



Public Submission to the BHP Olympic Dam EPBC Referral 2019/8465 TSF 6: June 2019

Mining giant BHP has made a formal application to the SA State government to expand the Olympic Dam mine in northern South Australia AND has made an EPBC Act Referral for a proposed major new Tailings Storage Facility (TSF) 6. BHP's expansion plans follow an earlier decision to defer the transition to a massive open cut operation and is focussed on expanding the current underground operations. The planned mine expansion and proposed TSF 6 present significant environmental and public health implications, particularly in relation to protection of Matters of National Environmental Significance and to radioactive risks and impacts.

Uranium mining at BHP's Olympic Dam mine is a controlled "nuclear action" and "Matter of National Environmental Significance" under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act): "this means that it is necessary to consider impacts on the whole environment" ([federal Department of Environment](#), Sept 2011, p.4).

The proposed uranium mining expansion at Olympic Dam and the proposed major new TSF 6 must be assessed in accordance with an important Recommendation by the federal Department of Environment ("[Olympic Dam expansion assessment report EPBC 2005/2270](#)", Sept 2011, 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 integrity of environmental protection requires that the entire Olympic Dam operation be made subject to impact assessment and public consultation so that regulatory conditions can be uniformly applied to protect "the environment" consistent with the federal EPBC Act.

At a minimum, EPBC Act responsibilities to protect Matters of NES require that BHP's proposed major new Tailings Storage Facility 6 must be subject to a public environmental impact assessment process and must not be approved on the basis of the limited and non-independent BHP Referral input.

In contrast to the earlier federal recommendation, the SA government has issued an "[Olympic Dam Major Projects Declaration](#)" (SA Government Gazette, 14 Feb 2019, p.461-462) seeking to set up an unacceptable two-tiered mining and regulatory system at Olympic Dam. This approach would "exclude" BHP's proposed TSF 6 and associated proposed major new Evaporation Pond 6 from public environmental impact assessment in SA.

This SA state Declaration would also exclude existing mining "such as waste treatment, storage and disposal", along with significant new "enabling activities" including the major new "Tailings Storage Facility 6 and Evaporation Pond 6", from the proposed Guidelines that will set the extent of a required Environmental Impact Statement (EIS) assessment process in SA.

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.

Olympic Dam tailings present a significant, near intractable, long-term risk to the environment.

These tailings contain around 80% of the radioactivity associated with the original ore and retain a suite of radioactive decay chains, as well as around one third of the uranium from the ore.

BHP should be required to demonstrate a plausible plan to isolate radioactive tailings mine waste from the environment for at least 10,000 years in line with the federal government's environmental requirements at the Ranger uranium mine in the Northern Territory.

Since 1988 Olympic Dam has produced around 180 million tonnes (Mt) of radioactive tailings that are intended to be left in extensive above ground piles on-site, effectively forever.

In comparison, the Ranger uranium mine has produced around 120 Mt of tailings to 2018 which are required to be disposed to a former mine pit.

BHP's existing radioactive tailings waste facilities at Olympic Dam are extensive and cover an area totalling 960 hectares or 9.6 km² - an area far larger than the Melbourne CBD of 6.2 km². In this area water sprays are used to limit tailings dust release and potent radioactive radon gas is released to the atmosphere.

Existing Tailings Storage Facilities have reached 30 metres height at the centre of the tailings piles. This is the height of a 10 storey building and equal to the height of the roof over the Melbourne Cricket Ground's "*Great Southern Stand*". TSF 4 already covers an area over 100 times the playing area of the MCG.

BHP's proposed Tailings Storage Facility 6 is intended to cover an additional extensive area, reported as 285 hectares (the evaporation surface) – larger than the area of the CBD of Adelaide, and to be up to 30 metres high at the centre of the tailings pile – around the height of a 10 story building. The total 'foot print area' reported for TSF 6 is 416 hectares.

BHP intends a major new TSF 6 without a prior comprehensive Tailings Safety Risk Assessment - such an approach is inconsistent with modern environmental practice and community expectation.

This is of particular concern given the increased global attention on the risks of catastrophic tailings dam failure following tragic events in Brazil in 2015 and 2019.

BHP's own tailings taskforce has identified three of the current Olympic Dam tailings waste facilities with an 'extreme risk' status – the highest risk category.

Safety must be comprehensively assessed across all tailing's facilities at Olympic Dam, without any restrictions or exemptions provided to BHP's corporate interests, prior to a decision on any new Tailings Storage Facilities or a proposed expansion of toxic radioactive tailings production.

In the public interest, a comprehensive Tailings Safety Risk Assessment is required from BHP and must now be subject to public scrutiny in an EPBC Act environmental impact assessment process.

This assessment must adopt [the federal government's Olympic Dam Approval Condition 32 Mine Closure \(EPBC 2005/2270, Oct 2011\)](#) as a requirement on BHP for a comprehensive Safety Risk Assessment covering all radioactive tailings at Olympic Dam, including that the tailings plan 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” (p.8)

In recognition that tailings risks are effectively perpetual, Condition 32 Mine Closure (p.8) requires environmental outcomes: *“that will be achieved indefinitely post mine closure”*.

