

TSM Performance by Company

Canadian Natural Resources Limited



2017 was a year of transition for the Athabasca Oil Sands Project (AOSP). Up to May 31, 2017, Shell Canada Energy (Shell) operated the Muskeg River and Jackpine mines, located 75 kilometres north of Fort McMurray, Alberta, on behalf of the owners of the AOSP: Shell Canada Energy (60%), Chevron Canada Limited (20%) and Marathon Oil Canada Corporation (20%). In June 2017, Canadian Natural acquired 70% ownership of the AOSP, becoming operator of Albion Sands and its oil sands mines. For the *TSM* performance in 2017, the following is a combined summary of the former Shell oil sands mining operations' *TSM* performance for the first six months of the year and Canadian Natural's for the remainder.

INDIGENOUS COMMUNITIES

Canadian Natural and Shell have worked closely with Indigenous peoples in Canada for decades. Engagements include direct consultation on projects and operations, ongoing interaction and collaboration through industry relations committees, and formal engagement with Elders and First Nations and Métis leaders.

Both companies greatly value the perspectives and input of Indigenous communities, and with the change in operatorship pre-existing agreements with several local First Nations and Métis groups related to AOSP were successfully transitioned to Canadian Natural. Throughout 2017, there was a consistent focus on ensuring opportunities were shared with qualified local businesses and residents for participation in the contracting and employment processes at AOSP, with an emphasis on Indigenous-owned businesses and contractors.

INVESTING IN THE COMMUNITY

The two companies seek to initiate and support programs relevant to business activities and focus social investment around health and wellness, education and training, social programs, cultural events, and traditional practices. In 2017, for example, the companies contributed to renovations of the Continuing Care Unit at the Northern Lights Regional Health Centre in Fort McMurray, and the refurbishment of the Community Clinic in Conklin.

The AOSP continued to support Indspire, an Indigenous-led charitable organization that invests in the education of Indigenous youth in Canada, with investments in Kindergarten to Grade 12 programs, post-secondary scholarships and events that recognize Indigenous leaders.

ENVIRONMENTAL PERFORMANCE

Producing oil sands safely and in a manner that minimizes impact to the environment and society is of the utmost importance to Canadian Natural and Shell.

AOSP continues to follow the principles and framework of ISO: 14000: 2015 which fosters an effective and robust environmental management system.

As part of Canada's Oil Sands Innovation Alliance (COSIA), a first-of-its-kind alliance of oil sands producers, AOSP is participating in collaboration on innovation and technology to drive accelerated environmental performance improvement. Leveraging technical expertise and taking part in collaborative industry associations like COSIA helps to identify and act on promising opportunities and conduct research, both cost effectively and efficiently.

The companies strive to reduce the GHG footprint of its oil sands operations. On a well-to-wheels basis, GHG emissions from oil sands crudes are greater than the average emissions of crudes refined in the United States, according to research by IHS Markit. However, the GHG intensity of oil sands operations has been improving for several years due to operational enhancements, and the successful operation of the Quest carbon capture and storage (CCS) project has improved performance even further.

The Quest CCS project in Alberta was launched in 2015, and in 2017 continued to capture over one million tonnes of CO₂ from the Scotford Upgrader for storage deep underground – the equivalent to emissions from about 250,000 cars. Quest has a rigorous monitoring program to ensure that the CO₂ remains safely and securely in place. This includes continuous monitoring and early warning systems, groundwater sampling and 3-D seismic surveying.

By capturing one-third of direct CO₂ emissions from the Scotford Upgrader, Quest helps decrease the GHG intensity of our operations. This brings oil sands products more in line with the average emissions of North American crude oil. Quest is the first CCS project in the oil sands and serves as a model for advancing and deploying more CCS facilities in other industrial settings worldwide.

Additional GHG improvement efforts were made when both oil sands mines were granted approval to fully implement the Resource Optimization Program in 2017 which is now part of operational planning. This avoids low quality, poor processing material, leading to improvements in energy efficiency and reduced emissions. Through operational excellence, the mines continue to show improvement approximately 1 to 3% each year over the past seven years for a total 18% decline in GHG intensity. In 2017 the extrication plant had its strongest year and showed a ~9% improvement since 2014.

To better manage tailings from mine operations, tailings management initiatives continued in 2017, focusing on advancing technologies to treat fluid fine tailings to meet the Alberta Tailings Management Framework and associated regulations.

TSM PERFORMANCE

The Albian Sands mining operation continued to maintain high standards in the TSM Protocols of *Crisis Management and Communications Planning*, *Aboriginal and Community Outreach*, *Tailings Management* and *Biodiversity Conservation Management* with management programs in place that are reviewed, tested and documented. Our Environment and Stakeholder teams continue to proactively inform stakeholders about environmental performance through engagement meetings and Canadian Natural's Annual Stewardship Report to Stakeholders.

