

Senate Inquiry Submission

The Bob Brown Foundation is a not-for-profit organisation dedicated to the protection of Australia's environment and human heritage.

The Foundation takes a keen interest in

- the management of protected areas and works for the inclusion of areas of outstanding conservation and cultural heritage value on World Heritage and Natural Heritage lists.
- the protection of the environmental and cultural values for which areas have been listed.

The Dampier Archipelago (including the Burrup Peninsula) National Heritage listed site is one such area. The Foundation considers the extraordinary cultural and environmental values for which it was listed to be at risk from industrial development and a failure of government oversight.

As a National Heritage site, the Burrup Peninsula is protected under the Environment Protection and Biodiversity Conservation Act 1999.

As the Commonwealth Government acknowledges on its website:

"The EPBC Act enables the Australian Government to join with the states and territories in providing a truly national scheme of environment and heritage protection and biodiversity conservation. The EPBC Act focuses Australian Government interests on the protection of matters of national environmental significance, with the states and territories having responsibility for matters of state and local significance."

The Bob Brown Foundation recognises the values of the Burrup Peninsula as established by the Australian Heritage Council, in particular:

"The Dampier Archipelago (including the Burrup Peninsula) contains one of the densest concentrations of rock engravings in Australia, with some sites containing thousands or tens of thousands of images. The rock engravings comprise images of avian, marine and terrestrial fauna, schematised human figures, figures with mixed human and animal characteristics and geometric designs. At a national level it has an exceptionally diverse and dynamic range of schematised human figures some of which are arranged in complex scenes. The fine execution and dynamic nature of the engravings, particularly some of the composite panels, exhibit a degree of creativity that is unusual in Australian rock engravings."

The range of human images found in the Dampier Archipelago includes forms characteristic of all the major style provinces in the Pilbara, an area that has been described as the richest and most exciting region of rock engravings in Australia. The different degrees of weathering and the large number of super-positioned engravings

provide an outstanding opportunity to establish a relative chronology for motifs characteristic of the major style provinces in the Pilbara. The combination of archaeological sites and high densities of engraved images also provides an outstanding opportunity to develop a scientific understanding of the social functions of motifs.

The different degrees of weathering of particular types of faunal engravings on the Dampier Archipelago provide, in the national context, an unusual and outstanding visual record of the Aboriginal responses to the rise of sea levels at the end of the last Ice Age. The different degrees of weathering of some complex scenes provide exceptional visual evidence for the antiquity of depictions of complex scenes of human activity. The deeply weathered 'archaic faces' are an exceptional demonstration of the long history of contact and shared visual narratives between Aboriginal societies in the nominated place and inland arid Australia."

The Foundation recognises these values as so significant that the area should be nominated for World Heritage Protection and be immediately proposed for inclusion on Australia's Tentative World Heritage List.

As long ago as 2003, the Federal Government recognised the World Heritage values of the area acknowledging that ICOMOS had already included the Burrup on its Indicative World Heritage List. The Federal Minister of the day, Dr David Kemp, now Chair of the Australian Heritage Council, approached the Western Australian Government to seek its view on the proposal of the area for listing. (letter attached) The Western Australian Government began a process of consultation with the Traditional Owners and other stakeholders but the process was halted when the Western Australian minister sought the assistance of Federal Minister Joe Hockey to intervene.

The area had been subject to further industrial development since 2003 and the Foundation does not believe the environment, heritage protection or biodiversity conservation of the area as required under the EPBC Act is being implemented.

The principles of Ecologically Sustainable Development have not been applied to the assessment of the YARA Explosives (Technical Ammonium Nitrate) Plant impact as is required under the EPBC Act.

Secondly, the Commonwealth should not have treated the YARA Explosives (Technical Ammonium Nitrate) Plant as a single stand-alone development, as it is associated with the existing fertiliser plant and the combined impacts of both should have been assessed by the Commonwealth. The Commonwealth therefore failed to take account relevant considerations which it is obliged to take into account.

Thirdly, the minister has varied the operating conditions proposed for the YARA Explosives (Technical Ammonium Nitrate) Plant without providing sound reason for doing so other than to retrospectively address YARA's non-compliance.

