Environmental Defenders Office

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Via email: mel.smith@asic.gov.au

RE: Alcoa advertisement about Jarrah Forest rehabilitation

1. We act on behalf of Conservation Council of WA (**CCWA**), The Wilderness Society (**TWS**) and WA Forest Alliance (**WAFA**).

2. CCWA is Western Australia's foremost non-profit, non-government conservation organisation representing close to 100 environmental organisations across Western Australia, with tens of thousands of engaged individuals state-wide. This broad collective of like-minded groups and individuals creates a vibrant and passionate community, dedicated to the conservation of our unique and diverse state.

3. The WA Forest Alliance is a non-profit, non-government umbrella organisation made up of more than 25 forest conservation groups in Perth/Boorloo and the South West, working together for the protection of WA's south-west forests and wildlife. WAFA's mission is to see WA's native forests fully and securely protected and managed to maintain and restore their ecological values, and to empower the next generation to successfully defend them against future threats.

4. The Wilderness Society is an independent, community-based, not-for-profit environmental advocacy organisation. Our vision is to transform Australia into a society that protects, respects and connects with the natural world that sustains us. We are committed to protecting, promoting and restoring wilderness across the continent for the survival and ongoing evolution of life on Earth. From community activism to national campaigns, we seek to give nature a voice to support the life that supports us all. We are powered by more than 150,000 supporters from all walks of life.

5. Our clients request that ASIC investigate whether statements made by Alcoa of Australia Ltd (**Alcoa**) in an advertisement in the West Australian newspaper on 24 May 2025, 7 June

2025, 30 July 2025 (**West advertisements**) and other statements made in publications and investor materials on their website as set out in **Annexure A** are potentially misleading.

6. The statements, alone or in combination, represent that:
   (a) Rehabilitation of the Jarrah Forest is possible in areas that have been cleared for mining (**future rehabilitation of Jarrah Forest is possible representation);**
   (b) 75% of the Jarrah Forest cleared for mining by Alcoa has been rehabilitated to a condition like the undisturbed Jarrah Forest (**Alcoa has rehabilitated 75% of Forest historical representation);**
   (c) Some rehabilitated areas of the Jarrah Forest have already achieved 100% plant species richness return (**100% of plant species return to rehabilitated areas representation**);
   (d) Alcoa claims it undertakes **World Class Mining Rehabilitation**
   (e) Mining has occurred in the area without any impact on Perth's drinking water quality (**historical drinking water quality representation**); and
   (f) Mining will continue to operate in the area in a way that doesn't impact on Perth's drinking water quality (**future drinking water representation).**

7. Our clients are concerned that the representations made in these publications in relation to Jarrah Forest rehabilitation and the impact of the mining on the drinking water catchment may constitute misleading or deceptive conduct in contravention of section 1041H of the *Corporations Act 2001* (Cth) (**Corporations Act**) and/or section 12DA of the *Australian Securities and Investments Commission Act 2001* (Cth) (**ASIC Act**). Both provisions prohibit "engag[ing] in conduct that is misleading or deceptive or is likely to mislead or deceive".

8. Insofar as some of these representations relate to future matters, our clients are concerned that Alcoa has no reasonable grounds for making those representations, such that they are deemed misleading by s 769C of the Corporations Act for the purposes of s 1041H of the Corporations Act and/or by s 12BB for the purposes of s 12DA of the ASIC Act.

9. A table summarising the representations by Alcoa and why they are potentially misleading or deceptive is below:

Representation	Why the representations are potentially misleading
Future rehabilitation of Jarrah Forest is possible	Scientific evidence suggests rehabilitation of the *entire* Northern Jarrah forest and its biodiversity to a state like the native reference ecosystem is not possible in areas where Alcoa have cleared land for mining. Its vegetation communities rely and have evolved on the bauxite Alcoa removes from the substrate.

Alcoa has rehabilitated 75% of Jarrah Forest	None of the land cleared by Alcoa (including the land handed back near Jarrahdale) has to date met the WA Government's Rehabilitation Criteria and therefore could be said to be "rehabilitated" to the legal standard
Some rehabilitated areas of the Jarrah Forest have already achieved 100% plant species richness return	Recent peer reviewed studies show that the North Jarrah Forest gradually accumulated its "hyperdiverse" plant lineages through unique circumstances including early diversification and old age of flora, relatively high rates of sympatric speciation indicative of greater niche space saturation, and an absence of mass extinction events since the Eocene. Therefore, previously mined areas rehabilitated by Alcoa will not return to a state similar to the native reference ecosystem, improve over longer time frames, nor show sustained improved outcomes from adaptive management processes.
World Class mining rehabilitation	As none of Alcoa's rehabilitation to date has met the WA Government's Rehabilitation Criteria, nor met the 100% plant richness goals (the company has set for itself), and a recent independent peer-reviewed paper gave Alcoa 2/5 stars for its bauxite mining rehabilitation efforts.
Perth's drinking water quality has never been negatively impacted by Alcoa's mining activities	There was a record of spills at Alcoa's site near the Serpentine Dam and the Water Corporation's view is that contamination of reservoirs because of these incidents was certain.
The quality of Perth's drinking water will not be affected in future by Alcoa's mining activities	The Catchment Risk Assessment undertaken by Water Corporation provides substantial analysis to demonstrate that there are significant risks with the current mining operation, with a high likelihood of significant negative long-term impacts to water quality and catchment water yield.

10. Our clients are raising these issues with you as the ASIC's 2025 Enforcement Priorities include 'greenwashing and misleading conduct involving ESG claims'.[1]

Background to Alcoa bauxite mining

11. Alcoa undertakes bauxite mining south east of Perth in the Northern Jarrah Forest. Alcoa is a US-owned mining company that has been operating in WA since 1961 under a State Agreement with the WA Government. This agreement has meant that most of Alcoa's operations have been approved behind closed doors. Alcoa has already cleared over 28,000ha of forests in WA. Currently, Alcoa are proposing to clear a further 11,500ha across three regions of the Northern Jarrah Forest over a 20 year period. The proposal represents the first time in 60 years that the WA public will have an opportunity to comment on Alcoa's plans. The Cook Labor Government has provided Alcoa with an exemption under Section 6 of the Environmental Protection Act, allowing Alcoa to continue clearing forests, despite the ongoing assessment.

12. The Northern Jarrah Forest is the world's most biodiverse temperate forest, hosting over 800 plant species and 10 endangered animal species. The Jarrah Forest (comprising both the Northern and Southern Jarrah Forests) is incredibly precious. The Jarrah forests of the South West of Western Australia are a key part of a Global Biodiversity Hotspot that is under enormous cumulative pressure from a variety of sources including native forest logging, mining, agriculture, urban development, dieback, prescribed burning and climate change. These forests are home to an astounding number of plants and animals that exist nowhere else on Earth; they have more than 800 plant species including 780 native plant species and provide critical habitat for endangered species including mainland Quokkas and Black Cockatoos, as well as and drawing down huge volumes of carbon from the atmosphere, regulating rainfall and temperature along the Darling Scarp and serving as the catchment for major rivers from Perth down to Collie. The Northern Jarrah Forests are vital to water quality and supply for the Perth metropolitan region and South West forests. West Australians are increasingly concerned with the protection of this magnificent place.

Potentially misleading claims

<u>Claim 1 – Future rehabilitation of Jarrah Forest is possible representation</u>

Statements and representations as to future matters

13. Alcoa's statements in advertisements in the West Australian newspaper and on the radio (Statements 1 and 2 in **Annexure A**) represent to consumers that the rehabilitation or restoration of the Jarrah Forest is possible. A screenshot of the West Advertisement about Jarrah Forest rehabilitation is available in **Annexure B**. It implies by using the words "rehabilitation" and "restore" in conjunction with Jarrah Forest, represent that Alcoa's actions will lead to the eventual restoration of the Jarrah Forest to a state similar to the native ecosystem, ie the undisturbed Jarrah Forest. Similarly, the statements' use of the term "Jarrah Forest" is vague and represents that rehabilitation is restoring the entire ecosystem of the "Jarrah Forest" or components of it. Moreover, Alcoa's stated

[1] ASIC, 'ASIC enforcement priorities' (Web Page, 14 November 2024).

"goal" of restoring "every single type of plant species that existed before mining to these rehabilitated sites within 15 months", represents that returning the Jarrah Forest to an undisturbed condition within a 15-month timeframe is possible. As outlined below further, this is not occurring and is not possible based on experience to date with the rehabilitation, and as a result the relevant Statements are likely to mislead.

14. While 'future matter' is not defined in the Corporations Act or the ASIC Act, it is generally accepted as meaning a prediction, forecast or projection. Alcoa's representation is with respect to a "future matter" because it relates to the prediction, forecast or projection of rehabilitation in the future.

No reasonable grounds

15. As outlined below further, this future representation that rehabilitation is "possible" has no reasonable grounds, as required by s 769C of the Corporations Act, and/or s 12BB of the ASIC Act. Rehabilitation is not occurring and is not possible based on experience to date. There are peer reviewed independent studies which suggest that rehabilitation of the Northern Jarrah Forest to a state like the native reference ecosystem is not possible in areas where Alcoa have cleared land for mining.

