WAFA SUBMISSION GUIDE

SHORT VERSION

South32's Proposed Worsley Mine Expansion

South32's proposal to clear another 4,399 ha of forest and woodland habitat for bauxite mining is before the EPA. It is absolutely critical that the EPA hears from people who are concerned about the protection of the Northern Jarrah Forest during this Public Environmental Review period.

Submissions are due by the 29th of August

WAFA has put together two guides in collaboration with other groups to assist people in making submissions. This is the short version. If you want a longer, more comprehensive guide, you can find it on our website: http://bit.ly/South32-WAFA-Guide. We strongly encourage you to follow the process that we've described and to use the information we have provided.

South32's Environmental Review Document (ERD) is a whopping 815 pages long and comes with 62 appendices. It is near impossible for most people to digest this material and make a considered submission within the time provided. But it is vital that the EPA hears from us.

So, we have summarised the ERD and we provide this quick and easy guide to assist you in being heard. The more that you are able to include your own personal concerns, evidence, suggestions and additional information the better. Again, if you want more a more detailed guide, see the long version on our website.

Please don't delay in getting your submission in. And pass this guide on to friends and family and encourage them to also make a submission.

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Why does this matter?

Mining giants are circling the Northern Jarrah Forests seeking approval from the State Government to clear huge areas of jarrah forest ecosystems for minerals.

This comes right at the time when the UN has recognised the Northern Jarrah Forests as one of a handful of Australian ecosystems most at risk of climate collapse (IPCC 2022, Ch 11 p80).

The Northern Jarrah Forests are incredibly precious. They are home to an astounding number of plants and animals that exist nowhere else on Earth, they provide critical habitat for endangered species including mainland Quokkas and South West Black Cockatoos, they store and draw down huge volumes of carbon from the atmosphere, regulate rainfall and temperature along the Darling Scarp and are the catchment for major rivers from Perth down to Collie.

But over the past 150 years they have been subjected to extensive logging and clearing for timber, agriculture, housing, infrastructure and minerals.

South32's plans include using 900 million litres of groundwater every year for 15 years from this already at-risk, drought-prone environment. **Not only would the company clear 4,399 hectares of forests and woodlands, destroying wildlife habitat and reducing ecosystem resilience to climate change, it would also use nearly a billion litres of water every year**, endangering the surrounding forests by using the water they need for their health and survival.

The idea of taking nearly a billion litres of water out of this drying ecosystem, already threatened by climate collapse, every single year is completely unconscionable.

What is South32 proposing to do?

South32 Worsley Alumina seeks to expand their current mining operations in the Boddington area and, in the process, clear another 4,399 ha of high conservation value forests and woodlands.

Water consumption would increase from 500 million litres per annum (currently authorized), to 900 million litres of groundwater per annum.

Making your submission

There are three ways you can submit: by post, delivering it in person, or uploading it online.

You can find the addresses, the online form and the South32 Environmental Review Documentation here: https://consultation.epa.wa.gov.au/open-for-submissions/worsley-expansion-revised-per/

Whether you're posting, hand-delivering or submitting online, the first step is writing your submission.

Writing your submission

On the following pages, you will find summaries of information and conclusions that you can use in your submission.

Your submission will be the most effective if you organise it into sections defined by the environmental factors that the EPA assesses these proposals against.

You don't have to address every environmental factor that the EPA will be assessing, but it will help if you write it under the factor headings.

Submission template

Chair, Environmental Protection Authority
Locked Bag 10
Joondalup DC, WA 6919

Dear EPA Chair,

Re: Submission on South32 Worsley Alumina's proposed Worsley Mine Expansion

INTRODUCTION

- Give your name and address, and the date of your submission
- State whether you want your contact details to be confidential
- Set out a summary of your submission – clearly state your point of view and summarise reasons for your position.