There is an inherent contradiction in promoting the area as a heavy industrial site and freight port and protecting it as a National Heritage site. The WA Government, historically and currently, clearly prioritises industrial development over environmental and cultural protection of the site. The Foundation believes proposed additional industry should be directed to the nearby Maitland Industrial Estate.

The existing industry on the Burrup Peninsula is already leading to deterioration of the ancient petroglyphs.

A site visit and an examination of documents on the public record reveals:

- current monitoring of the damage to the petroglyphs from existing industry and the port zone is inadequate to meet the Commonwealth's responsibilities to protect the site under the EPBC Act; and
- that there is no scientific basis for a conclusion that additional pollution loads from the proposed YARA Explosives (Technical Ammonium Nitrate) Plant will not damage the petroglyphs and the environment; and
- the Commonwealth has failed to uphold its legal responsibilities under the Act by approving YARA's Explosives (Technical Ammonium Nitrate) Plant.

Addressing the Terms of Reference

[The total industrial pollution load from existing industrial activities and port zone on the Burrup Peninsula in Western Australia, and its existing impacts on Aboriginal rock art;](#)

There is no publicly available calculation of the current total emission load from industry and the Dampier port zone. If such a measurement exists, it should be on the public record. If it doesn't exist, why not, given that it is the Commonwealth's responsibility to protect the environment and the Aboriginal petroglyphs from adverse impacts? An accumulative load figure is critical to determine the environmental and public health impacts of existing industrial pollution before additional loads are permitted.

[The projected additional pollution load from the Yara Pilbara Fertilisers Pty Ltd ammonium nitrate plant, including the likely impacts on the Aboriginal rock art, human health and the environment;](#)

The ammonium nitrate plant is proposed to release into the atmosphere 25.2 t/yr (greater than 600 tonnes over the lifespan of the facility) of PM10 sized particles, 135 t/yr of NO_x, 163.7 t/yr of N₂O and 19.6 t/yr of NH₃ that will be dispersed to the environment. This will be in addition to emissions being released from the two LNG facilities, the ammonia fertiliser plant and other industrial facilities such as the Dampier port zone on Burrup Peninsula. Effects of emissions on Burrup Peninsula are cumulative for rock art. Rocks weather. There is no capacity for rocks to eliminate the impacts of pollutants. Nowhere in any documentation is there an analysis of

what the combined impact of these emissions will be. Atmospheric nitrate and NO_x compounds are a major cause of acid rain, which erodes rocks.

Nitrate is also a stimulant to plant and microbial growth. Growth of bacteria, yeasts, fungi, mosses and lichen are a major reason for increased rate of weathering and deterioration of rock surfaces, especially along petroglyph engravings. Yara Pilbara set limits of total acid deposition at $200 \text{ meq/m}^2/\text{yr}$, based on CSIRO indicating that this amount will not affect rock art. But the basis of that report is wrong. See **Mr Johan Kuylenstierna's submission**.

As rocks on Burrup Peninsula contain a substantial proportion of feldspar they are likely to be degraded by weak acids formed from the industrial emissions. The degradation is most likely to be greatest along the petroglyph engravings. The ecosystem of the Burrup Peninsula is extremely susceptible to ecological changes. Its vegetation is unique, with many plant species common only to this area. High acid emissions of $200 \text{ meq/m}^2/\text{yr}$ are likely to make significant changes to this unique vegetation over time.

There is no analysis of the likely impact of the release of ammonium nitrate on human health. Ammonium nitrate PM_{10} sized and smaller particles can be inhaled and the product can be ingested. The World Health Organisation 2005 updated guidelines (WHO 2006) recommend a maximum concentration in the air of $20 \mu\text{g/m}^3$ over a year and $50 \mu\text{g/m}^3$ over 24 hours for all PM_{10} particles without specific reference to ammonium nitrate. These values are approximately 1,000 times less than emissions from the TANPF stack. Is this why the Aboriginal Community has been told it cannot site its Living Knowledge Centre at Hearson's Cove?

It is time the WA Government and the Commonwealth came clean with people in the local communities and told them how their health will be impacted by PM_{10} particles and by carbon monoxide. What does this mean for the public use of Hearson's Cove and Deep Gorge?