16. The site has been studied by academics from the University of WA and Curtin University, Dr Tristan Campbell and Professor Kingsley Dixon and others[2]. In that study they examined the claim that the area Alcoa had mined since 1963 had been "restored to a healthy, resilient forest ecosystem". The study rated them two stars out of possible five stars for full ecosystem restoration based on the restoration areas not returning to a state like the native reference ecosystem, not improving over longer-term timeframes and not showing sustained improved outcomes from adaptive management. The authors also noted that only 5% of the area had met Government handover criteria (which was different to completion criteria), with no Government certificates issued since 2007.[3] Furthermore, it was noted that the removal of the substrate on which the vegetation communities rely and have evolved may be a significant cause of Alcoa's poor restoration outcomes and fundamental ecosystem attributes were not considered in previous studies of the rehabilitation.[4] This resulted in most of the diversity of plant species found in the forest being absent in the rehabilitation areas and key animal species struggling to return due to inadequate habitat. The conclusion of the study raises significant concerns about whether it is possible to rehabilitate the Northern Jarrah Forest in the mining area.

17. Recent peer-reviewed research by academics at the University of Adelaide and the Australian National University about the process by which the North Jarrah Forest acquired its "hyperdiversity" similarly casts doubt on Alcoa's future claim about future restoration of "every single type of plant species that existed before mining to these

[2] Campbell & Dixon et al, "Standards-based evaluation inform ecological outcomes for a major mining activity in a global biodiversity hotspot", Restorative Ecology, v.34, issue 8, November 2024.
[3] Ibid, p 7.
[4] Ibid, p 17.

rehabilitated sites".[5] The hyperdiversity of the southwest Australian (SWA) floristic region, covering parts of the Jarrah Forest, is attributed to its location in the most geologically stable landform globally which has allowed evolutionary diversification for longer than anywhere else. Extant SWA groups began to diversify in the Cretaceous period (lasting from 145 to 66 million years ago), with most species-rich sclerophyllous groups diversifying from the Eocene and Oligocene periods onwards (beginning 55 and 33 million years ago, respectively). SWA's pathway to this biodiversity is unique, shaped by the early diversification and old age of its flora, relatively high rates of sympatric speciation indicative of greater niche space saturation, and an absence of mass extinction events since the Eocene. Alcoa's rehabilitation cannot replicate Jarrah Forest's ancient eco-biome which comprises a so-called "evolutionary museum" of gradual accumulation of plant lineages.

18. Similarly, the representation that rehabilitation is possible within a 15-month timeframe has no reasonable grounds as the scientific evidence suggests that full rehabilitation is not possible regardless of timeframes, and, in fact, biodiversity in previously mined areas diminishes over time.[6]

19. Furthermore, the WA Government requires rehabilitation as part of the planning approval process, so it is not something Alcoa is doing voluntarily, but mere compliance with regulatory requirements.

No qualifying statements or disclaimers

20. There are no qualifications placed on the future "rehabilitation" representations to balance the information contained in the headline claim, contrary to RG 234.47- 234.53 of ASIC's Regulatory Guide 234 titled 'Advertising financial products and services (including credit): Good practice guidance' (**ASIC Guide**).[7] For example, there is no clarification that the rehabilitation may be to a lower standard than the original Northern Jarrah Forest, in accordance with the legal requirements of what is required by the WA Government and will not be rehabilitated to be comparable with the original Northern Jarrah Forest cleared. Nor are there any disclaimers to indicate that the rehabilitation is required as part of the planning approval and not voluntary.

Claim 2 – Alcoa has rehabilitated 75% of Jarrah Forest historical representation

Statements and representation

21. For the same reasons as above, use of the terms "rehabilitated" and "now thrive" in Alcoa's statements in a Press Release and Online Article claiming rehabilitation of 75% of native Jarrah Forest areas that had been previously cleared for bauxite mining (Statements 3 and 4 in **Annexure A**), represent that those areas impacted have already returned to a "good" or "improved" condition similar to the undisturbed Jarrah Forest.

[5] Nge & Skeels, "Diversification patterns of the southwest Australian biodiversity hotspot reveal a novel macroevolutionary pathway to plant hyperdiversity", New Phytologist, advance online publication, June 2025.

[6] Campbell & Dixon et al, "Standards-based evaluation inform ecological outcomes for a major mining activity in a global biodiversity hotspot", Restorative Ecology, v.34, issue 8, November 2024.

[7] ASIC, Advertising financial products and services (including credit): Good practice guidance (Regulatory Guide 234, 2021); ASIC, How to Avoid Greenwashing When Offering or Promoting Sustainability-Related Products (Information Sheet 271, June 2022).

To date, Alcoa's bauxite mines have impacted over 23,400 hectares of native Jarrah Forest, approximately 20,000 hectares of which is in water catchment areas. A screenshot of the West Advertisement about Jarrah Forest rehabilitation is available in **Annexure B.**

Statements unable to be substantiated

22. ASIC's Information Sheet 269 provides that 'any statement you make should be true, accurate and able to be substantiated'.[8] As to the standard of restoration, Alcoa has no reasonable basis to make claims about its rehabilitation of the Northern Jarrah Forest, because there has been limited WA approval of the rehabilitation conducted to date. None of the land cleared by Alcoa has to date met the WA Government's Rehabilitation Criteria and therefore could be said to be "rehabilitated" to the legal standard. For example, land was previously handed back near Jarrahdale but it did not meet completion criteria.[9] Since then, the criteria have become stricter, such that there is even less chance of Alcoa's rehabilitation meeting standards in the future. As outlined above, there have been recent scientific studies that suggest there are significant ecological and biodiversity concerns with the state of the rehabilitation undertaken to date by Alcoa, such as the absence of plant species in "rehabilitated" areas which may not return over time. In fact, in the absence of the factors identified in Nge and Skeels (2025),[10] such as early diversification and old age of flora, relatively high rates of sympatric speciation indicative of greater niche space saturation, and an absence of mass extinction events since the Eocene, unsurprisingly Campbell et al 2024 concluded that rehabilitated areas will not return to a state similar to the native reference ecosystem, improve over longer time frames, nor show sustained improved outcomes from adaptive management processes.[11]

23. Below at **Figure 1** is a photograph of a landscape where Alcoa has completed the first stages of rehabilitation.

24. As to the stage of restoration, Alcoa's use of "rehabilitated" in the West Advertisement is not entirely accurate, as it broadly captures all various stages of rehabilitation across "multiple decades" from the very first rudimentary steps of rehabilitation which will eventually be part of the formal handback to the State of Western Australia. That is, it includes land where only the very early stages of rehabilitation such as contouring of land and seeding has started. Contrary to Alcoa's representation that "rehabilitated" only

[8] ASIC, Discussing Financial Products and Services Online (Information Sheet 269, March 2022).

[9] https://www.alcoa.com/australia/en/pdf/mining-operations-rehabilitation-program-completion-criteria.pdf

[10] See discussion at para 14 above.

[11] See discussion at para 13 above.

requires the very early stages of rehabilitation to have been started over 15 months, Alcoa's site will need many stages of rehabilitation most of which must continue over a long period. Completion of the latter is what a reasonable investor would interpret the term "rehabilitated" to mean, hence, Alcoa's usage of the term "rehabilitated" to refer to the full spectrum of the "process" is likely misleading.

25. A spokesperson for Alcoa also appeared on the Australian Broadcaster Corporation (**ABC**) Perth radio station to conduct an interview on 30 May 2025 (**ABC Interview**). Many of their comments expanded further on claims made in the West Advertisement, in response to direct questions from the interviewer.[12] The Alcoa representative in the ABC Interview acknowledged this "rehabilitated" land would (sensibly, to a member of the public) "*look like a disturbed landscape*". An excerpt of the transcript of the interview is set out below:

ABC Interviewer	"I guess it all comes down to the definition of rehabilitated… the ad that Alcoa took out on the weekend saying you have rehabilitated 75% of what you have cleared, people usually see that as being in the past tense, you have not completely rehabilitated 75% of what you have cleared, it could be misleading"
Alcoa Representative	"I don't believe it is misleading, we have rehabilitated 75% of our operations but it is in various stages of rehabilitation and that is something that I certainly acknowledge…"
ABC Interviewer	"So, when you say 75% of the land has been rehabilitated that is technically not correct"
Alcoa Representative	"No, it is correct, when we refer to rehabilitation, what we are talking about here is industry definitions, and yes there are areas that are in early stages of rehabilitation, that would have been re-contoured, be seeded, have the early return of species but I can acknowledge that yes that would certainly look like a disturbed landscape but that is part of a process that is working towards areas that we can certainly reference and refer to where there is 25 – 30 years of rehabilitation which that will look like, once the trees have established and start to become a functioning ecosystem which are part of our completion criteria in relation to handback so what we are talking about there is the return of native flora, native fauna species and there is a series of monitoring that needs to occur over many years, so we're talking about a multiple decades process in order to achieve handback, so when we talk about rehabilitation, yes we are talking about various stages but it is all working towards that outcome of handback

[12] Nadia Mitsopoulos, 'Alcoa's Mining Operation in Perth Hills Open to Public Comment - ABC listen' (ABC Radio Perth, Perth, 30 May 2025).