The EPBC Act assessment and the required comprehensive Tailings Safety Risk Assessment must also be consistent with the environmental standards set by the federal government in 1999 to regulate the Ranger uranium mine in Kakadu (Northern Territory), “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.”*

BHP's Referral papers indicate that if TSF 6 is approved, future deposition of tailings waste at Olympic Dam will involve both TSF 5 (currently receiving 60% of tailings) and TSF 6.

In that case, the existing TSF 4 (currently receiving 40% of tailings) can be decommissioned and potentially prepared for closure, along with TSF 1, TSF 2 and TSF 3 which have not received tailings waste for some period but have not yet been closed and have not been covered.

BHP has an obligation to safely decommission existing “extreme risk” tailings waste facilities at Olympic Dam and this should be subject to EPBC Act assessment and conditions of approval.

This BHP TSF 6 EPBC Act Referral should trigger a public environmental impact assessment process to include the highest level of TSF closure and tailings waste isolation requirements and conditions.

BHP has avoided paying a mine rehabilitation bond at Olympic Dam, by far the largest and most influential mining operation in South Australia, and now faces a significant long-term liability.

The BHP admission that three of the current Olympic Dam facilities have an ‘extreme risk’ status – the highest risk category, heightens the public interest obligation on BHP to secure a 100% bond.

BHP must ensure this long-term rehabilitation liability is not left as a legacy cost to the public.

The SA state government has failed in its responsibility to secure and impose a non-negotiable unconditional advance bond on BHP for 100% of the rehabilitation liabilities at Olympic Dam.

The federal government can require BHP to provide a bond to meet the full cost of rehabilitation liabilities at Olympic Dam, irrespective of whether or not SA acts on its responsibilities in this regard.

The federal government should act to require a statutory 100% unconditional bond on BHP to address a modern estimate of rehabilitation liabilities across the entire Olympic Dam operation.

This would require BHP to present a costed Mine Closure Plan including a Tailings Disposal Plan based on the pre-requisites required by a comprehensive Safety Risk Assessment of all Olympic Dam mine tailings.

These studies and the proposed bond arrangement must be subject to public scrutiny prior to the approval or advance of any new Tailings Storage Facilities or expansion of radioactive tailings output.

Matters of National Environmental Significance (NES) which must be assessed and protected as required under the EPBC Act at Olympic Dam include Listed Bird Species and Migratory Bird Species at ongoing and unnecessary risk of mortality due to BHP's continued use of Evaporation Ponds.

The most recent federal assessment of Olympic Dam operations set [Fauna Approval Conditions 18-21 \(EPBC 2005/2270, Oct 2011\)](#) to protect Listed Bird Species and 21 Listed Migratory Bird Species found in the area from impact and mortality. These 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)

BHP should be made to comply with these conditions to prevent and limit mortality to protected Bird Species, in existing Olympic Dam operations, in any proposed major new facilities and in regard to the proposed expansion in mining operations – "as soon as practical".

In routine weekly monitoring (2017-18) some 222 dead birds were observed, including 39 Banded Stilts. BHP has reported that: *"Overall, there has not been a significant increase or decrease in the number of alive and dead birds observed at the TRS from FY12 to FY18"*. This is unacceptable and unnecessary.

The actual number of bird mortalities is higher than the observed reports as impacted birds that leave the site are dying elsewhere and many birds drown in the acid mine waste waters of BHP's Evaporation Ponds.

The federal Department of Environment "[Olympic Dam expansion assessment report EPBC 2005/2070](#)" (Sept 2011, p.4) identifies *"Bird deaths associated with exposure to the tailings storage facility"* as one of: *"the principal certain or likely impacts relating to the proposed project"*. The federal Assessment Report *"Impacts of the TSF on fauna and migratory species"* (p.17-18) states:

"The TSF poses the relatively largest threat to fauna (particularly birds) from the project within the SML (Special Mining Lease). ...

Since the monitoring of fauna deaths commenced in 1996, the mortalities of individuals from 49 different fauna species have been reported, including six migratory bird species listed under the EPBC Act. The EIS lists the species with the highest mortalities as the Banded Stilt, Red-necked Avocet, Whiskered Tern, Grey Teal, Black Swan, Hoary-headed Grebe, Little Pied Cormorant and the Silver Gull. ...

The department agrees with the South Australian Assessment Report (SAAR) that the expanded TSF may adversely affect birds including listed migratory species. ...

The EIS notes that bird deaths are generally a result of acid in the evaporation ponds contacting the plumage or sensory organs resulting in drowning.”

BHP’s proposed major new TSF 6, along with an associated proposed Evaporation Pond 6, have resultant adverse impacts in mortality to protected bird species which must be publicly and properly assessed under EPBC Act responsibilities to protect Matters of NES.