🔗 For more information, please visit www.cnrl.com and www.shell.ca





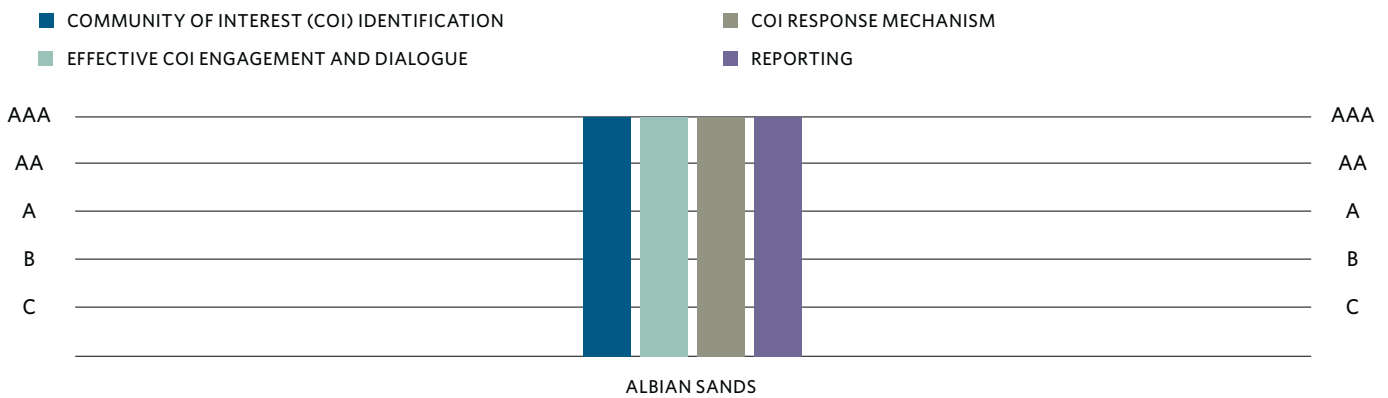
2017 TSM Results

Canadian Natural Resources Limited

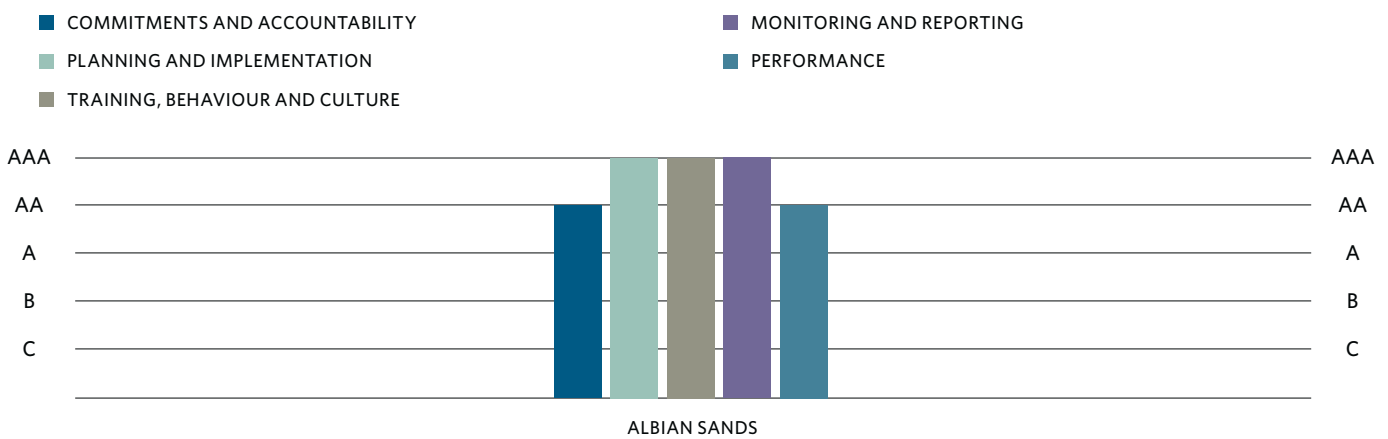
Crisis Management and Communications Planning Assessment