> and I think it is a fair justification in terms of our operations given that the nature of bauxite mining does require us to move across the landscape and we have demonstrated over many years that we are able to progressively rehab across our mining operations and return it back to a functioning ecosystem"

26. Alcoa's failure to minimise clearance of the Northern Jarrah Forest to avoid having a large active footprint and environmental impact in the area in the first place also casts doubt on the extent of rehabilitation claimed. Water Corporation WA have previously identified Alcoa cleared 30% more land than the area they had revegetated in period 2000-2020,[13] with the increase in open mine area increasing risks to the water catchment, as discussed below.

No qualifications or disclaimers

27. There are no qualifications placed on the historical "rehabilitation" representations to balance the information contained in the headline claim, contrary to RG 234.47- 234.53 of the **ASIC Guide**. The acknowledgements and clarifications of the meaning of "rehabilitated" by the Alcoa representative in the ABC Interview demonstrates that the West Advertisement should have contained a clarification on the meaning of "rehabilitated".

Likely to mislead or deceive

28. Without such qualifications, Alcoa's 75% Representation may be misleading because it creates an impression to investors that 75% of the land cleared by Alcoa for mining has met the State Government's Rehabilitation Criteria, when in fact 0% of the land (including the land previously handed back near Jarrahdale) has met the State Government's Rehabilitation Criteria, as outlined at Paragraph 19 above.

Claim 3 – 100% of plant species return to rehabilitated areas representation

Statements and representation

29. Alcoa states in a press release that in certain rehabilitated mining areas, 100% species richness return was first achieved in 2021.[14] Similarly, Alcoa stated in an advertisement in The West Australian dated that 30 July 2025 that Alcoa was the 'first miner to achieve 100% plant species richness in rehabilitation'.[15]

30. These headline statements represent to a reasonable consumer that Alcoa's rehabilitation results in the return of all plant species.

Statements unable to be substantiated

[13] FOI Document, Water Corporation Briefing dated 16 September 2022, p 2.

[14] Statement 5 in **Annexure A**.

[15] **Annexure C**.

31. At the Annual General Meeting, Alcoa stated "peer-reviewed research" supports this claim , but failed to provide the citation for this research. However, Nge and Skeels (2025) discussed above cast doubt on Alcoa's claim that all plant species return to previously mined areas Alcoa rehabilitates, contrary to ASIC's Information Sheet 269'[16] which provides that 'any statement you make should be true, accurate and able to be substantiated'.

32. Alcoa's independent peer review of its rehabilitation program that it commissioned Stantec to perform at the request of the WA Environmental Protection Authority (EPA) does not substantiate this representation. While the Stantec peer review does state that on average 99% of the total area rehabilitated by Alcoa from 1992 to 2021 was deemed to have met the species richness target at 15 months of age, this target was set at only 50-60% of plant species' richness observed in forest reference plots.[17] Therefore, "100% species richness return" does not mean that Alcoa's rehabilitation results in the return of all plant species, only that 50-60% of plant species have returned per Alcoa's species richness target.

33. In fact, the Stantec peer review itself discloses that 'despite sequential improvements in rehabilitation methods, differences in compositional similarity between rehabilitation and unmined forest remain'.[18] Moreover, the review concedes that 'rehabilitation does not aim to reinstate the specific upland SVTs that were cleared… as the subtle differences in soil profile and landscape that defined the vegetation types are lost with the mining and rehabilitation process' and therefore rehabilitation causes 'a partial loss in the diversity of vegetation types compared to native jarrah forest'.[19]

No qualifications or disclaimers

34. Alcoa fails to define "100% species richness return" as measured against their species richness target of only 50-60% of plant species' richness compared to forest reference plots, creating an incorrect impression that the "100% species richness return" is measured against the native jarrah forest rather than Alcoa's lower targets. This is contrary to RG 234.47- 234.53 of the **ASIC Guide**, which requires such qualifications to balance the information contained in the headline claim.

35. Alcoa states in its 'Operating in Water Catchments' webpage and West advertisement that it has operated in the Northern Jarrah Forest for more than half a century and conducted mining activities in proximity to drinking water catchment areas without "negatively impacting Perth's public drinking water supply" or "any negative impacts over that time". A screenshot of the West Advertisement about drinking water quality is available in **Annexure D**. Alcoa's advertisement in the West Australian on Wednesday 30 July 2025 also states that it is a "fact" that they have had "no negative impacts on drinking water supply in more than 60 years".

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[16] ASIC, Discussing Financial Products and Services Online (Information Sheet 269, March 2022).

[17] Stantec Australia for GHD, Jarrah Forest Rehabilitation – Peer Review (Report, Project No 304500934, 2 November 2023) at Page 3.

[18] Ibid at Page 16.

[19] Ibid.

36. To date Alcoa's bauxite mines have impacted approximately 20,000 hectares of native Jarrah Forest which is in water catchment areas.

Claim 4 – World Class mining rehabilitation

Statements and representation

37. Alcoa states on the Australian sustainability section of their website, under the Environmental Management banner: "Read more about our world-class mining rehabilitation methods through this link".[20] Similarly, in the Quarter 3 - 2024 Alcoa Earnings Presentation (Slide 20) a claim is made of "World Class Mining Rehabilitation".'[21]

38. These headline statements represent to a reasonable consumer that Alcoa's rehabilitation is world-class.

Statements unable to be substantiated

39. Alcoa Australia's sustainability overview related to environmental management encourages people to, "Read more about our world-class mining rehabilitation methods through this link." Yet through the link/s provided, there are no scientific papers that provide evidence of world-class rehabilitation.

Likely to mislead or deceive

40. In our clients' view, Alcoa has thereby misled investors as to the corporation's rehabilitation record being world-class.

Claim 5 - Perth's drinking water quality has never been negatively impacted by Alcoa's mining activities

Statements and representation

41. The conclusive way Alcoa makes the aforementioned statements (Statements 7-9 in **Annexure A**) represents that it has no record of any incident on Perth's drinking water supply over the course of its Bauxite mine operations in the region for over 50 years.

Statements unable to be substantiated

42. Contrary to ASIC's Information Sheet 269[22] which provides that 'any statement you make should be true, accurate and able to be substantiated', it is difficult to understand how Alcoa can substantiate their representations that their current operations have no adverse impact on Perth's water quality given the evidence of incidents in the catchment.

43. In 2018, changes to Alcoa's mining practices led to one of its mines coming within 300 metres of Serpentine Dam, leading to concerns that during heavy rain sediment including

[20] Statement 11 in **Annexure A**.

[21] **Annexure G**.

[22] ASIC, Discussing Financial Products and Services Online (Information Sheet 269, March 2022).

chemical pollutants and disease-causing pathogens could wash into the dam. The mine is also working in hillier areas, digging larger pits and leaving more land unrehabilitated leading to increased risk of sediment runoff.

44. There was a record of spills at the site including sediment flowing into the dam on 46 occasions in 2021, with 137 spills in total with an average volume of 125L.[23] According to documents obtained under the *Freedom of Information Act 1992* (WA) which were prepared by the Water Corporation, the relevant agency responsible for water quality, the probability of contamination of reservoirs is considered certain based on what Alcoa has reported.[24] Reports from Alcoa include:

    a. 38 draining failures per year between 2017-2022, with a maximum of 77 in 2021

    b. 28 turbidity events per year between 2018-2022 with increasing trend in 2022;

    c. Average of 130 hydrocarbon spills per year between 2017-2022 (on average 16,900 litres/year). [25]

45. Documents obtained by our client under freedom of information processes from the Water Corporation (**Water corporation documents)** also outline the following hazardous spills on site in 2021/2022.[26]

Table 3. Alcoa's reported LOC of hazardous substances (2020/21)

	2020 - 2021		2021 - 2022	
Incident	No. of Spills	Volume (L)	No. of Spills	Volume (L)
Coolant	14	1,585	15	2,829
Hydrocarbon	150	16,499	90	8483
F3	1	240	13	2,777
PFAS	13	2,408		
Total	178	20,732	118	14,089

46. Prior to this time there was an even greater number of incidents over a longer period, as detailed below:[27]

[23] Peter Milne, "Alcoa mining threatens Perth's drinking water" WA Today, 8 February 2023

[24] 'Catchment Risk Assessment Alcoa 2023 – 2027: Procedural assessment under MS 728 informing the environmental audit of Alcoa's 2023 – 2027 MMP' https://www.smh.com.au/interactive/hub/media/tearout-excerpt/30655/FOI-869---Document-8---Catchment-Risk-Assessment-Framework---Alcoa-2023---2027-MMP.pdf, p 7.

[25] Ibid.

[26] FOI document no 48 obtained by The Wilderness Society, p 5 (**Annexure E**).