The SA state Major Projects Declaration specifically excludes BHP’s proposed TSF 6 and Evaporation Pond 6 from public environmental impact assessment in SA, to suit BHP’s vested interests.

This approach is contrary to EPBC Act responsibilities, compromises the integrity of public environmental impact assessment and works against transparency, scrutiny and confidence.

Both federal and state laws recognise the need to properly assess public interest feasible alternatives to a proponent’s preferred project configuration. This is a required part of due process in the public interest to facilitate informed public participation and government decision making.

The warranted phase out of use of Evaporation Ponds at Olympic Dam to protect Listed Bird Species from mortality impacts, as recommended by a federal Department of Environment assessment and required by EPBC Act conditions set in 2011, is an established key public interest feasible alternative to BHP’s Olympic Dam mine configuration.

This must be publicly and properly assessed in response to BHP’s TSF 6 EPBC Act Referral to be consistent with previous federal recommendations and contemporary community expectations.

Recommendations:

1. The Olympic Dam operation be assessed in its entirety with the full range of project impacts subject to public consultation.

At a minimum, EPBC Act responsibilities to protect Matters of NES require that the BHP Olympic Dam TSF 6 Referral must be subject to a public environmental impact assessment process.

2. A comprehensive Safety Risk Assessment of all Olympic Dam mine tailings.

3. BHP must lodge a Bond to cover 100% of Rehabilitation Liabilities at Olympic Dam.

4. BHP must stop the use of Evaporation Ponds to reduce mortality in protected Bird Species.

Key Issue Briefings:

BHP seek a Toxic Tailings Expansion without a full Safety Risk Assessment

BHP must lodge a Bond to cover 100% of Rehabilitation Liabilities at Olympic Dam

Migratory Birds at Risk of Mortality if BHP continues use of Evaporation Ponds

Recommendations:

1. The Olympic Dam operation be assessed in its entirety with the full range of project impacts subject to public consultation

Given that uranium mining at Olympic Dam is a controlled “*nuclear action*” and Matter of National Environmental Significance (NES) under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), the integrity of environmental protection requires that the entire Olympic Dam operation be subject to impact assessment so that regulatory conditions can be applied “*to consider impacts on the whole environment*”.

This is consistent with a key Recommendation by the federal Department of Environment (“[Olympic Dam expansion assessment report EPBC 2005/2270](#)”, Sept 2011, 7. Existing operation, p.62):

“... it is recommended 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”.

At a minimum, EPBC Act responsibilities to protect Matters of NES require that the “BHP Olympic Dam EPBC Referral [2019/8465](#) Tailings Storage Facility 6” must now trigger an environmental impact assessment process with public consultation on impacts of BHP’s proposed TSF 6, including: “*to consider impacts on the whole environment*”.

This warranted EPBC Act decision should have a level of public assessment and scope to examine impacts of the entire Olympic Dam operation, including the current associated mine expansion project to increase the scale of production to 350,000 tonnes of copper per year.

2. A comprehensive Safety Risk Assessment of all Olympic Dam mine tailings

In the public interest, the federal government must require a comprehensive Safety Risk Assessment to determine the long-term (in the order of 10,000 years) risk to the public and the environment from all radioactive tailings produced and stored at Olympic Dam. This approach is consistent with [federal EPBC Act Approval Condition 32 Mine Closure, Oct 2011](#).

This comprehensive Safety Risk Assessment of tailings waste must be subject to public consultation in an assessment process under the EPBC Act prior to the approval or advance of any new Tailings Storage Facilities or the proposed expansion of toxic radioactive tailings production.

Federal standards 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 requirement must be applied at Olympic Dam to the BHP EPBC Act Referral [2019/8465](#) for a major new Tailings Storage Facility No.6.

3. BHP must stop the use of Evaporation Ponds in order to reduce mortality in protected Bird Species

The federal government must subject the June 2019 BHP Olympic Dam TSF 6 Referral to a public assessment process and require that BHP: *“must not construct Evaporation Ponds for the purpose of the expanded mine”*; and to: *“phase out the use of Evaporation ponds as soon as practical”*.

This is consistent with the federal EPBC Act Assessment and Decision in [Fauna Approval Conditions 18-21 \(EPBC 2005/2270, Oct 2011\)](#) to help protect Matters of National Environmental Significance in Listed Bird Species and 21 Migratory Bird Species found in the area from mortality at Olympic Dam.

These conditions must now be applied uniformly across the entire Olympic Dam operation.

The federal government must require BHP to prevent and limit impacts and mortality on Listed Bird Species protected under both the EPBC Act and the SA *National Parks and Wildlife Act*.

4. BHP must lodge a Bond to cover 100% of Rehabilitation Liabilities at Olympic Dam

The federal government must mandate a statutory 100% unconditional bond from BHP to cover estimated rehabilitation liabilities across the entire BHP Olympic Dam operation to ensure that the full costs of remediation and decommissioning, including required safety interventions at multiple *“extreme risk”* tailings facilities, are secured in advance.

