

OIL SANDS

Reclamation



our challenge

Mining disturbance in Alberta's oil sands region has significant land impacts. Industry is legally obligated to reclaim all disturbed land to a productive state; however, mines are often in operation for decades and reclamation activities on these sites can subsequently take decades to complete.

our actions *

As the oil sands industry has matured, reclamation efforts are accelerating. About 71 square kilometres are under active reclamation, and significant investment by industry and government continues into better reclamation technology and techniques.

fast facts

- > The oil sands underlie a 142,200 km² area in north and eastern Alberta. The surface mining area is limited to a 4,800 km² region near Fort McMurray – 715 km² of which has been disturbed by oil sands mining to date (~0.16 per cent of Alberta's boreal forest).
 - Industry has planted more than 7.5 million tree seedlings towards reclamation efforts.
- > 80 per cent of the oil sands are accessible by in situ methods only (bitumen is separated from the sand underground and pumped to the surface).
- In situ's land disturbance is 10 to 15 per cent of a similar sized mining operation and produces no tailings ponds.

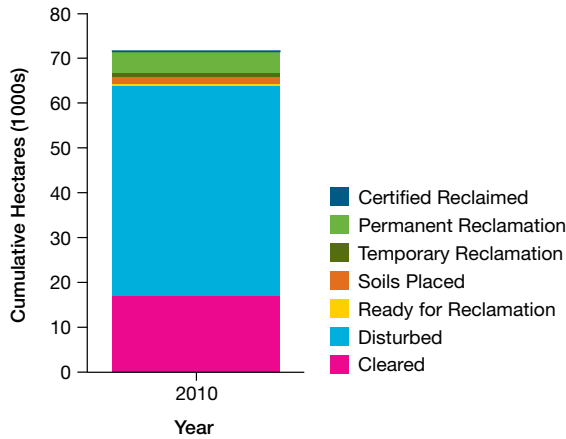


Note: 1 km² = 1 square kilometre = 0.39 square miles

the reclamation process

> In 2009, new definitions were introduced to better track the level of land disturbance and reclamation progress to date.

Status of All Disturbed Land in Oil Sands Mining (715 km² total = 71,497 hectares total)



All numbers are as of December 31, 2010

Certified Reclaimed – 104 hectares

If an area meets stringent requirements for reclamation, regulators will issue final certification and the land is returned to the Crown as public land. To date, one area called Gateway Hill is certified reclaimed.

Permanent Reclamation – 4,835 hectares

Landform design, soil placement, and revegetation are complete (for both land and aquatic ecosystems). Companies must use local plant species to target the return of local boreal forest ecosystems. Soils are tested and tree and shrub growth is monitored for 15+ years. When ecological trends are achieved, the company can apply for reclamation certification.

Temporary Reclamation – 780 hectares

Some areas are reclaimed and revegetated to grasses for the purposes of stabilization and erosion control. These areas may also see future disturbance.

Soils Placed – 1,534 hectares

Soils have been placed as directed by each facility's reclamation and soil placement plans, as approved by regulators.

Ready for Reclamation – 394 hectares

Areas that are no longer required for mine or plant purposes and are therefore available for reclamation. Reclamation activities have not begun.

Disturbed – 46,859 hectares

Land is still part of the active operations of a facility.

Cleared – 17,055 hectares

Land is cleared of vegetation, but the soil is relatively undisturbed. In forested areas, the trees are harvested and some of the smaller wood may be conserved for use in reclamation.

long-term planning

- > Before any mining project begins, industry must develop and receive approval for closure plans that outline how affected areas will be reclaimed.
- > Mine operators must provide a reclamation security bond as a guarantee that reclamation work will take place. As of March 31, 2011, the Alberta government held approximately \$912 million in reclamation security from the oil sands industry.

monitoring

- > Once reclamation is complete, monitoring activities begin. It can take 15 or more years to effectively establish a successful ecosystem.
- > Reclamation certificates are only issued when long-term monitoring demonstrates the reclaimed land meets the objectives of equivalent land capability.

research

- > In 2008 and 2009, the Alberta government awarded \$4.5 million to the School of Energy and the Environment at the University of Alberta to support oil sands reclamation research.
- > A \$25-million research partnership between the University of Alberta and the Helmholtz Association of German Research Centres focuses on cleaner energy production, with an emphasis on the oil sands.



SUNCOR'S POND 1 WAS AN ACTIVE TAILINGS POND FROM 1967 TO 1997. TODAY, IT IS THE FIRST TAILINGS POND TO COMPLETE SURFACE RECLAMATION AND IS NOW CALLED WAPISIW LOOKOUT.