

# OLYMPIC DAM EXPANSION EIS

## THE NORTHERN TERRITORY TRANSPORT OPTION

As part of BHP Billiton's proposal to expand its Olympic Dam mining operation in South Australia, the company is seeking approval to export copper concentrate containing uranium, gold and silver (concentrate) via the Port of Darwin.

Olympic Dam is one of very few mines in the world that extract and process ore to final refined product at the one site. This is because it is a constant challenge to match the operating parameters of an on-site smelter with the changing make-up (or grade) and volumes of ore being extracted from a mine. The result often requires ore to be stockpiled and blended in an attempt to produce a more consistent feed to the smelter, or the smelter operating below capacity and therefore, inefficiently.

The proposed expansion provides the opportunity to maximise efficiency by choosing the volume and grade of concentrate that is sent to the on-site smelter and to export the excess as concentrate to overseas smelters.

### Concentrate transport

BHP Billiton is very experienced in shipping concentrates between its mines and other countries and has been shipping uranium oxide from Olympic Dam without incident for more than 20 years.

In developing the proposal to transport concentrate, BHP Billiton has studied freight movements at its operations around Australia and has adopted best practice technologies used for the transport of other concentrates such as lead and zinc.

### Safe handling

The company has comprehensive product stewardship procedures and policies to ensure the safe handling of concentrate throughout the transport chain.

Dedicated rail wagons (pictured) fitted with air and water proof lids would transport the material from Olympic Dam to the Port of Darwin using the existing Adelaide-Darwin rail line and the proposed spur linking the operation to Pimba.

A closed system would prevent the release of dust during transportation and at the storage and handling facility at Darwin's East Arm Port. The concentrate would be transferred from the storage facility to dedicated export vessels in enclosed conveyors. A dedicated BHP Billiton ship loader would be installed on the East Arm wharf.

Wash down facilities would be installed within the enclosed handling area to clean the wagon exteriors after unloading. This washdown water would be recycled on-site for reuse until it becomes too dirty, then it would be transported back to Olympic Dam for recycling.



### Radiation

The concentrate is an odourless black powder, insoluble in water, with a uranium content of up to 2,000 parts per million (compared to 990,000 parts per million for the uranium oxide already shipped from the Port).

The low levels of uranium within the concentrate mean that the radiation levels from the concentrate would be indistinguishable from background levels beyond 10 metres from the rail wagons transporting it from Olympic Dam to the Port of Darwin.

The uranium content in the concentrate would still be sufficient for the product to be considered radioactive and therefore it would be transported according to the requirements of the Australian Radiation Protection and Nuclear Safety Agency's Code of Practice for the Safe Transport of Radioactive Material 2008.

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Ship loader at the Port of Darwin

Over its 20 years of operation, Olympic Dam has maintained a strong focus on protecting employees, contractors and members of the public from radiation, using effective design and management practices.

This would continue with the expanded operation and would apply to all aspects of the expansion including the transport of concentrate through the Port of Darwin.

The transport and handling controls BHP Billiton would have in place would ensure that radiation doses would not exceed internationally accepted radiation limits.

## Port of Darwin

The Port of Darwin was chosen as the preferred port of export for concentrate and some uranium oxide as it already handles bulk ore shipments, has experience in handling uranium oxide and is capable of handling Panamax-class bulk carriers.

BHP Billiton already exports each year through the Port of Darwin about 1,200 tonnes of uranium oxide produced at Olympic Dam. The expanded operation would use facilities at the port's East Arm to export additional uranium oxide and up to 1.6 million tonnes per year of concentrate.

Should all additional uranium oxide produced at Olympic Dam be exported via the Port of Darwin the standard shipping containers used each year would increase from 200 to about 900 and require minor modifications to the existing storage and handling facilities. Up to 90,000 tonnes of concentrate would be stored at the East Arm facilities at any given time.

New fully-enclosed storage, handling and loading facilities would be installed at East Arm for the concentrate.

Port of Darwin, East Arm wharf