Successive SA state governments have failed to secure a bond on Olympic Dam. This required bond must now be secured directly by the federal government under the EPBC Act.

The federal government must require BHP to conduct relevant studies and release full contemporary cost estimates of mine rehabilitation, decommissioning and remediation work with respect to full rehabilitation liabilities across the entire Olympic Dam operations for public consultation in an EPBC Act environmental impact assessment process.

These studies must include a costed Mine Closure Plan and Tailings Disposal Plan to be based on the prerequisites required by a comprehensive Safety Risk Assessment of all Olympic Dam mine tailings.

Modern environmental practice and community expectations require the federal government to set a comprehensive Safety Risk Assessment to determine the long-term (in the order of 10,000 yr) risk to the public and the environment from all radioactive tailings produced and stored at Olympic Dam.

This approach is consistent with [federal EPBC Act Approval Condition 32 Mine Closure, Oct 2011](#).

Further, the federal government standards for disposal of radioactive ore tailings at the Ranger uranium mine need to be applied to Olympic Dam to ensure consistency with current best of sector approaches, in particular regarding the “*Environmental Requirements, Management of Tailings*” (1999) requirement “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.”*

These studies and contemporary costings in rehabilitation liabilities across the entirety of Olympic Dam operations are essential to determine the value of a bond to meet the full cost of implementation of BHP’s rehabilitation liabilities and to best ensure that none are left to the public as a long-term legacy cost.

These studies and the proposed bond arrangement must be subject to public scrutiny in an EPBC Act process prior to any new Tailings Storage Facilities or expansion of radioactive tailings output.

Australia has a poor track record on mine rehabilitation, particularly in the uranium sector. It is imperative that the Olympic Dam project does not build on this history of under-performance and cost shifting. The continuing allocation of public funds to address inadequate earlier rehabilitation at Rum Jungle in the NT is a salient case here.

BHP seek a Toxic Tailings Expansion without a full Safety Risk Assessment

Briefing produced for Friends of the Earth Australia, the Australian Conservation Foundation and Conservation SA by David Noonan – June 2019

BHP Olympic Dam tailings pose a significant - near intractable - long term risk to the environment.

“The tailings at Olympic Dam contain approximately 80% of the radioactivity associated with the original ore.” (In: 1997 Olympic Dam Expansion Project Environmental Impact Statement, [Summary](#), Tailings radiation control, p.21)

BHP tailings characteristically also retain around one third of the uranium from the original ore. With average uranium extraction rates reported at 67% across Olympic Dam mining from 1988 to 2010 ([Olympic Dam Without Uranium Recovery](#), Dr G Mudd, Dec. 2010, p.2).

Radioactive tailings wastes retain the radioactive decay chains of uranium, thorium and radium and must be isolated from the environment for over 10,000 years (Dr G Mudd, p.6).

Since 1988 Olympic Dam has produced around 180 million tonnes (Mt) of radioactive tailings that are intended to be left in extensive above ground piles on-site, effectively forever. In comparison, the Ranger uranium mine in the NT has produced around 120 Mt of tailings by 2018, which are required to be disposed to a former mine pit.

BHP tailings piles are eventually to be closed by the addition of a one metre clay cover to try to reduce the emission of radon, a highly potent radioactive gas, *“to acceptable levels”* (1997 EIS Summary p.21). Rock rubble is to be placed up the 20 degree slopes of the tailings piles for stability, in perpetuity.

BHP produces up to 10 Mt per year of radioactive tailings in mining Olympic Dam and intends to increase tailings output to over 14 Mt/yr through an expansion in the rate of underground mining.

BHP radioactive tailings waste management facilities at Olympic Dam are extensive, covering an area totalling 960 hectares (ha) (see BHP [Monitoring Program – Waste, July 2018](#) p.2) or 9.6 km² - an area far larger than the [Melbourne City Centre](#) of 6.2 km². They include:

- five Tailings Storage Facilities (TSF) totalling 725 ha or 7 ¼ km² of tailings piles for dumping toxic tailings slurry, hazardous wastes and low-level radioactive wastes
- five Evaporation Ponds totalling 144 ha in area for *“excess”* acidic tailings liquor, with *“ponds ranging in depth from 4.2 to 5.5 m”*. These kill hundreds of protected birds each year.

Multiple TSF are operated for decades with water sprays used to limit dust release and relying on natural ventilation *“to disperse and dilute radon and radon decay products”* (1997 EIS Summary p.21) – a practice that effectively dumps radioactive gas into the atmosphere. This remains the outdated standard of practice in BHP tailings management system.

Currently 40% of mine tailings slurry is deposited to TSF 4. This is 190 ha in area and 27 metres in height at the centre of the pile. The other 60% of tailings slurry is deposited to TSF 5 which is 260 ha

and 11 metres in height. TSF 4 is already the height of a nine storey building at the centre of the tailings pile and covers over 100 times the playing area of the Melbourne Cricket Ground.