[The accuracy and adequacy of reports used by the Western Australian and Commonwealth governments when setting the relevant technical, environmental and cultural conditions regulating the construction and operation of the Yara Pilbara Fertilisers Pty Ltd ammonium nitrate plant in an area of highly significant Aboriginal rock art;](#)

The reports relied upon by the Commonwealth on which to set the permissible level of acidic deposits are from CSIRO. Both are flawed. As Mr Johan Kuylenstierna, author of the report used by CSIRO as the basis on which to determine safe permissible acid level, states in Submission 1:

" the CSIRO's assertion is incorrect."

His full quote says:

"The Gillette (2008) report that has been used as evidence for the Burrup rock art sensitivity to increased acidic deposition caused by the nearby industrial facility, includes a passage that references our work (the relevant passage is extracted below). In this it says that the 'the critical load for the Burrup area is at least $200 \text{ meq m}^{-2} \text{ yr}^{-1}$, and since

this is significantly more than the observed deposition fluxes at the sites, they are unlikely to cause any deleterious effects to rock or rock art on the Burrup Peninsula.' This assertion is incorrect."

The second report relates to colour change of the petroglyphs over time. CSIRO has been measuring colour change on engravings and background rock at seven rock art sites on Burrup Peninsula since 2004. CSIRO has claimed there was no consistent change in colour in either increasing or decreasing direction over time. But CSIRO has conducted no statistical analysis on which to base this claim. Dr John Black has interrogated CSIRO procedures and analysis and has concluded that without statistical analysis, there is no basis for the CSIRO claim of no consistent change in colour of the petroglyphs. Has CSIRO conducted statistical analysis of the data?

[The rigour and adequacy of the monitoring, analysis, compliance and enforcement performed by the Western Australian and Commonwealth Government agencies in carrying out their legislated responsibilities in overseeing industries on the Burrup Peninsula;](#)

Under the EPBC Act the principles of Ecologically Sustainable Development apply. Namely:

- (a) decision-making processes should effectively integrate both long-term and short-term economic, environmental, social and equitable considerations;
- (b) if there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation;
- (c) the principle of intergenerational equity - that the present generation should ensure the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations;
- (d) the conservation of biological diversity and ecological integrity should be a fundamental consideration in decision-making; and
- (e) improved valuation, pricing and incentive mechanisms should be promoted.

Under the EPBC Act, a person may not, for the purpose of trade or commerce between Australia and another country, take action that has, will have or is likely to have a significant impact on the National Heritage values of a national Heritage place without the approval of the Australian Government Environment Minister, given pursuant to the approval provisions under the EPBC Act.

But the Minister is failing to seriously consider serious and irreversible damage to the petroglyphs of the Burrup Peninsula and is taking action that will have a significant adverse impact on the National Heritage values of the area. In fact, he is facilitating it by permitting variations of the existing conditions to speed the process.

On a recent site visit in November 2016, it was obvious that the air quality monitoring station at Deep Gorge was not working. Is there independent oversight of air quality monitoring? Is there comprehensive air quality monitoring conducted? If so, by whom?

Is the air quality monitoring conducted by industry self-regulated? The Foundation understands

that YARA's air quality monitoring reports submitted to the WA Department of Environmental Regulation are raw data covering only a limited period. They contain no analysis of that raw data and nor is any conducted by the DER. Yet the Reports are approved as having met the reporting requirement of air quality monitoring and as having met the conditions to which the company must comply. As the Commonwealth devolves responsibility to WA DER for compliance with Commonwealth conditions for industry on the Burrup, what quality assurance has been undertaken by the Commonwealth of WA procedures?

When YARA is found to not comply with various Commonwealth conditions, the Commonwealth varies the conditions to facilitate compliance. The Federal Minister needs to explain why the conditions are varied to suit the company and not upheld, given approval for construction and operation were contingent upon those conditions being met.

YARA was required to conduct a survey of all rock art within a 2 km radius of the proposed explosives plant prior to construction. Clause 8d in original approval. The survey had to be conducted by a suitably qualified person. This is a critical condition as it provides the baseline for measuring the ongoing impacts of the emissions from the plant on the whole area. No survey was done and construction proceeded.

The condition was then varied to 10c to allow for construction but still required the survey of all rock art within a 2 km radius to be done.

In its most recent compliance report, YARA states that it cannot provide the information because they have not received the report. This is misleading. The Burrup Rock Art Technical Working Group (BRATWG) report to which they refer, relates to colour monitoring of the rock art which is condition 10a. It does not relate to the survey of rock art within a 2 km radius 10c.

