

BHP Olympic Dam Tailings: an “Extreme Risk” to Workers and to the Environment

Article by David Noonan B.Sc., M.Env.St., Independent Environment Campaigner, 30 June 2019

The world’s largest miner [BHP proposes a major new Tailings Storage Facility](#) (17 June 2019) at the Olympic Dam copper-uranium mine in outback South Australia.

Tailings Storage Facility (TSF) 6 is intended to be larger in area than the CBD of Adelaide - at 285 hectares, and up to 30 metres in height - equal to the height of the roof over the *Great Southern Stand* at the MCG. BHP states the total footprint area of TSF 6 is intended to be 416 hectares.

BHP are seeking federal government approval of TSF 6 under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), prior to a warranted comprehensive Tailings Safety Risk Assessment of all BHP tailings waste across the entire Olympic Dam operation.

This BHP application follows on from a [BHP Tailings Facilities Disclosure](#) (07 June 2019, p.11-12) stating three Olympic Dam tailings facilities are at the highest “extreme risk” hazard category based on the consequences of a potential catastrophic failure of the radioactive tailings waste facilities.

BHP and the mining industry are in serious trouble internationally over catastrophic mine tailings dam failures in South America at the BHP and Vale joint venture mine at Samarco in Brazil in 2015 and the nearby Vale Brumadinho tailings dam collapse in early 2019.

In response, the International Council on Mining and Metals (ICMM) has teamed with the United Nations Environment Program (UNEP) to conduct a comprehensive [Independent Tailings Review](#) (24 April 2019) to draw up a new international safety standard for the management of tailings storage facilities. This important report and new tailings storage safety standard are due at the end of 2019.

BHP’s [“ESG Briefing: Tailings Dams”](#) (June 2019, p.17) states the “Principal Potential Impact” in a ‘most significant failure’ of extreme risk Olympic Dam tailings waste facilities is that of “Employee impacts” – with the potential loss of life of BHP employees at Olympic Dam reported at 100.

The Canadian Dam Safety Guidelines “extreme risk” consequences category shows impacts: at a potential loss of life of more than 100; an extreme loss of infrastructure and economics; and a major permanent loss of environmental and cultural values - with restoration stated to be impossible (In: BHP’s “ESG Briefing: Tailings Dams”, p.10).

BHP are seeking federal environmental approval for TSF 6 prior to availability of the new ICMM and UNEP international safety standard for the management of tailings storage facilities. With BHP stating a preferred schedule for TSF 6 to start construction in Nov 2019 and to operate in early 2020.

BHP are also seeking federal approval for TSF 6 to be held prior to and separate from a required federal and state assessment of a major proposed expansion in the scale of underground mining at Olympic Dam. With copper production to increase from 200,000 to 350,000 tonnes per year.

The SA [“Olympic Dam Major Projects Declaration”](#) (SA Government Gazette, 14 Feb 2019, p.461-462) has already “excluded” the three “extreme risk” Olympic Dam tailings waste facilities, and the proposed major new TSF 6 and associated Evaporation Pond 6, from the scope of a required public environmental impact assessment process on BHP’s proposed Olympic Dam mine expansion.

To exclude, or to fail to apply, environmental assessment and public consultation on fundamental environmental impacts of uranium mining at Olympic Dam is contrary to the public interest, and works against transparency, scrutiny, public confidence and basic modern community expectations.

The new Federal Environment Minister the Hon. Sussan Ley MP must require a public environmental impact assessment process on BHP's EPBC Act Referral 2019/8465 Tailings Storage Facility 6 under federal responsibilities to protect Matters of National Environmental Significance (see: ENGOs Briefing [Uranium Mining Triggers "Protection Of The Environment" Under the EPBC Act](#), June 2019).

This EPBC Act public assessment must include a core comprehensive Tailings Safety Risk Assessment of TSF 6 and of all BHP tailings waste across the entire Olympic Dam operations, especially the three "extreme risk" tailings waste facilities, before any potential approval or advance of major new BHP radioactive tailings waste facilities or increase in tailings waste production output.

The Minister must not approve this major new Tailings Storage Facility on the basis of limited non-independent BHP Referral input. Significant safety and environment protection issues can-not be left to BHP to decide. BHP must be made accountable for the three "extreme risk" tailings waste facilities at Olympic Dam and made to apply the most stringent safety standards in this case.

BHP Olympic Dam radioactive tailings waste present a significant, near intractable, long-term risk to the environment (see: ENGOs [Tailings Briefing Paper](#), June 2019).