In February 2015 a new approval was granted to BHP to increase the height of TSF 4 to reach a central pile height of 40 metres – equivalent to the height of a 13 storey building by Sept 2023 ([Wall Height increase of TSF 4 Olympic Dam EPBC 2015/7416](#), Federal Department of Environment).

TSF No.1, 2 and 3 total 190 ha in area and are 28.5 to 30 metres in height, around the height of a 9 to 10 storey building and up to the height of the roof over the MCG's "Great Southern Stand" at 30 metres. These TSF no longer receive tailings slurry but have not been closed or covered.

The "[Olympic Dam Major Projects Declaration](#)" (SA Government Gazette, 14 Feb 2019, p.461-462) seeks to set up a two-tiered mining and regulatory system at Olympic Dam.

It unjustifiably differentiates between ongoing mining up to a scale of copper production of 200,000 tonnes per annum (tpa) and a proposed expansion to produce up to 350,000 tpa of copper - with a consequent major increase in tailings waste output.

This SA government Declaration restricts the comprehensive assessment of BHP's expansion through exemptions that "exclude" the impacts of existing mining and a range of major "enabling activities" from public scrutiny and environmental impact assessment, especially around tailings and waste management issues (p.462):

"such as: waste treatment, storage and disposal, including but not limited to, Tailings Storage Facility 6, Evaporation Pond 6, and additional cells for the contaminated waste disposal facility" .

The Declaration seeks to "exclude" an SA assessment process from evaluating a major new TSF 6 and Evaporation Pond 6 with resultant impacts - including bird mortality - as "enabling activities".

In practice this means the 2019-2020 SA EIS Assessment would only be allowed to evaluate risks and impacts from an increase in scale of tailings production from 10 Mt/year to around over 15 Mt/year.

This is contrary to federal government [Approval Condition 32 \(EPBC 2005/2270\)](#) set in October 2011 at the time of an earlier BHP expansion application that mandated a Mine Closure Plan across all radioactive tailings at Olympic Dam that 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."

Safety must be comprehensively assessed and subject to public scrutiny across all BHP tailings at Olympic Dam without any restrictions or exemptions to favour BHP vested interests.

Federal government responsibilities to protect the environment under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) require that the June 2019 BHP Olympic Dam EPBC Act Referral (Reference Number [2019/8465](#)) proposing a major new Tailings Storage Facility No.6 must be subject to a public environmental impact assessment process.

BHP's major new Tailings Storage Facility 6 is intended to be larger in area than the CBD of Adelaide.

Recommendations:

A comprehensive Safety Risk Assessment of all Olympic Dam mine tailings

In the public interest, the federal government must require a comprehensive Safety Risk Assessment to determine the long-term (in the order of 10,000 years) risk to the public and the environment from all radioactive tailings produced and stored at Olympic Dam. This approach is consistent with [federal EPBC Act Approval Condition 32 Mine Closure, Oct 2011](#).

This comprehensive Safety Risk Assessment of tailings waste must be subject to public consultation in an assessment process under the EPBC Act prior to the approval or advance of any new Tailings Storage Facilities or the proposed expansion of toxic radioactive tailings production.

Federal standards have been set at the Ranger uranium mine in the NT “to ensure that:

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

This prudent approach and requirement must be applied at Olympic Dam to the June 2019 BHP EPBC Act Referral [2019/8465](#) for a major new Tailings Storage Facility No.6.

BHP must lodge a Bond to cover 100% of Rehabilitation Liabilities at Olympic Dam

Briefing produced for Friends of the Earth Australia, the Australian Conservation Foundation and Conservation SA by David Noonan – June 2019

BHP has avoided paying a mine rehabilitation bond at Olympic Dam, which is by far the largest and most influential mining operation in South Australia, and now faces a significant long-term liability.

BHP must ensure this long-term rehabilitation liability is not left as a legacy cost to the public.

“There are no bonds held by the Commonwealth or State level in relation to the Olympic Dam project.” (Answer by the Minister for the Environment to Senate Question No.94, 1 Sept 2016).

It is not acceptable that decades after the passage of the *Roxby Downs (Indenture Ratification) Act 1982* successive SA and federal governments have failed to realise a bond over Olympic Dam.

The Olympic Dam uranium mine presents one of world’s largest ever radioactive tailings rehabilitation liabilities at around 180 million tonnes (Mt) tailings, with ongoing tailings output of around 10 Mt/year.

Uranium mining is a Matter of National Environmental Significance as a *“nuclear action”* under the federal *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). BHP’s current Olympic Dam underground mining expansion proposal is subject to the federal EPBC Act.

The federal government can require BHP to provide a bond to meet the full cost of rehabilitation liabilities, irrespective of whether or not the SA government acts on its responsibilities to do so.

The federal government has stated its power to require a rehabilitation bond at Olympic Dam under the EPBC Act, in [Approval Conditions \(EPBC 2005/2270\)](#) set in October 2011 on an earlier proposed open pit expansion project.