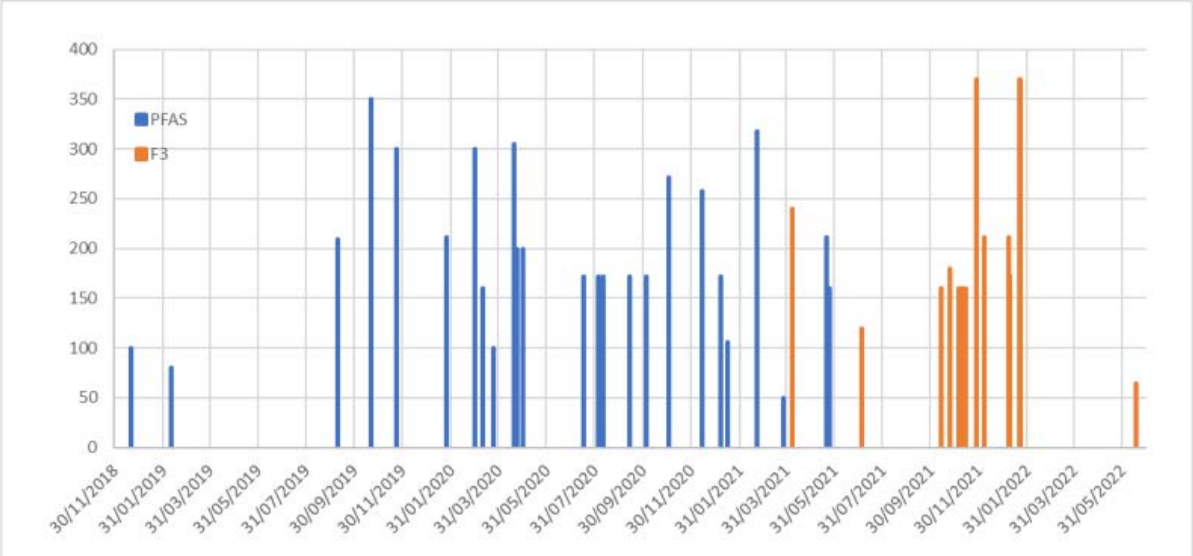
[27] Ibid.

Table 4. Reported LOC events – 2017 – 2021 (Huntley and Willowdale Mine sites combined)

	No. of Incidents	*Volume (L)*
2017	74	9,884
2018	111	17,209
2019	132	22,436
2020	184	19,631
2021	137	14,968
2022 (to July)	*77*	*9,605*
Total	***715***	***93,734***

47. The Water Corporation document outlined issues with Alcoa's use of PFAS on the site since 2014, which was only removed from use in 2021. PFAS use is a significant environmental issue due to its persistence, potential for bioaccumulation and long term contamination of water sources, causing a growing concern for human health and the environment.[28]

Reported Volume (L) of PFAS Related Incidents (Huntly and Willowdale Mines sites combined)



48. The Water Corporation documents concluded that the risks to the Water Corporation assets from the mining included:

- Increase in risk of pathogens;
- Increase turbidity from the mine put runoff and drainage failures
- Changes to catchment hydrology resulting from clearing, revegetation and removal of the upper regolith (soil profile) as a result of mining;
- Risk of contamination from hydrocarbons and chemicals of emerging concern;

[28] Ibid, p 7.

- Decline in water quality (various parameters) and impacts to catchment yield
- Changes to fire behaviour and catchment stability.[29]

49. The Water Corporations also priced the treatment options for the dam, if contamination occurred, and concluded it could cost up to $1.31 billion to $2.62 billion, leading to a 55-100% increase in water costs to customers. The potential loss of a dam through contamination would significantly impact on around 250,000 customers. The Water Corporation made specific recommendations to reduce the risk of contamination, noting that previous mining operations have not been effectively regulated, primarily due to limitations associated with the outdated management framework associated with the relevant State agreements.[30] It concluded that its recommendations are considered essential to protect drinking water in accordance with the precautionary principle, and are the minimum conditions to provide a reasonable level of protection to drinking water until a more detailed assessment and research can be undertaken.[31]

50. Therefore, the Water Corporation's view is that the mining is the most significant risk to water quality in the area.[6]

Likely to mislead or deceive

51. In our clients' view, Alcoa has thereby mislead investors as to the environmental impact of their mining on water quality.

Claim 5 – Future drinking water representation

Statements and representation

52. Alcoa's statement in the West advertisement (Statement 10 in **Annexure A**) that "we are confident that we can operate in a way that continues to help protect Perth's drinking water" represents that its mining activities will not negatively impact Perth's public drinking water supply in the future (a screenshot of the West Advertisement about drinking water quality is available in **Annexure D).**

Reasonable grounds

53. This future representation that Alcoa will keep drinking water safe has no reasonable grounds, for the purposes s 769C of the Corporations Act, and/or s 12BB of the ASIC Act.

54. Alcoa base this representation on the changes made to their operations including the buffer between the mining areas and dams in the catchment. However, the Catchment

[29] FOI Document, no 49 obtained by The Wilderness Society, Water Corporation Briefing dated 16 September 2022, p4. **(Annexure F)**
[30] Ibid.
[31] 'Catchment Risk Assessment Alcoa 2023 – 2027: Procedural assessment under MS 728 informing the environmental audit of Alcoa's 2023 – 2027 MMP' https://www.smh.com.au/interactive/hub/media/tearout-excerpt/30655/FOI-869---Document-8---Catchment-Risk-Assessment-Framework---Alcoa-2023---2027-MMP.pdf, p 30.

Risk Assessment undertaken by Water Corporation provides comprehensive analysis to demonstrate that there are significant risks with the current mining operation and the way it has operated over the past few years. They acknowledge the mine has not been appropriately regulated to manage water quality and therefore poses a significant risk to their assets. The Water Corporation's assessment concluded there was a high likelihood of significant negative long-term impacts to water quality and catchment water yield arising from fundamental changes to hydrology and catchment resilience.[32] They also noted that due to the close proximity of the mining. They concluded:

> *Bauxite mining operations represent the single most significant risk to water quality in Perth Metropolitan and Southwest drinking water catchments. The potential long term financial implications for the Water Corporation and by extension are considerable.*[33]

55. The Water Corporation analysis shows that as the mining continues it will pose further risks to the catchment due to the area of mining being in hillier areas and with more exposed areas on the site that are not currently rehabilitated. While stronger conditions may be imposed on the new mining areas, there are still significant risks associated with the ongoing mining in the catchment.

56. Given that the Water Corporation report suggests there are significant risks associated with the current operation, it is unclear what is the basis for Alcoa's arguments that they will be able to protect the water catchment from future mining and pollution impacts.

57. These future risks to Perth's water supply are confirmed by a Water Corporation briefing note. Its states that future risk to the Water Corporation can only be reduced to acceptable levels by adoption of certain Water Corporation and Department of Water and Environmental Regulation recommendations to improve the robustness and transparency of the mine planning approval consultative process.[34] The risks are considerable given the new area of proposed mining is entirely in the Serpentine River catchment which runs into the Serpentine Dam, Perth's most important water supply dam.

58. Even Alcoa's own consultants GHD acknowledge significant risks to water associated with the construction, mine development and rehabilitation, mine facilities and infrastructure and potential hazards from the proposal including:
    - Generation and discharge of pathogenic microorganisms from increased human activity;
    - Increases in sediment, suspended solids and turbidity from erosion during mining activities;

---

[32] 'Catchment Risk Assessment Alcoa 2023 – 2027: Procedural assessment under MS 728 informing the environmental audit of Alcoa's 2023 – 2027 MMP' https://www.smh.com.au/interactive/hub/media/tearout-excerpt/30655/FOI-869---Document-8---Catchment-Risk-Assessment-Framework---Alcoa-2023---2027-MMP.pdf, p 7.

[33] Ibid, p 8.

[34] FOI Document, no 49 obtained by The Wilderness Society, Water Corporation Briefing dated 16 September 2022, p 5. **Annexure F**.

- Increase in stream salinity as a result of mining-induced saline groundwater discharge; and
- Contamination from spills, leaks and/or emissions from the storage, handling and use of hazardous materials and waste.[35]

59. GHD do propose a number of preventative risk management measures to prevent hazards and reduce them to acceptable levels. The report further identified long term hazards relating to rehabilitation and climate change, including from wildfires in generating sediment, solids and organic matter, mine rehabilitation failures and remobilisation of sediments which are more difficult to manage.[36]

No qualifications or disclaimers

60. Despite lack of evidence for such representation, there are no disclaimers or limitations imposed on the statements made by Alcoa, contrary to RG 234.47- 234.53 of the **ASIC Guide**.

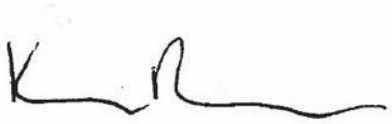
Request to Investigate

61. For the reasons set out above, and given the ongoing nature of Alcoa's conduct, our client requests ASIC investigate the concerns raised by our clients and take such compliance action as is deemed appropriate.

62. Our clients consider that an investigation into Alcoa's behaviour is aligned with the ASIC's priorities and is important to ensure investors are protected from misleading statements.

63. If you have any questions relating to this complaint, please contact Kirsty Ruddock on 0406 288 599 or by email kirsty.ruddock@edo.org.au.

Yours sincerely
Environmental Defenders Office



Kirsty Ruddock

Managing Lawyer

Corporate and Commercial

[35] GHD Report, Drinking Water Risk Assessment for Alcoa, March 2025 found at B8.6 - GHD - Drinking Water Risk Assessment – Serpentine.PDF (accessed 1 July 2025) p i
[36] Ibid, p ii.