FACTORS

- State the factor heading and the EPA objective for that factor
- *Use the information we have summarised under each factor heading in this guide. Add your own thoughts and information from your own experience and research wherever possible, and draw on our longer guide where desired.*

CONCLUSION

- *Restate your position and what you want to see happen, sign off with your name and contact details.*

FURTHER INFORMATION

- WAFA submission guide – long version: http://bit.ly/South32-WAFA-Guide
- Peel Harvey Catchment Council's website: https://peel-harvey.org.au/south-32-per/
- A *Thousand Cuts* report: http://bit.ly/NJFReport
- EPA webpage: https://consultation.epa.wa.gov.au/open-for-submissions/worsley-expansion-revised-per/
- Australia State of the Environment Report 2021: https://soe.dcceew.gov.au/
- For queries regarding submitting your response: EPA services at DWER (08) 6364 7000

We acknowledge and pay our respects to the traditional owners of the southwest forests across the Noongar/Bibbulmun nation. This always was and always will be Aboriginal land.

FLORA AND VEGETATION

(Begins on page 121 of ERD)

EPA OBJECTIVE:

To protect flora and vegetation so that biological diversity and ecological integrity are maintained

The proposal would result in the **direct loss of up to an additional 4,399 ha of 'excellent' or 'very good quality' Jarrah, Marri and Wandoo forest and woodland** (ERD, 193 – 194).

This is equal to **40% of the remaining native vegetation** in the 29,356 ha Primary Assessment Area (PAA) (ERD, 123, 225 and 198).

Eleven Priority flora species would be cleared. Two of these (*Synaphea panhesya* P1 and *Banksia subpinnatifida* var. *subpinnatifida* P2) would be cleared in their known entirety within the PAA (ERD, 200).

The company says that there are areas of high conservation value that are important to biodiversity or heritage but fails to create protected areas for the vast majority of them, saying instead that they are managed internally and through negotiations (ERD, 96).

The cumulative impact assessment is insufficient and does not consider the known risk of ecosystem transition or collapse under climate change.

The reliance on rehabilitation being a mitigation strategy is unacceptable. Rehabilitated areas are not comparable to mature forests. They cannot provide the habitat value or carbon storage capacity of mature forests. They do not have the resilience to climate change of mature forests, and their substantially higher evapotranspiration rates and high water use make them a threat to surrounding forests. A review of the company's own past rehabilitation performance found native plant density and native species richness were well below that in surrounding forests (ERD, 245-46).

CONCLUSION

The proposal cannot meet the EPA objective for Flora and Vegetation and should be rejected. And, at the very least, all forests, woodlands, shrublands and heaths in the Primary Assessment Area (PAA) must be protected from clearing and conditions must be imposed to ensure that these Protected Areas are not disturbed by clearing or impacted by increased spread of weeds or disease; groundwater or surface water alterations, or dust.

LAND

TERRESTRIAL FAUNA

(Begins on page 254 of ERD)

EPA OBJECTIVE:

To protect terrestrial fauna so that biological diversity and ecological integrity are maintained

South32's proposal would have severe impacts on terrestrial fauna. The species expected to suffer the greatest impacts are Red-tailed, Baudin's and Carnaby's Cockatoos, Quokkas, Chuditch, Red-tailed Phascogales, Brush-tailed Phascogales, Woylies, Western Ring-tailed Possums and Numbats.

The impacts to these, and seven other conservation significant fauna, include:

- Injury and death during clearing operations
- Loss of habitat, including habitat considered critical for species survival
- Further fragmentation of habitat
- Decline in breeding success through removal of breeding habitat
- Increased predation by foxes and cats
- Increased deaths and injury on roads
- Impacts of dust, noise and vibration during clearing and operations.

The proposed clearing would destroy a significant proportion of suitable habitat that is critically important for species survival.

Species	Suitable habitat in South32 assessment area (Ha)	Habitat proposed to be cleared by South32 (%)	Habitat proposed to be cleared by South32 + Boddington Gold Mine	Cumulative habitat loss due to South32 + Boddington Gold Mine (% of suitable habitat)
Red-tailed Black Cockatoo	Foraging: 16,152 Breeding: 12,688	Foraging: 37% Breeding: 18%	7,523	21%
Baudin's Cockatoo	Foraging: 16,152 Breeding: 12,676	Foraging: 37% Breeding: 23%	6,961	22%
Carnaby's Cockatoo	Foraging: 16,364 Breeding: 12,676	Foraging: 37% Breeding: 18%	7,387	21%
Woylie	4,385	60%	3,215	21%
Red-tailed Phascogale	691	65%	Not quantified	Not quantified
Brush-tailed Phascogale	5,198	40%	6,501	22%
Quokka	493	48%	Not quantified	Not quantified
Western Ring-tailed Possum	493	Not quantified	Not quantified	Not quantified
Chuditch	2,018	38%	7,429	21%
Numbat	11,858	Not quantified	Not quantified	Not quantified

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The company accepts that the proposal would have impacts at local, regional and even population levels. This is wholly unacceptable and should not be approved by the EPA.