“Rehabilitation bond Conditions 33-38” apply the Federal Minister’s powers, including that:

- The Minister can require BHP as the Approval Holder to *“provide details of the financial arrangements that may be required by the SA Government in relation to ensuring adequate rehabilitation for the action.”*
- *“If at any time the Minister determines in writing that s/he is not satisfied that adequate financial arrangements, as may be required by the SA Government, are in place to ensure that the Mine Closure Plan (as required under Condition 32) will be implemented, the Minister may require the Approval holder to provide an arrangement (in the form of a bond, financial guarantee or similar arrangement, in these conditions ‘a bond’) as directed by the Minister.”*
- *“The maximum value of a bond that may be required by the Minister is the difference between the value of the arrangement the Approval Holder has provided to meet South Australian requirements, and the amount determined by the Minister as the full cost of implementation of the Mine Closure Plan.”*

- *“The Minister may decrease the amount required where the Approval Holder has decreased the liability through undertaking rehabilitation.”*
- *“In providing for or varying a bond amount in accordance with these Conditions, the Minister may request the Approval Holder to obtain written quotes for the cost of the rehabilitation liability under the Mine Closure Plan from a third party approved by the Minister.”*
- *“The Approval Holder must meet all of the charges and costs in obtaining and maintaining the bond.”*

The federal Department of Environment [“Olympic Dam expansion assessment report EPBC 2005/2070”](#) (Sept 2011) states at 5.1.8 Rehabilitation and Closure, Recommendations, that:

“Best practice mining standards require a comprehensive closure plan to be in place before mining commences.

It is likely that the SA Government will require a rehabilitation bond or similar financial arrangement to ensure a rehabilitation liability is not left for the landholder (ultimately the SA Government).

However, as a precautionary measure, to ensure rehabilitation liabilities are fully addressed the Department recommends that the Minister retain the option of requiring a bond on BHP in favour of the Commonwealth for up to the full cost of the rehabilitation liability.”

The Department also states that *“post closure environmental outcomes must be achieved indefinitely”*.

In terms of policy direction, the SA Department of State Development conducted a *“Leading Practice Mining Acts Review”* that addressed mine rehabilitation issues.

A Review Discussion Paper, *“2.3 Enforcing leading practice mine closure planning, and progressive rehabilitation to achieve sustainable mine completion outcomes”* (DSD, Dec 2016, p.52-55), states:

“Appropriate rehabilitation of all mining operations should be non-negotiable. Planning for mine closure from the earliest stages of mine planning and progressive rehabilitation throughout the life of a mine is leading practice behaviour, and all regulators should be able to elicit this behaviour...”

The current process for mining operations in SA is that the Government seeks to impose unconditional bonds for 100% of the estimated rehabilitation liabilities.

The Department is proposing to introduce a leading practice financial assurance model into South Australia that will adequately meet three ‘non-negotiable’ criteria.”

The State of SA has also endorsed Recommendation 5 of the Nuclear Fuel Cycle Royal Commission:

“Based on the findings set out in the report the Commission recommends that the South Australian Government:

5. Ensure the full costs of decommissioning and remediation with respect to radioactive ore mining projects are secured in advance from miners through associated guarantees.”

However, the State of SA has failed in its responsibility to secure and impose a “non-negotiable” unconditional bond in advance on BHP for 100% of the rehabilitation liabilities at Olympic Dam.

The “[Olympic Dam Major Projects Declaration](#)” (SA Government Gazette, 14 Feb 2019, p.461-462) on BHP’s 2019 proposed expansion of underground mining at Olympic Dam provides an important opportunity for the State of SA to ensure a 100% bond is applied and secured in advance.

In any case, the federal government must require the relevant studies are conducted by BHP and are subject to public scrutiny in an EPBC Act environmental impact assessment process prior to the approval or the advance of any new Tailings Storage Facility or the proposed expansion of production of radioactive tailings waste.

BHP must now be required to provide a costed Tailings Disposal Plan addressing full rehabilitation liabilities across all existing and proposed expansion operations at Olympic Dam.

Recommendations:

BHP must lodge a bond to cover 100% of rehabilitation liabilities at Olympic Dam:

The federal government must mandate a statutory 100% unconditional bond from BHP to cover estimated rehabilitation liabilities across the entire BHP Olympic Dam operation to ensure that the full costs of remediation and decommissioning, including required safety interventions at multiple “*extreme risk*” tailings facilities, are secured in advance.

Successive SA state governments have failed to secure a bond on Olympic Dam. This required bond must now be secured directly by the federal government under the EPBC Act.

The federal government must require BHP to conduct relevant studies and release full contemporary cost estimates of mine rehabilitation, decommissioning and remediation work with respect to full rehabilitation liabilities across the entire Olympic Dam operations for public consultation in an EPBC Act environmental impact assessment process.

These studies must include a costed Mine Closure Plan and Tailings Disposal Plan to be based on the prerequisites required by a comprehensive Safety Risk Assessment of all Olympic Dam mine tailings.