The tailings at Olympic Dam contain approximately 80% of the radioactivity associated with the original ore and characteristically also retain around one third of the uranium from the original ore.

Olympic Dam radioactive tailings wastes retain the radioactive decay chains of uranium, thorium and radium and should be isolated from the environment for over 10,000 years.

Since 1988 Olympic Dam has produced around 180 million tonnes of radioactive tailings, intended to be left in extensive above ground piles on-site, imposing ongoing risks - effectively forever.

In October 2011 the federal government recognised BHP tailings risks are effectively perpetual, [Olympic Dam Approval Condition 32 Mine Closure](#) (p.8) sought to require environmental outcomes: "*that will be achieved indefinitely post mine closure*". However, these conditions were not applied to Olympic Dam as BHP abandoned a proposed open pit mine expansion project in 2012.

Existing BHP radioactive tailings waste facilities at Olympic Dam are extensive, covering an area totalling 960 hectares (ha) or 9.6 km² - an area far larger than the Melbourne City Centre of 6.2 km².

One of two active "extreme risk" tailings waste facilities at Olympic Dam, TSF 4 started tailings slurry waste operations in 1999 and is already over 30 metre in height, equal to the height of a ten-storey building at the centre of the tailings pile. TSF 4 covers an area of 190 ha - over 100 times the playing area of the Melbourne Cricket Ground, the iconic MCG.

In 2015 federal approval was granted to BHP to extend the period of operations of TSF 4 into the mid-2020's and to increase the height of TSF 4 to up to 40 metres. The federal government should now require BHP to decommission this "extreme risk" facility and not to extend its use.

Earlier TSF No.1, 2 and 3 are now classified as a single “extreme risk” inactive facility, totalling 190 ha in area and up to 30 metres in height. These TSF are from a 1980’s design and no longer receive tailings slurry waste but BHP has failed to close or to cover these radioactive waste piles.

BHP Olympic Dam is an out of date “extreme risk” mining operation in sore need of high standards.

Federal environmental protection standards for the management of radioactive tailings waste have been set at the Ranger uranium mine in the NT “to ensure that:

- (i) *The tailings are physically isolated from the environment for at least 10,000 years;*
- (ii) *Any contaminants arising from the tailings will not result in any detrimental environmental impact for at least 10,000 years.”*

This prudent approach and public interest requirement must also now be applied at Olympic Dam.

Federal Environment Minister Hon. Sussan Ley MP faces a key decision test on the consistency and integrity of EPBC Act powers and responsibilities in BHP’s TSF 6 Referral and proposed uranium mining expansion at Olympic Dam.

The Minister’s tests include acting consistently with important Department of Environment Recommendations in the September 2011 [“Olympic Dam expansion assessment report EPBC 2005/2270”](#) (7. Existing operation, p.62), that:

“...conditions be applied to the existing operation so that the entire Olympic Dam operation (existing and expanded) is regulated by a single approval under the EPBC Act”.

The Minister’s 2019 decision must adopt [Olympic Dam Approval Condition 32 Mine Closure](#) (Oct 2011) as a requirement on BHP for a comprehensive Safety Risk Assessment covering all radioactive tailings at Olympic Dam, including that the tailings plan (p.8) must:

“contain a comprehensive safety assessment to determine the long-term (from closure to in the order of 10 000 years) risk to the public and the environment from the tailings storage facility”

Further, the Minister must enforce [Fauna Approval Conditions 18 - 21 \(EPBC 2005/2270\)](#) to help protect Listed Bird Species and 21 Listed Migratory Bird Species found in the area from mortality caused by BHP’s toxic acid liquor Evaporation Ponds - that kill hundreds of protected birds each year (see: ENGOs Briefing [Migratory Birds at Risk of Mortality if BHP Continues Use of Evaporation Ponds](#), June 2019). These strong federal EPBC Act Conditions required that BHP:

“must not construct Evaporation Ponds (for the purpose of the expanded mine)” (C.19);

And to: “phase out the use of Evaporation Ponds as soon as practical” (C.21)

The Minister should also mandate a 100% non-negotiable bond on BHP to cover rehabilitation liabilities across the entire Olympic Dam operation - including the three “extreme risk” radioactive tailings waste facilities. BHP has avoided paying this multi-hundred million dollar bond since taking over Olympic Dam mine in 2005 (see: ENGOs Briefing [BHP Must Lodge a Bond to Cover 100% of Rehabilitation Liabilities at Olympic Dam](#), June 2019).

For further information, see: <https://nuclear.foe.org.au/olympic-dam/>