FACILITY	PREPAREDNESS	REVIEW	TRAINING
CORPORATE	✓	✓	✓
ALBIAN SANDS	✓	✓	✓

Aboriginal and Community Outreach Assessment



Safety and Health Assessment

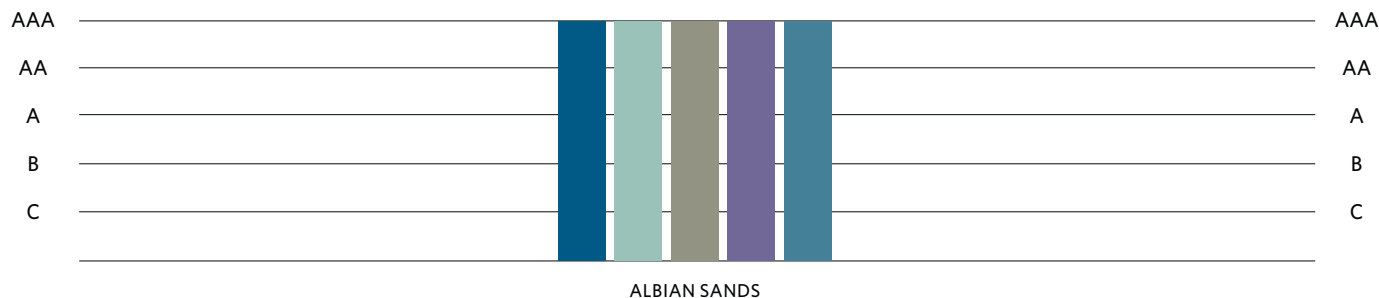


Self-assessed results; last external verification: 2016; next external verification: 2020.



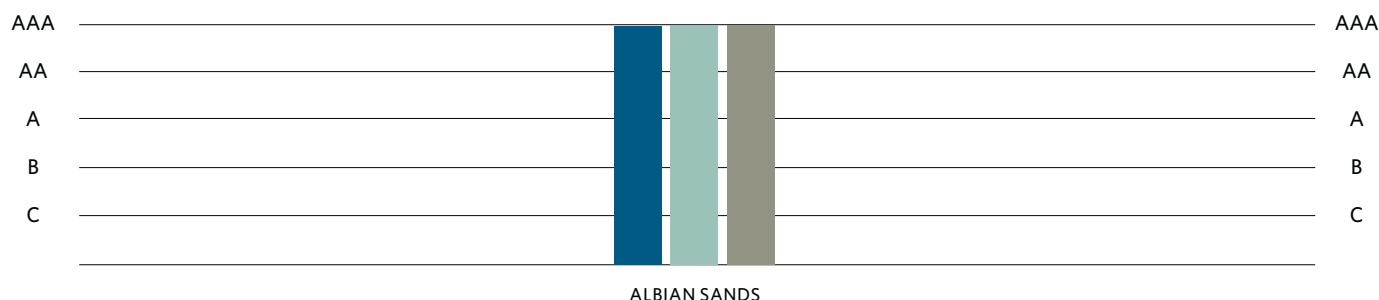
Tailings Management Assessment

- TAILINGS MANAGEMENT POLICY AND COMMITMENT
- TAILINGS MANAGEMENT SYSTEM
- ASSIGNED ACCOUNTABILITY AND RESPONSIBILITY FOR TAILINGS MANAGEMENT
- ANNUAL TAILINGS MANAGEMENT REVIEW
- OPERATION, MAINTENANCE AND SURVEILLANCE (OMS) MANUAL



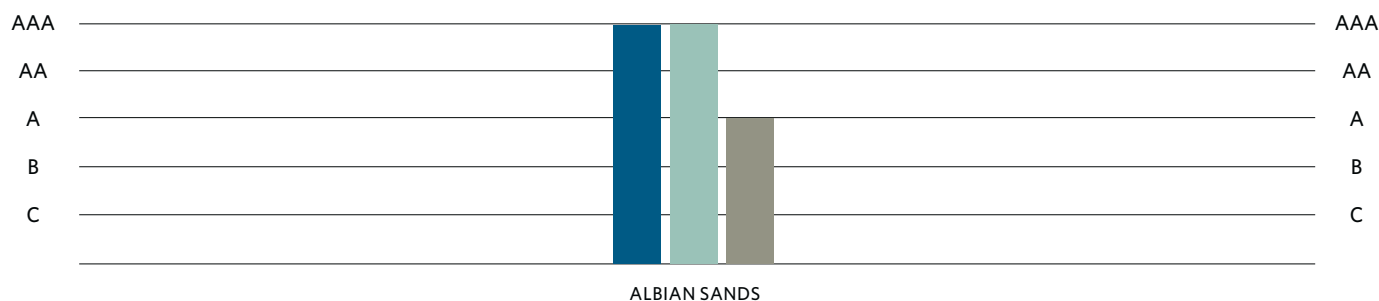
Biodiversity Conservation Management Assessment

- CORPORATE BIODIVERSITY CONSERVATION POLICY, ACCOUNTABILITY AND COMMUNICATIONS
- FACILITY-LEVEL BIODIVERSITY CONSERVATION PLANNING AND IMPLEMENTATION
- BIODIVERSITY CONSERVATION REPORTING



Energy Use and GHG Emissions Management Assessment

- ENERGY USE AND GHG EMISSIONS MANAGEMENT SYSTEMS
- ENERGY USE AND GHG EMISSIONS REPORTING SYSTEMS
- ENERGY AND GHG EMISSIONS PERFORMANCE TARGETS



Self-assessed results; last external verification: 2016; next external verification: 2020.