There is no evidence that the survey by a suitably qualified person has been done. It is not adequate to consider a representative sample as the survey needs to be of the whole area. YARA is non-compliant with the fundamental condition on which approval was contingent.

[The projected level of fugitive gas and nitric acid leaks from the Yara Pilbara fertiliser and ammonium nitrate plants, their effects on human health, likely effects on rock art and the general environment, and the adequacy of the company responses;](#)

The community can have no confidence in the company's estimates or proposed control of fugitive emissions from either the YARA Fertiliser Plant or the explosives plant given the recent history of leaks.

There is no condition that has been set for the release of ammonia to the environment from the YARA Fertiliser plant or pipeline to the port. There have been several leaks to date requiring hospitalisation of workers and reporting for industrial health and safety purposes.

There were at least 24 reportable incidents from January to 17 November 2015. Ammonia leak was a common cause of the incidents. Between 16 - 20 January 2016, 4,601 tonnes of gas were

released into the atmosphere.

On 23 March 2016, 14 tonnes of ammonia were released into the atmosphere from the fertiliser plant. But because there is no condition to meet, there has been no assessment of environmental impact or penalty which can be applied. Why has the Commonwealth failed to set any condition for the release of ammonia to the environment?

The explanation given to date is that Burrup Fertilisers Pty Ltd said it was unnecessary stating:

“With respect to emissions of ammonia (NH₃), it is very unlikely that the proposed ammonia plant will emit ammonia vapours to the atmosphere. It has been estimated in the PER document (Section 7.2.1.10) that the probability of such an event occurring will be less than 1-in-100 years.”

This is untrue. The Government knows it is untrue yet no condition has been imposed for emissions of ammonia to atmosphere. Why?

There have been at least two nitric acid leaks reported during commissioning of the ammonium nitrate plant. One leak on 27 April 2016 released NO_x that triggered the closest alarm at 100 ppm. The second leak on 30 April 2016 released an estimated 337 kg of oxides of nitrogen into the atmosphere with a concentration of 600 ppm (1,160 mg/m³). How many more have occurred?

[The failure by Yara Pilbara Fertilisers Pty Ltd, the Western Australian Government or the Federal Government to include risk analysis of establishing an ammonium nitrate plant in close proximity to the rock art, a gas hub and major port and in a cyclone surge zone;](#)

It is extraordinary that risk analysis of establishing an explosives plant in close proximity to both the NW Shelf joint venture and the Pluto natural gas hubs has been so cursory.

Explosions from ammonium nitrate plants are not uncommon. The Texas City explosion in the USA killed 581 people and impacted buildings 40 km away.

In Queensland in 2015, a truck carrying ammonium nitrate rolled on the Mitchell Highway and blew up the highway bridge which shock of the explosion felt in Charleville 30 km away.

Usually there is a separation zone but in this case the WA Government determined that close proximity was safe. What level of risk analysis was conducted to permit siting of the explosives plant adjacent to the YARA Fertiliser Plant?

What would be the likely impact on surrounding industry, on the petroglyphs and the towns of Dampier, Karratha and Roebourne from an explosion at the Technical Ammonium Nitrate plant?

The WA Environmental Protection Authority has argued that ammonium nitrate is difficult to detonate and the risk of detonation would be controlled by ‘best practice’ operations to be put

in place by the company. What expert analysis did WA Department carry out to reach this conclusion? To which 'best practice' operations were the Department referring? Did Woodside, or any of the NW Shelf Joint Venture partners, raise concerns about the explosives plant siting in such close proximity to them, especially as they both flare gas? What of the risk of carbon monoxide poisoning?

There is no mention of risk from the 41 t/yr of carbon monoxide that is to be released from the plant. Where will this gas be released? How will it be trapped? Since CO is heavier than air, the risks to humans and other living organisms in the environment must be considered. What is the plan to prevent animal and human deaths?

What analysis was done of the likelihood of cyclone storm surge and its impacts on the proposed explosives plant, since it is sited in the surge zone. With global warming driving sea level rise and more extreme weather events, was this taken into account?

Terrorism is now considered as a risk with every major infrastructure project. Given that the Dampier port is the second busiest freight port in the world, what analysis was done as to the risk associated with the combination of an explosives plant, two gas hubs and the port?