Annexure A

Statements by Alcoa

Source	Statement
Future rehabilitation of Jarrah Forest is possible representation	
Advertisement in The West Australian, Saturday 24 May 2025.[37] Also published by the 'Boiling Cold' Website.[38]	'Is Jarrah Forest rehabilitation possible? We're **here with the facts.** It's a critical question. So, we're here with the facts. We're proud to confirm, the answer is yes–it's not only possible, it's happening. Studies have confirmed that the Jarrah Forest can, and does, recover after mining. Research over the past 50 years guides our rehabilitation program which is resulting in self-sustaining forest. And while some features of the forest naturally take time to mature, the results are clear. Since 1963, only 2% of WA's Northern Jarrah Forest has been cleared for mining, of which **75% has already been rehabilitated**. We **don't clear old growth forest** or mine in national parks. Our clearing is carefully planned through biological pre-mining surveys and we are committed to protecting stream-zones, granite outcrop communities and threatened species including the black cockatoo and their nesting trees. With a long-term responsibility that goes beyond compliance, a $15 million Forest Research Centre furthering our decades long research program and the **planting of more than 500,000 native seedlings last year** alone, Alcoa is doing the work right. The rehabilitation is real and that's the fact.'
Radio Advert	Is Jarrah Forest rehab possible after mining? Alcoa is here with the facts. Studies confirm that Jarrah Forest can and does recover. Since 1963, Alcoa has cleared just 2 % of WA's northern Jarrah Forest and we don't clear old growth. Over 75 % of mined areas have been rehabilitated and last year we planted more than 500 ,000 native seedlings. So yes, it's possible, it's happening and it's being done right. Alcoa, here with the facts. Here for the future.

[37] Annexure B.

[38] https://www.boilingcold.com.au/alcoas-plans-to-mine-was-jarrah-forest-for-20-more-years-released/

Alcoa Annual Report 2024	After completion of mining, overburden is progressively backfilled into adjacent exhausted pits, topsoiled and rehabilitated by re-establishment of native vegetation, creating a stable post-mining landform that replicates the pre-existing environment (p40)
Alcoa has rehabilitated 75% of Forest historical representation	
Press Release[39]	'More than 75 per cent of the areas cleared for bauxite mining in WA have been rehabilitated and are at different stages of development'. 'Alcoa is one of very few mining companies in WA to have handed back rehabilitated land to the State'. 'To date, the company has handed back two areas totalling 1355 hectares at the previous Jarrahdale mine, for which Alcoa has received two Certificates of Acceptance from the State stating the areas met appropriate criteria for completed rehabilitation'. 'This was the first significant area of mining rehabilitation to be submitted for and receive a Certificate of Acceptance in Australia'.
Alcoa Australia-Rehabilitation Factsheet[37]	'Our commitment and record- 75% of mined areas rehabilitated and at different stages of development" "Since 1988, only WA native species have been used in our rehabilitation".
Annual General Meeting	Q2: Could you comment on the company's rehabilitation practices, including fauna in Western Australia? Answer: We have been successfully rehabilitating jarrah forest for decades by reestablishing a healthy jarrah forest ecosystem. Throughout this time, our work and knowledge in this area has evolved with the company utilising new scientific knowledge into our rehabilitation practices. Our operating areas are within approximately 2% of the forest area. Alcoa is only mining bauxite in areas that have previously been subject to timber harvesting and other disturbances. We do not mine in old-growth forest or national parks. Over the past three years, Alcoa's rehabilitation has exceeded the amount of new clearing and this is projected to continue across our two Western Australian mines into the future. That basis derives from the return of native fauna with peer-reviewed research identifying that 100% of mammals and around 90% of birds and reptiles have returned to restored areas over time. An independent peer review of our rehabilitation practices acknowledged that they are as sophisticated and comprehensive as for any mining operation globally. We value the jarrah forest ecosystem and we hard to make sure it is being restored to be healthy, resilient and self-sustaining.

[39] https://www.alcoa.com/australia/en/news/releases?id=2023%2F11%2Falcoa-continues-successful-rehabilitation-of-jarrah-forest-ecosystem&year=y2023

Quarter 2-2025 Alcoa Earnings Presentation (Slide 16)	"75% of cleared forest has been rehabilitated"
Online Article[40]	'Self-sustaining jarrah forests now thrive in areas where Alcoa once mined'. 'Our goal is to ensure every single type of plant species that existed before mining is returned to these rehabilitated sites within 15 months - something we first achieved in 2001'.
100% of plant species return to rehabilitated areas representation	
Press Release[41]	'We first achieved that 100 per cent species richness return in 2001'.
Alcoa Australia-Rehabilitation Factsheet[39]	'First mining company to achieve 100% plant species richness return in young rehabilitation".
Advertisement in The West Australian, Wednesday 30 July 2025.[42]	'Alcoa facts…First miner to achieve 100% plant species richness in rehabilitation'.
	'When it came to rehabilitating WA's Northern Jarrah Forest after mining, Ms Muller said Alcoa was succeeding. It was the first miner to achieve 100 per cent plant species richness in rehabilitated areas'.
World-class mining rehabilitation	
'Alcoa Australia's Sustainability Overview' Webpage[43]	Environmental management: "Read more about our world-class mining rehabilitation methods..."
Quarter 3-2024 Alcoa Earnings Presentation (Slide 20)[44]	Bauxite: "World Class Mine Rehabilitation"
Historical drinking water quality representation	
'Operating in Water	'Alcoa has operated within the Northern Jarrah Forest of Western Australia for more than 60 years and conducted mining activities in proximity to drinking water catchment areas without any negative impacts over that time'.

[40] Alcoa-17-February-2022.pdf

[41] https://www.alcoa.com/australia/en/news/releases?id=2023%2F11%2Falcoa-continues-successful-rehabilitation-of-jarrah-forest-ecosystem&year=y2023

[42] Annexure C.

[43] https://www.alcoa.com/australia/en/sustainability

[44] https://s29.q4cdn.com/945634774/files/doc_financials/2024/q3/Alcoa-3Q24-Earnings-Actual-vFINAL.pdf

Catchments' Webpage[45]	
Advertisement in The West Australian, Wednesday 30 July 2025.[46]	'Alcoa facts… No negative impacts on drinking water supply in more than 60 years'.
Advertisement in The West Australian, Saturday June 7 2025[47]	Is our drinking water supply impacted? We're **here with the facts.** It's a serious question. That's why we're here with the facts. Alcoa has operated in WA's Northern Jarrah Forest for **more than half a century without negatively impacting Perth's public drinking water supply**. We are confident that our operations in the Northern Jarrah Forrest and the security of Perth's drinking water supply can continue to occur safely and successfully for many years to come. Every part of our operations is subject to rigorous environmental assessments and stringent approvals to ensure Alcoa's ongoing compliance. We are confident these safeguards, along with our robust internal standards and processes, are working. We're committed to meeting all necessary water protection measures. Since July 2024, **we've stopped clearing for mining activities within one kilometre of drinking water reservoirs** to increase the distance between our Huntly and Willowdale operations and the dams. We have further enhanced our drainage and monitoring systems and are committed to catchment-wide risk management. And to **demonstrate our confidence** that our operations will not impair drinking water supplies, **we've provided a $100 million guarantee**.

[45] https://www.alcoa.com/australia/en/sustainability/pdf/operating-in-water-catchments.pdf

[46] Annexure C.

[47] Annexure D.

	Our commitment is long term. Our record is strong – and we are confident that we can operate in a way that continues to help protect Perth's drinking water, now and into the future – and that's the fact.
Future drinking water representation	
Advertisement in The West Australian, Saturday June 7 2025.[48]	Is our drinking water supply impacted? We're **here with the facts.** It's a serious question. That's why we're here with the facts. Alcoa has operated in WA's Northern Jarrah Forest for **more than half a century without negatively impacting Perth's public drinking water supply**. We are confident that our operations in the Northern Jarrah Forrest and the security of Perth's drinking water supply can continue to occur safely and successfully for many years to come. Every part of our operations is subject to rigorous environmental assessments and stringent approvals to ensure Alcoa's ongoing compliance. We are confident these safeguards, along with our robust internal standards and processes, are working. We're committed to meeting all necessary water protection measures. Since July 2024, **we've stopped clearing for mining activities within one kilometre of drinking water reservoirs** to increase the distance between our Huntly and Willowdale operations and the dams. We have further enhanced our drainage and monitoring systems and are committed to catchment-wide risk management. And to **demonstrate our confidence** that our operations will not impair drinking water supplies, **we've provided a $100 million guarantee**. Our commitment is long term. Our record is strong – and we are confident that we can operate in a way that continues to help protect Perth's drinking water, now and into the future – and that's the fact.

[48] Ibid.

Alcoa Website, Water Stewardship Policy	We commit to ensuring that our water use is efficient, safe and promotes the sustainable management of water resources in and around our facilities, and to complying with applicable environmental requirements in the countries in which we operate.

Annexure B

WA advertisement 24 May 2025

Is Jarrah Forest rehabilitation possible? We're here with the facts.

It's a critical question.

So, we're here with the facts.
We're proud to confirm, the answer is yes – it's not only possible, it's happening.

Studies have confirmed that the Jarrah Forest can, and does, recover after mining. Research over the past 50 years guides our rehabilitation program which is resulting in self-sustaining forest. And while some features of the forest naturally take time to mature, the results are clear.

Since 1963, only 2% of WA's Northern Jarrah Forest has been cleared for mining, of which **75% has already been rehabilitated**. We **don't clear old growth forest** or mine in national parks.

Our clearing is carefully planned through biological pre-mining surveys and we are committed to protecting stream-zones, granite outcrop communities and threatened species including black cockatoo and their nesting trees.

