OIL SANDS

Tailings

our challenge Tailings management remains one of the most difficult environmental challenges for the oil sands mining sector. There is currently about 77 square kilometres of oil sands tailings ponds water in Alberta.

our actions By working with industry, communities and academic research centres, Alberta is developing technologies that will speed up the transformation of tailings into reclaimed land, so that the land can receive a reclamation certificate and be returned to the province. In the meantime, strict regulations and a broad and intensive monitoring program are in place to mitigate potential impacts.

fast facts

> Tailings are made up of natural materials including water, fine silts, residual bitumen, salts and soluble organic compounds.
  - They also include solvents that are added to the oil sands during the separation process.

> Tailings ponds are managed within a closed-circuit drainage system and no tailings or process-affected water are allowed off-site.

> Tailings ponds provide up to 90 per cent of a company's water needs through the reuse of process-affected water, significantly reducing the amount of fresh water required.

> Comprehensive monitoring programs have not detected impacts from tailings ponds on surface water or potable groundwater.

Photos courtesy of Suncor Energy Inc.

Fresh, consolidated tailings (top) are converted to a functioning wetland six years later (bottom).

September 2013

Alberta
Canada

management

> In 2009, the Alberta Energy Resources Conservation Board issued Directive 074 with aggressive criteria for managing tailings:
  - Companies are required to reduce tailings and provide target dates for closure and reclamation of ponds.
  - The Directive also lays out timelines for operators to process fluid tailings at the same rate they produce them, which will eliminate growth in fluid tailings.

> Work continues on the Alberta government's Tailings Management Framework which will drive further operator action to reclaim legacy tailings.

> Industry must have effective bird deterrence systems in place under the government's approval requirements for tailings ponds.
  - Deterrence systems are designed to prevent birds from landing on the ponds.

monitoring

> All tailings ponds are constructed with groundwater monitoring. Where seepage is detected, government requires a recapture system to return the process-affected water to the pond.

> No process-affected water from tailings ponds may be discharged into any water course.

research and technology

> Efforts continue to develop new tailings performance criteria, management technologies and practical solutions to make reclamation of tailings faster.
  - The Alberta government has allocated $32 million to support clean energy research being driven by the University of Alberta.
    - $7 million is allocated specifically to support tailings research underway in the university's School of Energy and the Environment.
  - In 2010, a number of oil sands operators announced plans to work together in a cohesive effort to advance tailings management practices.

future of tailings

> There will always be a need for tailings ponds as a mechanism to manage and recycle process-affected water.

> With new development, improved technologies will be used to manage fine tailings, resulting in a dryer landscape sooner.