12th INTERNATIONAL KIMBERLITE CONFERENCE
30 YEARS OF DIAMONDS IN CANADA
8–12 July 2024 • Yellowknife
12th International Kimberlite Conference Extended Abstract No. 12IKC-105, 2024

Diavik Diamond Mine Update

Matthew Breen[1]
[1]*Rio Tinto, Diavik Diamond Mines Inc.*

Diavik mine – transitioning from operations to closure

Rio Tinto's Diavik Diamond Mine is one of the Northwest Territories' largest diamond operations, mining four kimberlite pipes on Lac de Gras since 2003. With the recovery of over 144 million carats of diamonds over 21 years of operation, the current mine plan anticipates that last ore will be delivered in early 2026.

Safety commitment
At Diavik, safety is more than a priority – it underpins all activities across the mine site as well as the Yellowknife office and product splitting facility. In 2023, the mine rolled out new leadership and safety training to the entire workforce, including contractors. This reflects the company's commitment to build an even stronger health, safety and environment culture.

The mine saw a slight improvement in its All Injury Frequency Rate year over year and a reduction in the number of Potential Fatal Incidents.

Commitment to Northern communities
Last year, Diavik celebrated its 20th anniversary since commercial production began in 2003. Throughout that time, benefits have flowed to Northern communities, the government and Indigenous partners. Being allowed to mine is a privilege and Diavik honours that by working respectfully with all its partners and ensuring local communities benefit socially and economically from the operation of the mine.

The mine operates under a Socio-Economic Monitoring Agreement (SEMA) with the Government of the Northwest Territories (GNWT) as well as through individual Participation Agreements with five Indigenous community groups.

Diavik is proud to have its corporate office in Yellowknife, with its senior leadership living either in Yellowknife or other communities in the NWT, making Diavik unique among the active diamond mines. The mine employs over 1,300 people in full time equivalents, of whom 36% are Northerners and 18% are Northern Indigenous. Despite the challenges in recruiting qualified tradespeople from Northern communities, the company remains committed to providing opportunities to Northerners.

In addition to employment, Diavik offers training and apprenticeship opportunities, which enable Northerners to learn transferable skills. Diavik's apprenticeship program increases technical and hands-on skills development and provides opportunities for employees to grow in their careers. Since 2003, 70 apprentices have successfully completed their apprenticeships at Diavik and achieved journeyperson certifications from the GNWT.

Diavik has several scholarship programs, some of which are run through Participation Agreement partners, some through local high schools, and others are for the children of employees and contractors. Diavik has administered more than 1,600 scholarships totaling over $4.6 million since 2000.

Diavik has spent $10.4 billion since construction began in 2000, of which $7.5 billion has been with Northern businesses. This comes to 72% of total business spend, which is a reflection of strong partnerships. Of this, $3.7 billion has been spent specifically with Northern Indigenous businesses and their joint ventures, providing jobs and revenue for Northern communities.

MyPath program
In 2022, Diavik began a closure transition program for employees known as MyPath. This program is designed to successfully transition the workforce to their desired career outcome, in anticipation of the planned closure of Diavik in 2026.

The services offered in the program empower individuals to take ownership of their careers and develop the skills and knowledge needed to succeed in their own journey. This is the first program of its kind in North America, leveraging the lessons from other Rio Tinto assets that have closed. In 2023, over 630 employees provided feedback on their preferred path.

A21 pipe - the bridge to closure
Improved definition of Diavik's A21 orebody has been pivotal to the mine life extension and to maximizing the available mineral resource. Re-examining the feasibility of underground mining at A21, the Diavik team developed a plan which resulted in the approval of the first phase of a two-phase expansion project. This created an extension of the mine's life until the first quarter of 2026, ensuring sustained economic benefits to the North and key stakeholders.

Integrated mine closure planning
Diavik's closure strategy represents a comprehensive approach to closure planning with a focus on self-executed progressive reclamation that applies closure source controls to manage environmental risk and maximize beneficial post-closure uses of a site under passive care. Developed with substantial input from local communities, the strategy considers reclamation of land and water to create a safe, stable and neutral site at closure. Significant emphasis has also been placed on reducing negative socioeconomic impacts of mine closure on local communities and employees.

Final closure goals for Diavik include physical and chemical stability, allowance for traditional Indigenous use, landforms designed based on pre-development conditions to the extent practical, neutrality towards wildlife, and maximization of Northern business opportunities during closure. The final landscape is expected to be guided by Traditional Knowledge and not require a continuous presence of mine staff.

The closure of Diavik mine involves rigorous steps to ensure environmental safety. Mine workings will be cleared of hazardous substances and equipment, then rapidly flooded with Lac de Gras water. Engineered covers are built to isolate processed kimberlite and all potentially acid-generating waste rock from the environment. All infrastructure will be removed or recycled if viable, while hazardous materials will be safely disposed of offsite.

Progressive reclamation
The deposition of processed kimberlite into the underground of the now closed A418 mine has allowed Diavik to make an early start to final reclamation of the Processed Kimberlite Containment Facility (PKCF). The placement of a closure rock cover over the PKCF will ensure a safe and stable surface is in place for future use and will prevent the release of PK into the environment. This work not only demonstrates Rio Tinto's commitment to closure, but also to applying modern best practices with integrated mine closure which now boasts majority completion of closure cover works associated with the waste rock storage area. Electricity at Diavik is currently provided by a fleet of diesel generators and a four-turbine wind farm with capacity of 9.2 MW.

Renewable energy
As part of Rio Tinto's enduring commitment to sustainability, Diavik is also building a 6,600 solar panel farm on the PKCF in 2024. Once operational, the solar farm is expected to generate approximately 4.2 million kWh of carbon-free electricity per year, further decreasing Diavik's overall diesel fuel consumption by one million litres annually.

This project is demonstration of Rio Tinto's purpose of Finding Better Ways, which reflects the company's drive for innovation and continuous improvement. The solar power plant will provide a significant amount of energy during commercial operations and into closure. Diavik has also been operating a wind farm since 2012. The wind turbines have generated 191 million kWh since they were installed, with a yearly average generation of 17.5 million kWh.

Diavik will work with the GNWT and community partners to determine how this infrastructure can best benefit the region post-closure.

References

Diavik SEMA Report 2023