South32 completely ignores impacts on Numbats, claiming it is unlikely they are in the area in spite of several official recorded sightings.

South32 proposes to destroy a minimum of 64 breeding trees for Black Cockatoos; clear 60% of the habitat for the critically endangered Woylie, which it acknowledges is particularly threatened by its proposed clearing at a local and even regional level; and South32 acknowledges the likelihood of significant impacts for Brush-tailed Phascogales and then fails to propose any mitigation actions whatsoever. The company's assertion that, for various species, 'impacts at a population level are less likely as suitable habitat will remain in the PAA and surrounding forested areas' is not supported by evidence and is at odds with the precautionary principle (ERD, 347 and 349).

For some fauna, South32 proposes mitigation actions to manage what it describes as 'significant residual impacts'. The approach relies on rehabilitation which cannot provide the quality of habitat required, a highly questionable fenced enclosure for Woylies, artificial nest boxes, inadequate protected areas that can be modified and removed, and a heavy reliance on an offsets package. Offsets sit at the bottom of the mitigation hierarchy and are 'the least preferred option' (EPA 2021, 7).

The mitigation proposals are wholly inadequate and misleading. The company gives its rehabilitation a 6/10 for Black Cockatoos for foraging, in spite of evidence that only the Carnaby's reliably use the rehabilitation as a food source and only after a minimum of 4 years of growth. None of the Cockatoo species can use the rehabilitation for breeding. Artificial hollows are not reliably used by Forest Red-tails or Baudin's Cockatoos and cannot be relied upon as a mitigation strategy.

CONCLUSION

The reliance on unproven biodiversity offsets to address serious, potentially regional and population wide impacts on fauna – half of them listed as endangered or critically endangered – is unacceptable. South32's approach to these impacts is unscientific and at odds with the EPA mitigation hierarchy and the precautionary principle.

The EPA should reject the proposal.

And, at the very least:

All forests, woodlands, shrublands and heaths in the Primary Assessment Area (PAA) must be protected from clearing and conditions must be imposed to ensure that these Protected Areas are not disturbed by clearing or impacted by increased spread of weeds or disease, groundwater or surface water alterations, or dust.

LAND

TERRESTRIAL ENVIRONMENTAL QUALITY

(Begins on page 426 of ERD)

EPA OBJECTIVE:

To maintain quality of land and soils so that environmental values are protected.

The proposal would have **significant impacts on soil and water, particularly through erosion, compaction and contamination.**

South32's ERD fails to provide adequate data and information on this factor. It does not provide the contamination records from hydrocarbon and chemical spills and leaks or the erosion record of current operations. It cites unpublished research without providing supporting data on relevant matters, and it provides no research citation on some impacts such as deep ripping to address soil compaction. It also fails to account for the loss of soil carbon resulting from clearing.

Key potential environmental impacts (ERD, 449) are:

- Erosion
- Soil health decline
- Soil compaction
- Salinisation
- Contamination of land and soil through spills and leaks
- Acid sulfate soil disturbance

The ERD provides little to no information by which an assessment of current practices can be made.

The company says it expects that the risks of significant potential environmental impacts for land and soils will not change from current mining and refining operations. However, it is expected that with expansion of the mining operation there would be increases in erosion, chemical spills, loss of carbon and a reduction in the overall soil health within the PAA.

The assessment of impacts on soil health is especially thin, despite acknowledging its importance for biological and chemical processes and the resilience of flora and fauna ecosystems. Notably, there is no assessment of the environmental impacts in relation to carbon sequestration.

