

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 *

Alberta is working to enhance reclamation policies and practices by emphasizing the use of progressive reclamation practices – starting reclamation work on a site before operations are complete – and investing in reclamation technology and research.

fast facts

- > The map to the right shows that, while 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 – 602 km² of which has been disturbed by oil sands mining (~0.16 per cent of Alberta's boreal forest)
 - As of December 2008, 67 km² of land has been reclaimed or is undergoing active reclamation
 - 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.

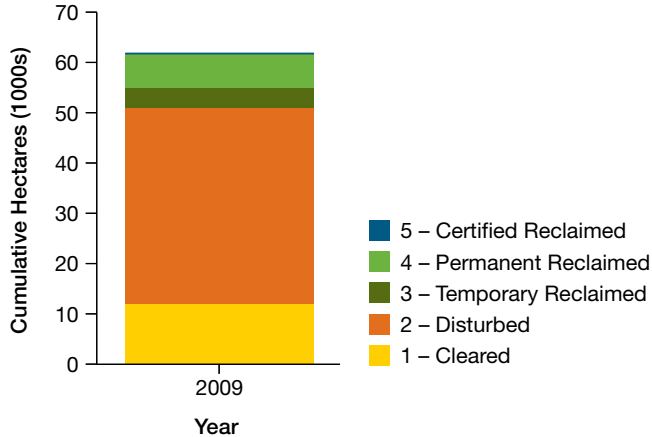


Note: 1 km² = 1 square kilometre = 0.39 square miles

progressive reclamation

- > Progressive reclamation is the continuous and timely reclamation of disturbed lands as they become available after industrial use.

Status of All Disturbed Land in Oil Sands Mining (602 km² total = 60,200 hectares total)



5 – Certified Reclaimed

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 104-hectare area called Gateway Hill is certified reclaimed.

4 – Permanent Reclaimed

Reclamation activities include landform design, soil placement, and revegetation. Companies must use local plant species to target the return of local boreal forest ecosystems. Lands are monitored after reclamation, and when ecological trends are achieved, the company can apply for reclamation certification.

3 – Temporary Reclaimed

Some areas are reclaimed and revegetated to grasses for the purposes of stabilization and erosion control. The reclamation is not considered permanent until revegetation targets boreal forest ecosystems.

2 – Disturbed

Because of the nature of oil sands mining, land disturbed often remains active for long periods of time before it becomes available for reclamation. Companies are required to salvage and store soils to use in future reclamation.

1 – Cleared

Lands are cleared of vegetation prior to oil sands mining. In forested areas, the trees are harvested by the forest industry 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. For the year 2009, government held just over \$800 million in reclamation security from the oil sands industry.

monitoring

- > Once reclamation is complete, monitoring activities begin. The soil is tested for various chemical and physical properties, and tree and shrub growth and health are monitored.
- > 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 Government of Alberta 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.



INDUSTRY PARTNERS CONTINUE THEIR RECLAMATION RESEARCH EFFORTS.

Photo courtesy of Syncrude Canada Ltd.