With a long-term responsibility that goes beyond compliance, a $15 million Forest Research Centre furthering our decades long research program and the **planting of more than 500,000 native seedlings last year** alone, Alcoa is doing the work right. The rehabilitation is real, and that's the fact.

alcoa.com/australia

Alcoa
Here for the future

Annexure C

WA advertisement Wednesday 30 July 2025

SPONSORED CONTENT

Alcoa committed to responsible production

Aluminium is a key ingredient in green energy technologies, including wind turbines – pictured operating near Alcoa's Portland Aluminium Smelter in Victoria.

Sourcing minerals and metals essential for rapidly advancing technologies – like green energy, telecommunications, health and defence – is a growing challenge for countries around the world.

Advanced economies, including Australia, are moving to safeguard supplies through a range of measures, including critical and strategic materials lists, policies and reserves. Arguably, an even greater challenge is securing these materials from responsible producers which care for the environment and people.

Alcoa Australia believes a long track record of responsible production and a focus on continuous improvement make it well placed to help meet demand for one of those future-facing metals – aluminium.

Alcoa has been a major player in the aluminium industry in Australia for more than 60 years. The company mines the key ingredient for aluminium – bauxite – in Western Australia's Peel and Upper South West regions. It then value-adds to this ore by turning it into alumina at its nearby WA refineries. The alumina is then shipped around the world, including to Alcoa's Portland Aluminium Smelter in Victoria, to be turned into aluminium.

Aluminium is already the second most used metal in the world, and the International Aluminium Institute is forecasting demand to rise a further 40 per cent globally by 2030. The World Bank has identified aluminium as a high-impact metal in existing and potential green energy technologies. It is also a key ingredient in electric vehicles and other modes of transport, medical equipment, communications technology and countless other items we use every day.

ALCOA FACTS

- Does not mine in high-conservation areas including old-growth forest.
- Cleared less than 2% of the jarrah forest.
- 75% of mined areas are under rehabilitation.
- Accelerating annual mine site rehabilitation to 1000 hectares by 2027.
- First miner to achieve 100% plant species richness in rehabilitation.
- 100% of mammal and 90% of bird and reptile species return to rehabilitated areas within 15-20 years.
- No negative impacts on drinking water supply in more than 60 years.
- Established no-mining zones around Jarrahdale and Dwellingup.
- Directly employs more than 4000 people in WA.
- Spent $2 billion with 1000 WA businesses in 2024.

Alcoa Australia President Elsabe Muller said responsible production of important future-facing minerals and metals, like aluminium, required careful balancing of environmental, social and economic considerations.

"In the six decades Alcoa has been operating in Australia, we have been focused on responsible environmental management and supporting our communities," she said. "This ranges from not mining in high-conservation areas, including old-growth forests to being praised by the United Nations for our successful mine site rehabilitation.

"Our strict water management has ensured our mining operations have never negatively impacted WA's drinking water supply, while our alumina operations are among the world's lowest carbon dioxide-emitting producers.

"We are a big part of WA, Peel and the Upper South West where we directly employ more than 4000 people, and last year invested about $2 billion with around 1000 local businesses and $5.3 million in community programs and initiatives.

"We work with stakeholders and communities to earn our licence to operate, taking their feedback on-board as we shape our operations. This includes establishing no-mining zones around Jarrahdale and Dwellingup, as well as minimising impacts to forest recreation.

"And we continue to work with government and other stakeholders to improve the way we operate, lessening impact while maximising value to stakeholders and communities."

Part of that continuous improvement is the modernisation of Alcoa's approvals framework with the company's current and future WA bauxite mining proposals under assessment by the Environmental Protection Authority. The public has until Thursday August 21 to review and comment on what Alcoa has put forward.

Ms Muller said the Environmental Review Documents submitted by Alcoa showed the company was not only committed to maintaining its current responsible production practices but also to introducing a raft of new measures.

When it came to water, Ms Muller explained that Alcoa had studied ground and surface water in the Northern Jarrah Forest for more than five decades, using the information and ongoing data from more than 1000 groundwater bores and dozens of monitoring stations to inform its operations. Additional water safety measures Alcoa had committed to as part of its mine proposals included not mining within 1km of drinking water reservoirs, deferring plans to mine in reservoir protection zones and prioritising rehabilitation within key areas of the water catchment.

When it came to rehabilitating WA's Northern Jarrah Forest after mining, Ms Muller said Alcoa was succeeding. It was the first miner to achieve 100 per cent plant species richness in rehabilitated areas while peer-reviewed research showed 100 per cent of mammals and about 90 per cent of birds and reptiles returned within 15-20 years.

"In more than 60 years of operation, we have cleared less than two per cent of the Northern Jarrah Forest, and 75 per cent of that area is under rehabilitation," she said.

Ms Muller said Alcoa was accelerating its annual mine site rehabilitation, aiming to reach 1000 hectares by 2027. Should the company's future mining proposal be approved, clearing and rehabilitation rates would be matched on a rolling three-year basis, rehabilitation prioritised near environmentally significant areas, and additional buffer zones established to protect important plants and animals.

Dr Justine Barker conducts fauna research in Alcoa's rehabilitated areas.

Georgia Haines inspects seedlings to be planted in Alcoa's rehabilitation.

Annexure D

WA advertisement Saturday June 7 2025

Is our drinking water supply impacted? We're here with the facts.

It's a serious question.

That's why we're here with the facts.
Alcoa has operated in WA's Northern Jarrah Forest for **more than half a century without negatively impacting Perth's public drinking water supply**. We are confident that our operations in the Northern Jarrah Forrest and the security of Perth's drinking water supply can continue to occur safely and successfully for many years to come.

Every part of our operations is subject to rigorous environmental assessments and stringent approvals to ensure Alcoa's ongoing compliance. We are confident these safeguards, along with our robust internal standards and processes, are working.

We're committed to meeting all necessary water protection measures. Since July 2024, **we've stopped clearing for mining activities within one kilometre of drinking water reservoirs** to increase the distance between our Huntly and Willowdale operations and the dams.

We have further enhanced our drainage and monitoring systems and are committed to catchment-wide risk management.

And to **demonstrate our confidence** that our operations will not impair drinking water supplies, **we've provided a $100 million guarantee**.

Our commitment is long term. Our record is strong – and we are confident that we can operate in a way that continues to help protect Perth's drinking water, now and into the future – and that's the fact.

alcoa.com/australia

Alcoa
Here for the future

1.1 Mining

Mining activities are permitted within PDWSA, with appropriate controls as outlined in the *Land use compatibility tables of public drinking water source protection* (LUT) (*DWER Water Quality Protection Note 25*) and in the Administrative Agreement between DMIRS and DWER. The controls associated with mining activities related to management of operations within the P1 catchments and more broadly management of risks associated with, hazardous substances (including hydrocarbons), implementation of effective drainage controls, management of drilling operations, the management of organic material, and a range of other potential environmental hazards arising from mining operations. The guidelines also provide some guidance on a range of potential environmental controls including establishment of buffer etc, however these typically are not specifically related to the management of mining related risks.

Table 5 lists active mining and extraction activities currently occurring within the Perth Metropolitan Region.

Table 5 –Active mining and extraction activities occurring in PDWSAs in 2020/21

Region	Catchment	Company	Operation	Inside the RPZ
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Metro / SWR	Serpentine, North Dandalup, Samson, Stirling	Alcoa Australia	Mining for Bauxite extraction	Yes
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

[redacted]

[redacted]

1.1.2 Alcoa

Background

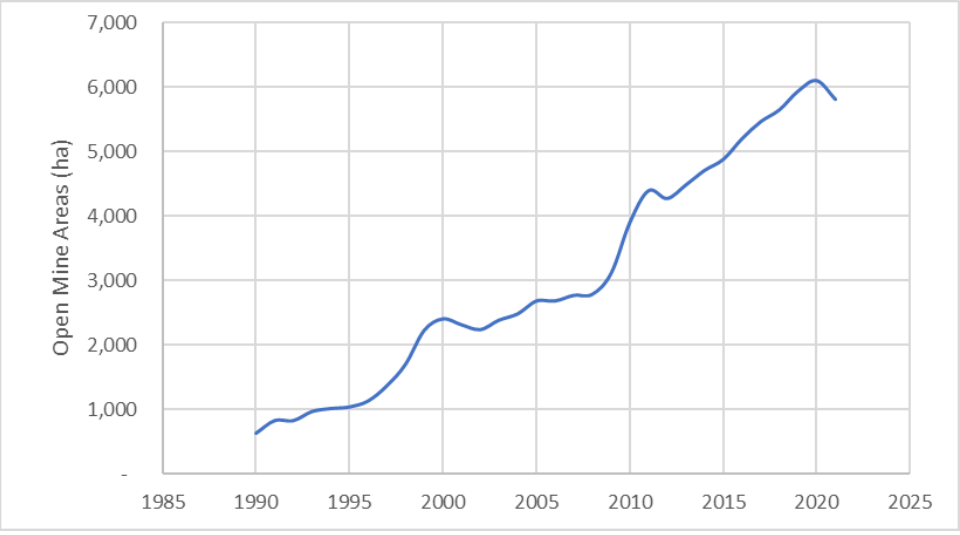
Alcoa operate an extensive bauxite mining operation in the Perth metropolitan and South West drinking water catchments. Alcoa's current operations include active mining in the Serpentine, Serpentine Pipe, North Dandalup, Sampson and Stirling catchments.