Modern environmental practice and community expectations require the federal government to set a comprehensive Safety Risk Assessment to determine the long-term (in the order of 10,000 yr) risk to the public and the environment from all radioactive tailings produced and stored at Olympic Dam.

This approach is consistent with [federal EPBC Act Approval Condition 32 Mine Closure, Oct 2011](#).

Further, the federal government standards for disposal of radioactive ore tailings at the Ranger uranium mine need to be applied to Olympic Dam to ensure consistency with current best of sector approaches, in particular regarding the “*Environmental Requirements, Management of Tailings*” (1999) requirement “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."*

These studies and contemporary costings in rehabilitation liabilities across the entirety of Olympic Dam operations are essential to determine the value of a bond to meet the full cost of implementation of BHP's rehabilitation liabilities and to best ensure that none are left to the public as a long-term legacy cost.

These studies and the proposed bond arrangement must be subject to public scrutiny in an EPBC Act process prior to any new Tailings Storage Facilities or expansion of radioactive tailings output.

Australia has a poor track record on mine rehabilitation, particularly in the uranium sector. It is imperative that the Olympic Dam project does not build on this history of under-performance and cost shifting. The continuing allocation of public funds to address inadequate earlier rehabilitation at Rum Jungle in the NT is a salient case here.

Migratory Birds at Risk of Mortality if BHP continues use of Evaporation Ponds

Briefing produced for Friends of the Earth Australia, the Australian Conservation Foundation and Conservation SA by David Noonan – June 2019

Mining giant BHP has made a formal application to expand the Olympic Dam mine in northern South Australia. Olympic Dam was opened in 1988. BHP's current expansion plan follows an earlier decision to defer the transition to a massive open cut operation and is focussed on expanding the current underground operations. The planned mine expansion has significant environmental implications including a likely increase in long-term mortality of protected Bird Species.

This briefing explores the need for federal and state assessment of BHP's expansion plans to actively consider a project configuration that would not construct new Evaporation Ponds and phase out use of existing Evaporation Ponds as soon as practical to help protect Listed Bird Species from mortality.

BHP's existing Olympic Dam operations cause significant mortality in Listed Bird Species through the use of Evaporation Ponds for acidic tailings waste water that is toxic to birds. In 2011 during the assessment of an earlier expansion application the federal Department of Environment made recommendations and the Minister set EPBC Act conditions requiring BHP to phase out use of Evaporation Ponds across the entire Olympic Dam operation and not to construct Evaporation Ponds for the proposed expanded mine.

In February 2019 BHP sought approval from the SA State government for a major expansion of underground mining operations at Olympic Dam. BHP also plans to construct a major new Evaporation Pond (No.6), as part of so called “*enabling activities*” to continue the existing level of underground mining activities, and to also put earlier Evaporation Ponds back into long-term use.

Migratory Birds are at significant risk of mortality due to BHP's continued use of Evaporation Ponds.

The SA government issued an “[Olympic Dam Major Projects Declaration](#)” (SA Government Gazette, 14 Feb 2019, p.461-462) for BHP's proposed mining expansion, with Guidelines to be set for the scope of a required Environmental Impact Statement (EIS) assessment process.

Contrary to the public interest, this state Declaration seeks to prevent environmental assessment and public consultation on fundamental environmental impacts of uranium mining at Olympic Dam.

The SA government Declaration “*Excludes*” existing mining and so called “*enabling activities*” up to a level of copper production of 200,000 tonnes per year and associated products (uranium-silver-gold) and resultant environmental impacts, such as (p.462):

“waste treatment, storage and disposal, including but not limited to, Tailings Storage Facility 6, Evaporation Pond 6, and additional cells for the contaminated waste disposal facility.”

The SA State Declaration to exclude a major new Evaporation Pond No.6, with its impacts on mortality to protected birds as an “*enabling activity*” to suit BHP interests, is contrary to federal responsibilities, compromises this EIS Assessment and works against transparency and scrutiny.

The SA government sanction for BHP Evaporation Ponds at Olympic Dam is directly contrary to relevant federal Approval Conditions set by the federal Minister for Environment in Oct 2011 under

the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) during the course of the most recent federal assessment of an Olympic Dam expansion proposal.

These EPBC Act conditions required BHP to phase out the use of Evaporation Ponds across the entire Olympic Dam operation to protect Listed Bird Species. This clear and prudent protection did not come into effect as BHP's open pit mine expansion project did not proceed.

In order to help protect Listed Bird Species as Matters of National Environmental Significance under the EPBC Act these important federal conditions from 2011 must now be applied as pre-conditions to the June 2019 BHP Olympic Dam EPBC Act Referral (Reference Number [2019/8465](#)) for a major new Tailings Storage Facility No.6. TSF 6 is intended to be larger in area than the CBD of Adelaide.

