Cameco

Kintyre uranium project
Environmental management

Kintyre uranium project

Kintyre is an advanced-stage exploration project located in the remote East Pilbara region of Western Australia, approximately 80km south of Telfer and 260km northeast of Newman at the western edge of the Great Sandy Desert.

Discovered about 25 years ago, the uranium deposit was acquired by Joint Venture partners Cameco (70 per cent) and Mitsubishi Development (30 per cent) in 2008. In 2018, Cameco acquired the remaining 30% and now owns 100% of the project.

Cameco has since completed a large resource definition and exploration program, prefeasibility study, community engagement and education program and signed an Indigenous Land Use Agreement with traditional owners, the Martu.

After more than four years of extensive community consultation, rigorous environmental and technical studies, Cameco submitted the Environmental Review and Management Programme (ERMP) for assessment and the Project was approved by the State and Federal Government in 2015.

Cameco strives to be a leader in environmental best practices and performance by complying with regulatory requirements and moving beyond them where possible; the Kintyre project is no exception.

We believe the Kintyre project can be safely operated with minimal impact on the environment.

This information booklet outlines how Cameco plans to manage the key environmental aspects of the project.

For more information or to download a copy of the ERMP visit www.camecoaustralia.com/projects/kintyre

Project overview

Subject to favourable market conditions and a development decision by Cameco, the Kintyre project will include a uranium mine and associated treatment facilities that will produce uranium concentrate for export.

The uranium concentrate, commonly known as yellowcake, will be transported by road from the mine site for export from the Port of Adelaide, South Australia and be used to generate clean electricity in nuclear power plants around the world.

The project is expected to deliver significant economic benefits to the State of Western Australia and in particular the people of the East Pilbara region.

It is anticipated the project will employ up to 450 people, with priority given to hiring and training local people, including traditional owners, the Martu.

Engaging communities and keeping them informed throughout project development phases is a priority at all Cameco operations. It is our goal to ensure local people are aware of and understand Cameco's activities and have opportunities to provide input.

Cameco has undertaken a comprehensive stakeholder and community consultation process over the last four years and we continue to work closely with communities and regulators to provide information about Kintyre and address questions and concerns relating to the mining of uranium.

As one of the world's largest uranium producers, with operations in Canada, the United States and Kazakhstan, Cameco has considerable experience operating uranium projects safely and responsibly to ensure workers and the environment are protected. We plan to apply these industry leading standards to our Australian operations and to the Kintyre project.

What is uranium and uranium ore concentrate?

Uranium is one of the most abundant elements found in the earth's crust. It is a naturally occurring radioactive material that can be found at very low levels in almost all typical soil, rock, rivers and oceans at low levels.

Concentration of uranium through geological processes can result in high accumulations of the metal forming discrete ore bodies, such as Kintyre.

Uranium ore bodies are mined and processed to extract the uranium metal. The resulting uranium concentrate, has a relatively low volume, is non-toxic, non-flammable and is classified as a low grade radioactive product.

Transport

Uranium concentrate produced at Kintyre will be transported by road from the mine site to the Port of Adelaide for export.

Cameco proposes to use the existing heavy haulage route from Kintyre to Port Hedland via Marble Bar and then to Kalgoorlie via the Great Northern and Goldfields Hwy and onto Adelaide via the Eyre Hwy.

Packaging and shipping

Uranium concentrate has been safely transported on road within Australia for more than 30 years. Since the early 1980s, over 10,000 containers of uranium concentrate from mines in South Australia and the Northern Territory have been transported to ports in Adelaide and Darwin with no incidents involving a spillage of the product.

Transport of uranium concentrate from Kintyre will be undertaken in accordance with the numerous codes and regulations overseen by state, national and international organisations. These regulations outline the requirements and controls for the safe transportation of uranium world-wide.

Uranium concentrate will be tightly sealed in 200-litre steel drums and then stowed into shipping containers and secured using a Kevlar-based strapping system.

Each drum is registered and recorded before the shipping container is sealed. The containers are then locked and will not be opened, unless for official inspections, until they reach their overseas destination, ensuring the secure movement of the product.

How many trucks per week will transport the uranium concentrate?

Two-trailer road train vehicles will be used to transport the product from Kintyre to Adelaide. The trucks will normally travel in a convoy of at least two trucks, with two drivers per truck for a direct service.

It is expected that an average of two road trains per week will operate along the route, although up to five road trains may travel the route within a single week. About 100 movements will occur in a single year.

What risks are associated with the transport of uranium concentrate?

Uranium concentrate does not represent a significant hazard and can be transported in conventional shipping containers with appropriate controls.

In the unlikely event of a spill as a result of an accident, the material would be collected by trained personnel and repackaged. There would be no significant impact on people or the environment.

As part of the impact assessment for the Kintyre project, we engaged the Australian Nuclear Science and Technology Organisation (ANSTO) to conduct a radiological risk assessment of the different stages of transportation.

ANSTO considered a range of scenarios and concluded that the risk of radiological exposure to members of the public and the environment during transportation is assessed to be low.

What emergency response plans would be established to support transport?

Cameco has more than 25 years of experience in the safe handling and transportation of uranium concentrate. The company's Canadian operations alone truck approximately 600 loads by road annually, with a total distance travelled at just under two million kilometres.

Using experience gained from many thousands of transport movements and many years of operation, Cameco has put into place a number of controls and initiatives to improve both the safety of transport as well as emergency preparedness and response to transport incidents.