CONCLUSION

The company's assessment on this factor is insufficient for the purposes of a Public Environmental Review. The proposal cannot meet the EPA's objective for this factor and should be rejected.

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WATER

INLAND WATERS

(Begins on page 465 of ERD)

EPA OBJECTIVE:

To maintain the hydrological systems and quality of groundwater and surface water so that environmental values are protected.

The proposal would impact the Hotham and Williams Rivers (directly), the downstream environments of the Murray River Catchment (regionally) and the Peel-Yalgorup System, recognised as a Wetland of International Importance under the Ramsar Convention.

Direct impacts of the proposal on waterways include:

- erosion of riverbanks and scouring of streams
- changes to the water balance in Water Dependant Ecosystems
- increases in salinity due to cumulative clearing impacts
- sedimentation and turbid waters through clearing impacts
- waterway contamination from spills or storm water runoff from clearing areas
- altered flow regimes and water quality causing impacts to aquatic fauna and overall waterway health.

The proposal would also involve three new crossings over the Hotham River. This would cause disturbance to riparian areas and likely increases in turbidity and pollutants entering the river system.

Groundwater **extraction is proposed to increase from 500 ML/a to 900 ML/a, primarily for use in dust suppression** (ERD, 21).

The ERD acknowledges the increased groundwater abstraction 'has the potential to cause localised drawdown, which may affect vegetation' (ERD, 225).

Company-commissioned modelling shows that after clearing for bauxite mining 'generally groundwater level rises at 5 meters above the pre-mining groundwater table elevations, however, some areas of up to 10 meters elevation are noted' (Appendix I1: GHD 2020a, 37).

Whilst the ERD presents rehabilitation as a mitigation strategy, there is no modelling of the actual impacts of rehabilitation on groundwater flows and levels and **no mention of the known impacts thirsty rehabilitation has on surrounding forests through competition for water**.

The ERD also fails to address directly how removing the bauxite regolith down to bedrock or clay levels (and replacing with overburden and topsoil) alters the ground hydrology.

The company acknowledges that '**There is insufficient information with which to assess the impacts to the [Groundwater Dependent Ecosystems]** GDEs' and 'the majority of the GDEs are deemed as high-risk areas of concern ...[and] are likely to require management to address potential mining related impacts' (Appendix I1: GHD 2020a, ii).

South32 has failed to adequately address the impacts of increased water use and further clearing, mining and groundwater abstraction in a drying landscape. The region has been identified by the IPCC as an ecosystem at risk of climate collapse or ecosystem transition.

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Most concerning is the lack of long-term monitoring that would allow the modelling to be accurately calibrated: something the company's commissioned consultant considered was an issue. The lack of monitoring was not just in groundwater dependent ecosystems, but across all mining areas and includes both monitoring of groundwater levels and salinity and of changes to surface water flow and water quality over the life of mine.

In addition, the company has failed to consider the impacts of taking nearly 1 billion litres of water every year from this already drought-prone, at-risk environment. And it overlooks the additional evapotranspiration from rehabilitation and the implications for the surrounding forest.

CONCLUSION

The impacts on inland waters, vegetation and groundwater dependent ecosystems would be unacceptable. The ERD is not sufficient for the purposes of a Public Environmental Review and the EPA should reject this proposal.

PEOPLE

SOCIAL SURROUNDINGS

(Begins on page 553 of ERD)

EPA OBJECTIVE:

To protect social surroundings from significant harm.

South32's proposal would have significant social, cultural and heritage impacts.

The ERD is inconsistent in the number of Aboriginal sites that will be impacted, and it does not adequately respond to locally identified Aboriginal cultural values. It notes that **'It is known that three Aboriginal heritage sites will be impacted by the construction of the river crossings'** (ERD, 595) and fails to take account of the cultural significance of these sites and to adequately investigate alternatives.

There would also be significant impacts to **Tullis Bridge**, which is highly valued by the communities for heritage and amenity. There is no possible community offset to compensate for this impact, particularly on the Aboriginal community.

Protection measures proposed for the **Hotham Valley Railway** are insufficient and the impacts of building an overpass over the railway on current uses including as a nature walking track would be unacceptable.