Federal [Fauna Approval Conditions 18 - 21 \(EPBC 2005/2270, Oct 2011\)](#) were set to protect Listed Bird Species and 21 Listed Migratory Bird Species found in the area from impact and mortality. The most relevant Fauna Conditions 19 and 21 mandated that BHP as the Approval Holder:

“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”:*

Condition 21. The Approval Holder must undertake a review to identify further opportunities to decrease the attractiveness of tailings storage facilities (in place at the date of this approval) and Evaporation Ponds to Listed Species of birds, prevent and deter visits by large flocks of Listed Species of birds, improve monitoring methods, phase out the use of Evaporation Ponds as soon as practical, and ensure continuous improvement in reducing the number of Listed Species of bird mortalities each year.”

BHP should honour these federal conditions to prevent and limit mortality to protected Bird Species, such as South Australia's iconic Banded Stilt, in both existing Olympic Dam mining operations and in any proposed expanded operations, including TSF 6, and do so - *“as soon as practical”*.

However BHP has been doing the opposite. The [BHP Annual Environment Protection and Management Program Olympic Dam Report](#) to 30 June 2018 states that 222 dead birds were observed, including 39 of SA's iconic Banded Stilts. This mortality is unacceptable and unnecessary.

BHP report (p.108): *“Overall, there has not been a significant increase or decrease in the number of alive and dead birds observed at the Tailings Storage Facility (TSF) from FY12 to FY18”*. BHP further state: *“It is unclear whether all affected species die as a result of ingesting liquor”* and *“Some fauna species may leave the system and die elsewhere”*.

The actual number of bird mortalities is far higher than the observed reports. Impacted birds that leave the site are dying elsewhere and many birds drown in the acid mine waste waters of BHP's Evaporation Ponds. This will increase with Evaporation Ponds 1-3 to be put back in use and the walls to be raised by 2-5 metres to extend the period of use ([Monitoring Program – Waste, July 2018](#), p.9).

The federal Department of Environment [“Olympic Dam expansion assessment report EPBC 2005/2070”](#) (Sept 2011, p.4) identifies *“Bird deaths associated with exposure to the tailings storage facility”* as one of: *“the principal certain or likely impacts relating to the proposed project”*. The federal Assessment Report *“Impacts of the TSF on fauna and migratory species”* (p.17-18) states:

“The TSF poses the relatively largest threat to fauna (particularly birds) from the project within the SML (Special Mining Lease). The existing tailings facility, which consists of around 400 ha of tailings storage and 133 ha of evaporation ponds, attracts fauna due to its location in the environment. Decant water in the TSF is usually toxic and can result in bird deaths. Since the monitoring of fauna deaths commenced in 1996, the mortalities of individuals from 49 different fauna species have been reported, including six migratory bird species listed under the EPBC Act. The EIS lists the species with the highest mortalities as the Banded Stilt, Red-necked Avocet, Whiskered Tern, Grey Teal, Black Swan, Hoary-headed Grebe, Little Pied Cormorant and the Silver Gull.

BHP has made a number of changes to the proposed TSF design in the proposed expansion to reduce risks of impact on birds. Most notably, evaporation ponds will not handle excess liquor from tailings. As the only open water body in the region, these ponds have been the major source of bird mortalities. The South Australian Assessment Report (SAAR) notes these changes will likely reduce the attractiveness of the area to fauna by removing large open water bodies and exposing a less attractive wet, muddy surface. The new effect of these changes for open water bird species would be beneficial in the longer term.

Given the significant risk posed to flocking migratory wader bird species (such as Banded Stilts) by the TSF and the inability to predict when such large flocking events may occur, the SAAR recommends that BHP investigate the development of a real-time continuous monitoring system... The report recommends that BHP also develop rapid response deterrent techniques to prevent birds from landing on the TSF. The SAAR recommends that BHP be required to prepare and implement a Bird Impact Management and Monitoring Plan relating to listed migratory species and Banded stilts to minimize, record and report actual and extrapolated/modelled bird mortalities as a result of exposure to the TSF.

The department agrees with the SAAR that the expanded TSF may adversely affect birds including listed migratory species. The design of the new TSF cells is likely to reduce this impact as will the eventual closure of the evaporation ponds.

The EIS notes that bird deaths are generally a result of acid in the evaporation ponds contacting the plumage or sensory organs resulting in drowning.”

Recommendations: BHP must stop the use of Evaporation Ponds in order to reduce mortality in protected Bird Species

The federal government must subject the June 2019 BHP Olympic Dam TSF 6 Referral to a public assessment process and require that BHP: “*must not construct Evaporation Ponds for the purpose of the expanded mine*”; and to: “*phase out the use of Evaporation ponds as soon as practical*”.

This is consistent with the federal EPBC Act Assessment and Decision in [Fauna Approval Conditions 18-21 \(EPBC 2005/2270, Oct 2011\)](#) to help protect Matters of National Environmental Significance in Listed Bird Species and 21 Migratory Bird Species found in the area from mortality at Olympic Dam.

These conditions must now be applied uniformly across the entire Olympic Dam operation. The federal government must require BHP to prevent and limit impacts and mortality on Listed Bird Species protected under both the EPBC Act and the SA *National Parks and Wildlife Act*.