Cameco maintains a 24-hour emergency telephone service to report any transportation-related incidents and retains the services of a professional spill response organization, available to provide initial response services and support local emergency response organisations.

In Australia, we will establish similar systems and work alongside state and federal authorities and support agencies to develop a comprehensive emergency response plan.

In the unlikely event of an incident involving the transport of uranium concentrate, we will work with local government authorities, police, Main Roads WA, FESA and other state and federal agencies to ensure a fully coordinated response.

In Canada, Cameco has initiated its own first responders program. This highly successful program involves Cameco specialists working with both professional and volunteer emergency response crews along Cameco's main transport routes to inform them about the properties of uranium, the risks associated with a spill and appropriate first response spill containment and clean-up measures.

Cameco also conducts spill response exercises in conjunction with emergency services to trial spill response procedures. We will establish a similar program along the proposed transport route for the Kintyre project.

Radiation

Cameco has considerable experience in the management of radiation during mining and milling operations.

At Kintyre, our aim is to:

- Minimise potential human and environmental radiation exposure to as low as reasonably achievable
- Minimise emissions and potential radiation exposures to workers through design and management measures

As part of the planning for the Kintye project, Cameco has completed radiation modelling and emissions and dispersion studies to understand any risks to the public, workers and the environment.

These studies have shown that only very low levels of radiation will occur outside of the immediate mine site. These levels are negligible compared to background levels and confirm mining operations pose no risk to the environment or the general public.

The studies also show that exposure received by workers is likely to be low and well within statutory limits.

Cameco has also undertaken modelling of radiation levels under proposed mine closure scenarios. The modelling has demonstrated mine closure can be effective and radiation levels at the site after closure can be safely managed to ensure successful rehabilitation of the site.

Cameco is committed to complying with all requirements relating to the management of radiation protection issues and we will provide transparent and accountable radiation management and performance records.

- Worker radiation exposure records will be made available to the Australian Radiation Protection and Nuclear Safety Authority via the Australian National Radiation Dose Register
- Safety, radiation management and environmental performance will be reported annually to the public via reports to State and Federal agencies
- Meetings will also be conducted regularly with key stakeholders to discuss any concerns regarding radiation management

Flora and Fauna

Cameco has completed flora and fauna surveys over the project area and road corridor. In general, the surveys have not identified any new or significant flora at the mine site.

Regional surveys for threatened fauna species have however identified the presence of bilby, mulgara and rock wallaby.

These recordings were not made in areas that will be disturbed by the project and development does not pose a direct threat to these species.

However, Cameco recognises the establishment of a new mining project in a previously undisturbed area can create a number of new secondary threats or impacts to threatened species.

Cameco will manage these risks and implement a number of procedures and plans to minimise the impact of the operation on key threatened species.

We are currently working with government agencies to study a local population of bilby to understand more about the habitat and range of the species.

Water

In planning the Kintyre project, Cameco has considered the impact of developing the project on both surface and ground water.

Surface water

Yandagooge Creek is a significant feature of the Kintyre area. The creek has two arms which run either side of the Kintyre deposit. Although the creek is normally dry for most of the year, it can flood after significant rainfall events during the summer cyclone season.

A number of pools occur in the creek which remain for most of the year and are generally considered semi-permanent features. None of the pools occur in the project area. One is upstream and two are downstream, some significant distance from the project area.

Cameco will maintain a separation or buffer zone between the project and the creek to protect environmental and Aboriginal cultural values.

Studies have shown that groundwater levels are not responsible for maintaining water levels in the creek pools and therefore will not be affected by dewatering and groundwater extraction to operate the project.

In summary, other than constructing a causeway across the creek, Cameco will not impact the creek system.

We do not anticipate the project will affect the quantity or quality of surface water of the Yandagooge Creek or the surrounding areas.

Groundwater

To ensure the long-term protection of groundwater, Cameco has undertaken a number of studies to confirm that the local and regional aquifers can provide an adequate water supply for the duration of the project, without having a detrimental impact on groundwater.

Cameco has also undertaken groundwater modelling to understand the impact of mining on groundwater quality.

We believe the project can be constructed, operated and closed in a way which maintains the ecological functions and environmental values in the area.

Indigenous Relations

Cameco is proud to be recognised as an industry leader in corporate responsibility and is Canada's largest industrial employer of indigenous people.

We respect the culture, heritage, values, beliefs and rights of traditional landowners and are committed to building long lasting and trusting relationships with the communities in which we operate.

At Kintyre, we are working to ensure local people benefit from development, including the Martu who are the native title holders of the land.

In 2012, Cameco signed a Kintyre Mining Development Indigenous Land Use Agreement (ILUA) with the Martu, supporting the development of the Kintyre project and opening doors to a range of business, employment and cultural initiatives which ensure Martu have a strong stake in any future development.

The agreement was the culmination of more than three years of relationship building with the Martu and demonstrates Cameco's ability to gain the trust and support of local stakeholders.

We continue to work closely with the Martu people and make a priority of hiring and training local Martu people from nearby communities to work at the Kintyre camp.

About Cameco

Canadian-based Cameco Corporation, with its head office in Saskatoon, Saskatchewan, is one of the world's largest providers of the uranium fuel needed to generate clean, reliable baseload electricity around the globe. Cameco's shares trade on the Toronto and New York stock exchanges.

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