reclamation
  - *Reclaim first oil sands tailings pond by 2010*
  - *Establish field proven techniques to reclaim first Consolidated Tailings ponds (Pond 5 & 6), regulatory commitment to have these completed by 2019*



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# Mature Fine Tails (MFT) Drying Experience (Field Results)



Starting Material

After Evaporation

After Freeze / Thaw



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# Tailings Reclamation Improvements Pond 1 Progress



Summer 2007



Summer 2008



Fall 2008



Our Plan



2020 ?