To date, mine operations associated with the Huntly and Willowdale mines have impacted over 23,400 ha of native Jarrah forest, approximately 20,000 ha of that within the P1 area.

This is in addition to the 3,980 ha of clearing that previously occurred in the Wungong catchment associated with the Jarrahdale mine which closed in 2000.

Of the 23,000 ha of clearing (Huntly and Willowdale mines), 5,800 ha of land currently remains open (ie. cleared mine area that has not yet been rehabilitated). There has been an increase in the area of open mine since the inception of the Huntly and Willowdale mines in the early 1990's (refer Figure 1).

Figure 1. Area of currently open mine site (Huntly and Willowdale Mines)



There has been a slight decease in the area of open mine area in the last two years. This is largely because Alcoa have been constrained in the area that is available for clearing, as a result of the implementation of additional controls. This has included implementation of restriction on clearing above 16% slope and to less than 30% of the area of sub catchments, and areas of shallow groundwater. These restrictions were implemented to reduce the incidents of mining related drainage failures and turbidity events.

1.1.3 Forest Clearing Advice

Alcoa submitted a single forest clearing advice (FCA) during the reporting period, in December 2021. The FCA identifying 537.2 ha for clearing (Huntley: 248.6 ha and Willowdale: 288.6 ha). This was a slight reduction from that submitted in October 2020 which was for 546.4 ha. Prior to 20202, the average area submitted in FCAs was approximately 700 ha/yr, typically submitted in two FCAs per year.

In assessing the FCAs submitted in 2021, the Water Corporation, in association with DWER, applied a catchment risk assessment framework, including a detailed analysis of the proponent's recent water management performance.

The adopted risk assessment framework identified significant risks to water quality emerging from a number of Alcoa's proposed FCA's, typically associated with proposed mining areas likely to intercept shallow groundwater. The details of the outcome of the assessment are presented in Table 1 and Table 2.

Table 1 . Summary of the Clearing Advice Assessment – Huntly Mine

Status	*1st Assessment*	*Resubmitted*	*Total*
FCA's Supported	74.9	145.8	220.7
Requiring Further Investigation Required*	165.4		
Not Supported	8.3	27.94	27.94
Total	***248.6***	***173.74***	***248.64***

* *Further investigation typically required additional groundwater investigation including monitoring of groundwater*.

The key risks arising from the assessment of the Huntly FCAs were associated with potential groundwater interception of proposed mining in areas of shallow regolith in the Mount Solus area. The Water Corporation and DWER required that the proponent undertake additional groundwater investigation associated with 165.4 ha of submitted FCAs. The FCAs were assessed according to the groundwater risk assessment framework developed by DWER and the Water Corporation.

Alcoa subsequently resubmitted the 2021 unsupported Huntly FCAs in May 2022, including a rapid groundwater assessment. Of the 173.75 ha of FCAs that were resubmitted by Alcoa (including areas either not supported or requiring further investigation in the 1st assessment), of 145.8 ha were subsequently supported for clearing. As a result of the two assessments undertaken a total of 202.7 ha was supported for clearing and a total of 27.94 ha was not supported.

The Willowdale FCA submission included 288.6 ha identified by the proponent for clearing. The first assessment resulted in 228.5 being supported with an additional 46.16 ha supported with condition. Conditions were associated with presentation of additional information, including additional groundwater investigations.

Table 2. Summary of the Clearing Advice Assessment – Willowdale

Assessment	*1st Assessment*	*Resubmitted*	*Total*
Supported	228.5	27.43	277.89
Supported with condition	46.16		
Not Supported	13.6	10.71	10.71
Total	***288.6***	***38.14***	***288.6***

Alcoa resubmitted 38.14 ha of the Willowdale FCAs for reassessment in July 2022. 27.43 ha of resubmitted FCAs were subsequently supported for clearing, leaving 10.71 ha unsupported.

Of the total 537.2 ha submitted under the 2021 FCAs, 498.55 ha (93%) were supported for clearing. A total of 38.65 ha remained unsupported at the completion of the assessment process.

1.1.4 MMP

Alcoa's mining operations are overseen by the Mine Management Planning and Liaison Group (MMPLG). The MMPLG is responsible for undertaking consultation with the proponent and providing advice to the Minister for State Development on the Annual Mine Management Program (MMP).

Alcoa's 2021 – 2025 MMP was signed off in October 2021 after an extended period of consultation. [redacted]

[redacted]

The Water Corporation and DWER subsequently presented a series of 12 recommendations to the MMPLG to improve future iterations of the MMP. These recommendations were subsequently endorsed by the MMPLG and will be implemented in the development of the 2023 – 2027 MMP.

1.1.5 Loss of Containment (LOC) - Hydrocarbons

The Water Working Arrangements (WWA) are an agreement between Alcoa, DWER and the Water Corporation that set out the requirements for reporting and management of LOC (uncontrolled releases) of hazardous substance on the mine sites. The WWA require that Alcoa report all spills to the Water Corporation and DWER and remediate the area of the spill as soon as possible after the LOC occurs.

During 2021/22, Alcoa reported a total of 118 LOC, the majority (78%) of which occurred on the Huntly Mine.

Table 3. Alcoa's reported LOC of hazardous substances (2020/21)

	2020 - 2021		2021 - 2022	
Incident	No. of Spills	Volume (L)	No. of Spills	Volume (L)
Coolant	14	1,585	15	2,829
Hydrocarbon	150	16,499	90	8483
F3	1	240	13	2,777
PFAS	13	2,408		
Total	178	20,732	118	14,089

There was a reduction in the number of LOCs between 2020/21 and 2021/2022, in response to Alcoa implementing a range of control measures. The longer-term trend indicates a stabilisation in LOC on Alcoa mine sites.

Between 2017 – July 2022, Alcoa have reported 715 hydrocarbon LOC incidents resulting in a total of 93,734 L of spills to the environment (refer Table 4).

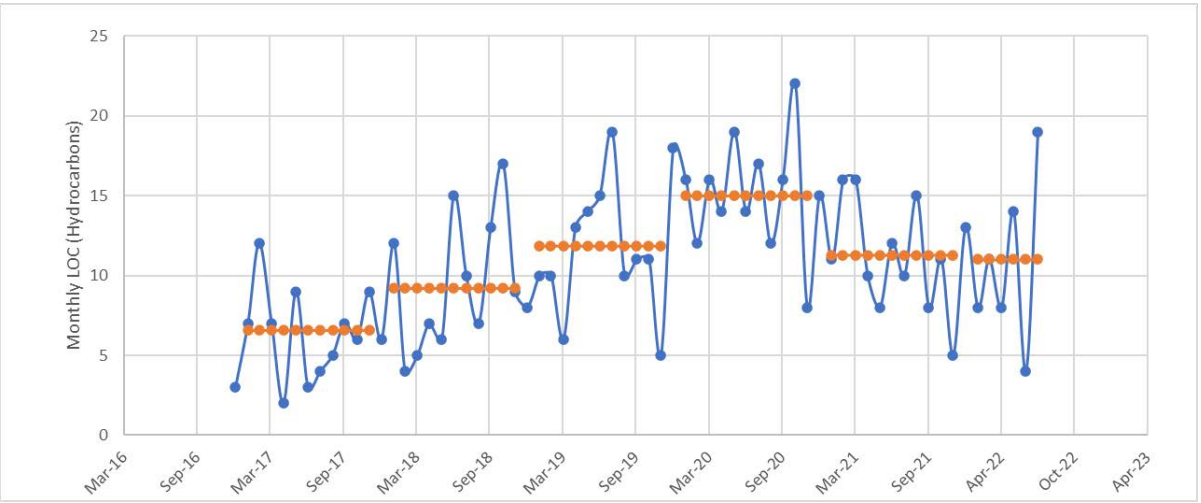
Table 4. Reported LOC events – 2017 – 2021 (Huntley and Willowdale Mine sites combined)

	No. of Incidents	*Volume (L)*
2017	74	9,884
2018	111	17,209
2019	132	22,436
2020	184	19,631
2021	137	14,968
2022 (to July)	*77*	*9,605*
Total	***715***	***93,734***

Based on current trends, Alcoa is on track for 132 LOCs (16,500 L) in the 2022 calendar year, a similar number to that reported in 2021.

Alcoa reported a dramatic increase in the frequency of spills on the Huntly Mine from 2018 – 2020, apparently arising from a reduction in the maintenance schedules. Control measures implemented by Alcoa during 2020 appear to have resulted in the return of LOC frequency to 2019 levels at approximately one LOC in three days.