The adequacy of the Yara Pilbara plans to protect the communities of Dampier and Karratha and the rock art sites from the consequences of any explosion caused by 'sympathetic detonation' or other factors, including the ability to douse the nitrate stores with sufficient water to prevent a spontaneous explosion; and

The likely impact on surrounding industry, on the petroglyphs and the towns of Dampier, Karratha and Roebourne from an explosion at the Technical Ammonium Nitrate plant would be catastrophic.

The WA Environmental Protection Authority has argued that ammonium nitrate is difficult to detonate and the risk of detonation would be controlled by 'best practice' operations to be put in place by the company. What expert analysis did WA Department carry out to reach this conclusion? To which 'best practice' operations were the Department referring? Should the safety of people and a World Heritage site be left in the hands of a corporation based on a state departmental assessment?

A fire in an ammonium nitrate plant cannot be extinguished with foam and so needs to be extinguished with fresh water. What provisions have been made to access adequate volumes of fresh water to deal with this risk?

[Any related matters.](#)

World Heritage

The Commonwealth has undertaken a consultation with the states over the past twelve

months, beginning in 2015, seeking proposals for inclusion of sites for the Tentative World Heritage List.

The Western Australian Government has failed to propose the Burrup for listing in spite of its known and documented values.

The Premier of Western Australia has spoken of his support for World Heritage listing but has failed to act throughout his entire period in office.

A site such as the Burrup should not be denied the protection it deserves, and the global recognition that World Heritage Listing would bring, because of a negligent state government.

The Federal Environment Minister Frydenberg should approach the Western Australian Government with a view to listing the current National Heritage Listed Dampier Archipelago, including the Burrup Peninsula site, for World Heritage Listing. Consultation with Traditional Owners needs to be undertaken as a matter of urgency.

Under current Commonwealth and State arrangements the site is being degraded. In addition to industrial emissions;

- Vandalism of the site with graffiti is occurring.
- Rock art is being stolen.
- Industry has been permitted to remove rock art from its location and destroy the context in which it was sited.

The Northern Burrup, which to date has been protected because it is inaccessible by road, is now set to be opened up for tourism via road access even though there has been no survey of the rock art which covers the area.

The Aboriginal Community has been promised a Living Knowledge Centre which it wants to site at Hearson's Cove. But it appears the WA Government, and possibly the Commonwealth, has made it clear that the centre will have to be on the Northern Burrup at Conzinc Bay.

It is understood that YARA wants to extend its operations beyond the fertiliser and explosives plant at Hearson's Cove and construct a pilot ammonia plant. The Commonwealth and Western Australian Governments need to explain why the Aboriginal Community has been told to facilitate YARA rather than the other way around, given that it is Aboriginal land.

Is it because of the likely health impacts from industrial emissions from YARA?

Is it the intention of the Western Australian Government to use this YARA industrial extension and the consequent need to re-site the proposed Aboriginal Living Knowledge Centre as the reason to open up the Northern Burrup for tourism?

Before any road access is built to the Northern Burrup, there needs to be full consultation with the Aboriginal people and a comprehensive survey of the petroglyphs there.

Conclusion

The Bob Brown Foundation does not support the operation of an explosives plant on the Burrup Peninsula.

It is clear that the industrial emissions will result in acid rain and microbial growth which will erode the petroglyphs.

It is also clear that there is inadequate monitoring of existing operating conditions of industry on the Burrup Peninsula and we have no confidence that this will improve with further industrial activity.

Human Health and the environment are at risk.

The Commonwealth is in breach of its EPBC obligations to protect the Dampier Archipelago, including the Burrup Peninsula, by failing to implement the principles of ecologically sustainable development in decision making pertaining to the site and by failing to take account of relevant considerations in its decision making regarding the proposed YARA Explosives (Technical Ammonium Nitrate) Plant.

The Commonwealth needs to review the devolution of its responsibilities to the WA Government as its current arrangement is inadequate to fulfil the Commonwealth's obligations under the EPBC Act.

Further proposed industrial activity should be located on the Maitland Industrial estate. The Bob Brown Foundation supports World Heritage Listing of the Burrup Peninsula as a matter of urgency as the precious, irreplaceable ancient petroglyphs are at risk of being destroyed within a generation.

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