The impacts on the **Bibbulmun Track** are inconsistently described in the ERD and it is unclear whether there will be 'no disturbance' or if 'a 1.1km section may be indirectly impacted'.

There would also be **ongoing**, serious noise and dust impacts on local communities, which are not properly considered by the company.

CONCLUSION

The company does not adequately address the proposal's significant impacts on social surroundings.

There are gaps and inconsistencies in the assessment and mitigation efforts are deficient.

The company's assessment on this factor is insufficient for the purposes of a Public Environmental Review.

The proposal cannot meet the EPA's objective for this factor and should be rejected.

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AIR QUALITY

(Begins on page 532 of ERD)

EPA OBJECTIVE:

To maintain air quality and minimise emissions so that environmental values are protected.

The air quality implications of South32 Worsley's proposal are significant. Mining, transport and alumina refinery operations cause air borne emissions of dust, toxins and combustion products that have the potential to cause serious health impacts, including cancer and silicosis, as well as the amenity and visibility issues associated with dust.

The South32 ERD downplays the impacts of its proposal on health, amenity and visibility issues for the local communities. While the South32 website says that the 'potential health risks at our workplace include potential exposure to carcinogenic substances (silica, diesel particulate matter, nickel, and coal tar pitch volatiles), and other airborne contaminants (coal dust, fluoride, lead and manganese dust), the ERD does not address these issues and overlooks the potential impacts on surrounding communities.

Complaints from the local communities about visible dust and possible health effects are barely acknowledged.

The processes of an alumina refinery are highly polluting with typical pollutants including mercury, VOCs, GHGs, fluoride, benzene, acetaldehyde, formaldehyde and SO2. The Worsley refinery is old and in need of technological upgrade, both to its fuel source and its emissions controls.

CONCLUSION

The ERD is not adequate for the purpose of a Public Environmental Review. The potential exists for serious human and environmental health impacts to be exacerbated and for new impacts to occur as a result of this proposal.

The EPA should reject the proposal and require an in-depth, transparent assessment of the risks to be carried out.

AIR

GREENHOUSE GAS EMISSIONS

(Begins on page 613 of ERD)

EPA OBJECTIVE:

To reduce net greenhouse gas emissions in order to minimize the risk of environmental harm associated with climate change.

Alumina refining is WA's second most carbon polluting industry, emitting almost twice the volume of carbon dioxide than coal-fired power stations in the State.

South32 Worsley's ERD acknowledges that the proposal would cause the emission of 269.85 million tonnes of CO2e over 15 years. This would be made up of 43.35 Mt CO2e Scope 1 and 2 emissions (if planned emission reductions are achieved), and 226.5 Mt CO2e Scope 3 emissions.

The company says that it aims to achieve net zero operational (Scope 1 and 2) emissions by 2050, which its reduction expected to be achieved by switching from coal to gas and then potentially other low carbon fuels. **This planned switch from coal to gas will reduce South32 Worsley's operational CO2 emissions but ignores the methane emissions from gas production.** Over a 20-year time frame, methane has about 80 times more warming effect than CO2.

If the company is not able to reach interim 5 yearly targets, it may resort to carbon offsets (of an unspecified nature) (ERD, 622).

The South32 Worsley refinery has comparatively high GHG emissions intensity (emissions/t alumina): **about 50% higher than the average for the Alcoa refineries in WA**. The company claims that its GHG intensity is about 16% higher than other Australian refineries, however, this has not been able to be verified. According to the company, this is largely due to its use of coal rather than gas (ERD, 617, Appendix E10).

The company admits its emissions contribute to 'chronic and acute physical impacts in the southwest of Western Australia' that 'impact the health and resilience of ecosystems, habitats and species' and will 'affect the efficacy of existing and future mitigation activities' (ERD, 618-19).

CONCLUSION

WA has a serious problem, with carbon emissions continuing to rise and a lack of action by Government or regulators to prevent private industry from developing climate-wrecking projects.

WA's GHG emissions already exceed the level required to support the Paris Agreement. Hence, WA must cut its emissions more steeply than other States in the future.

If the proposal is approved, Australia will not be heeding the science and meeting its international climate commitments, and the recognised environmental impacts from climate change will be severe.

The EPA should reject this proposal.

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