Table 5. Trend in LOC (Huntly and Willowdale mines)

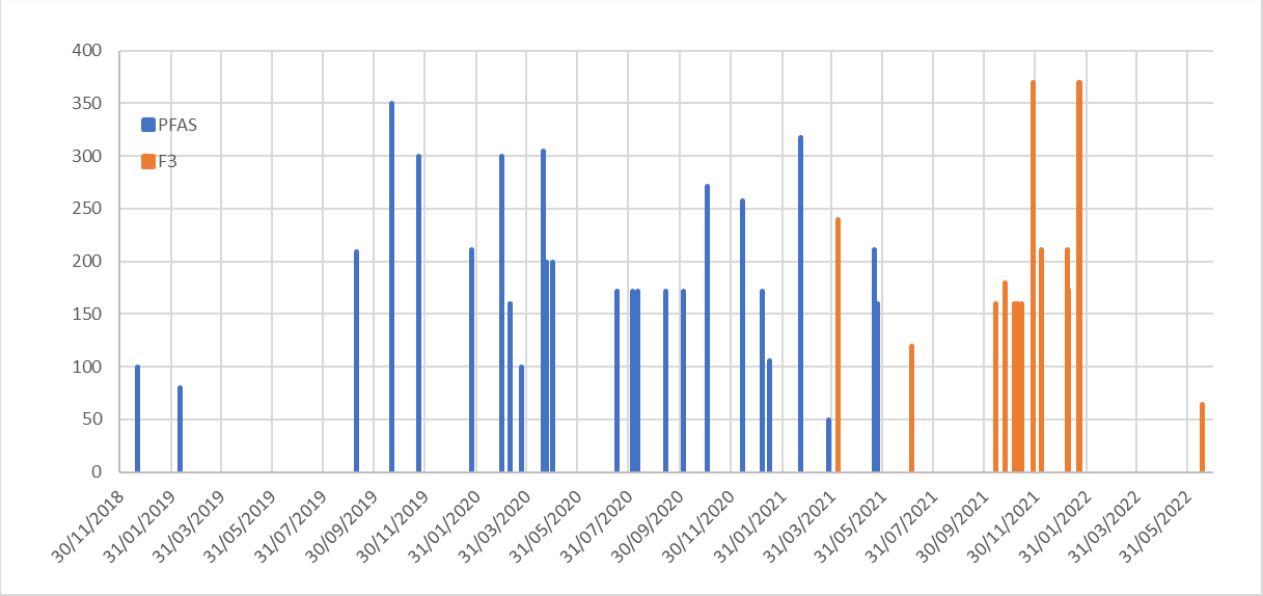


1.1.6 LOC (PFAS and F3 Trends)

Alcoa began using aqueous fire fighting foam (AFFF) containing C6 PFAS compounds in 2014, however did not begin reporting spills until Dec 2018. There were 25 reported PFAS incidents (LOC 4,925 L of C6 AFFF) involving the discharge of fire suppressant systems on the Huntley (19) and Willowdale (6) mine sites since reporting began in Dec 2018.

Alcoa removed PFAS from its fire suppression units on the mine site vehicle fleet during 2020 – 2021 and replaced it with an F3 fire suppression foam.

Reported Volume (L) of PFAS Related Incidents (Huntly and Willowdale Mines sites combined)



The vast majority (90%) of reported LOC incidents for PFAS and F3 were a result of mechanical failure, where on-board fire suppressant material was discharged in the absence of a fire, due to a malfunction or mechanical failure.

There were no PFAS LOC incidents reported during 2021 – 2022.

There were 14 x F3 LOC incidents (totalling 2,777 L) reported during 2021 – 2022. There was a significant cluster of incidents between Oct 2021 and Jan 2022, with 12 reported F3 LOC incidents in 100 days. Alcoa reported they were undertaking an investigation of the incident cluster; however no further correspondence has been received.

1.1.7 Mine Stie Drainage

Alcoa report mine site drainage failures and turbidity incidents (>25 NTU for > 1 hr) as prescribed by the WWA. During 2021/22 there were 73 reported drainage failures, 60 of which occurred during July 2021.

Drainage failures during2021 – 2022 were predominately associated with mine pit failures and haul road sump failures. There was a reduction in the proportion of water shot failures during the 2021 – 2022 reporting period, with a change in the construction of watershots considered to be the likely cause of the reduction. It is also considered that the change to construction of watershots is the likely cause of an increase in turbidity events between 2020 and 2022 (for further discussion refer to the Turbidity section 1.1.10 below).

Table 6. Reported Drainage Failures – Huntly and Willowdale Mine sites (2021 – 2022)

Incident	***#***
Rehab pit	7
Mine Pit	24
Haul Road Sump	23
Water Shot	8
Haul Road construction	4
Rehab	5
Conveyor	2
Total	***73***

1.1.8 Trends in Drainage Failures

Alcoa have report 219 drainage failures between 2017 – 2022. It is estimated that more than 75% of these reported incidents occurred during relatively minor (< 1:1 ARI) rainfall events.

Patterns of drainage failures have emerged across the Alcoa mine sites. A higher frequency of drainage failures occurred during 2018 and 2021 reflecting higher rainfall during those years (refer Table 7).

Table 7. Trend in Drainage failures (Huntly and Willowdale Mines 2017 – 2022)

Incident Class	***2017***	***2018***	***2019***	***2020***	***2021***	***2022***	***Total***
Rehab pit fail	4	9	3		14		*30 (14%)*
Pit fail	17	18	13	4	22	4	*78 (365)*
Sump fail	5	7	6	2	22	1	*43 (20%)*
Water Shot fail	4	21	6	10	13		*54 (25%)*
Haul Road		1		7	4		*12 (5%)*
Conveyor					2		*2 (1%)*
Total	***30***	***56***	***28***	***23***	***77***	***5***	***219***

The spike in the number of reported incidents during 2018 reflected a large rainfall event (~ 100 mm) during Jan 2018, resulting in 21 of the reported 56 drainage failures in 2018.

The relatively large number of incidents reported in July 2021 was as a result of a high rainfall month (~430 mm), which led to good runoff into dams but also a significant increase in drainage failures on the mine site, due to increase saturation of upper regolith.

Alcoa report that they design drainage infrastructure for a 1:100 ARI (AEP 1%) 24 hr event, however this in not reflected in the frequency of drainage failures. The relatively high frequency of drainage failures indicates that drainage design does not take into account the influence of groundwater and in particular surface – groundwater interactions that occur in association with clearing for mining.

The reduction in reported drainage failures was evident during 2022. It is considered that this reduction is likely a reflection of the lower rainfall during the 2022 wet season (certainly when comparted to 2021) in addition to clearing controls initiated by the DWER and the Water Corporation from 2020. Drainage failures typically occur in the early stages of pit development. As a result, the implementation of clearing controls, including avoidance of high slope and shallow groundwater areas from 2020 onwards, is considered likely to be resulting in a reduction in drainage failures.

1.1.9 Turbidity Exceedances

In line with the WWA, Alcoa report turbidity events in mined catchments (where compliance moniroting exists) where turbidity exceeds 25 NTU for more than one (1) hour.

Alcoa reported 56 turbidity exceedances from 14 turbidity meters during the 2021 – 2022 reporting period. This is an increase from 19 turbidity exceedances, across 10 turbidity meters reporting during 2020 -2021 reporting period.

The vast majority of turbidity events reported by Alcoa have gone unexplained, in that Alcoa are unable to link the reported turbidity event to an identified upstream drainage failure.

1.1.10 Trends in Turbidity

There have been 140 turbidity events reported in the period 2017 – 2022. Previous to 2020, the majority of reported turbidity events were associated with sump failures, however since 2020 Alcoa have not provided an explanation for the majority of reported turbidity events (unexplained in Table 8).

Table 8. Trend in Reported Turbidity events

Name	2017	2018	2019	2020	2021	2022
Haul Road	1				1	
NMR			4	3		
Pit fail					5	
Rehab pit fail		1			2	
Sump fail	2	17	3	2	6	
Unexplained		4	8	20	31	30
Total	***3***	***22***	***15***	***25***	***45***	***30***

There has been a dramatic increase in reported unexplained turbidity events during after 2020. The increase in occurrence of reported turbidity events has coincided with an increase in the risk profile of mining activities (mining on steeper slopes) and a change to the implementation of drainage control slots (otherwise referred to as Watershots).

A drainage review commissioned by Alcoa in 2020 recommended an increase in the fracturing associated with implementation of watershots. Watershots are an area of blasting and/or ripping on the downstream margin of the pit designed to infiltrate turbid mine pit runoff prior to runoff entering the stream zone. There has been an increase in the prevalence of turbidity events downstream of areas of new pit development where watershots have been constructed in relatively close proximity to stream zones and where the watershots are likely to intersect shallow groundwater. It is considered likely that the increase in unexplained turbidity events is in part associated with discharge of turbid pit runoff into stream zones via preferred pathways resulting from the establishment of watershots in areas of shallow groundwater.

Annexure F

Autor: [redacted]
Origin: WQBU – Source Protection

Water Corporation
Briefing Note

Issue: V 1.0
Date: 16/09/2022

Introduction

This Briefing Note provides background information relevant to concurrent bauxite mining operations in the Northern Jarrah Forest and associated cumulative impacts requiring strategic assessment of Water Corporation (surface water) drinking water catchments and assets in the Perth Metro and Southwest regions.

Background

Alcoa currently operates two bauxite mines (Huntly and Willowdale) in the Northern Jarrah Forest, three alumina refineries (Kwinana, Pinjarra, and Wagerup), and owns a 45% stake in the operation of an aluminium smelter, located in Portland, Victoria. Alcoa's mining operations in the Northern Jarrah Forest (on the Darling Plateau) are within Mining Lease 1 SA, which encompasses an area of 712,000 ha, incorporating all 15 metro and southwest drinking water catchments (refer Figure 2).

Alcoa's mining operations commenced in 1961 in a joint venture with the then Western Mining Company and are managed under three (3) state agreements.

- *Alumina Refinery Agreement Act 1961*
- *Alumina Refinery (Pinjarra) Agreement Act 1969*
- *Alumina Refinery Agreements (Alcoa) Amendment Act 1987*

Supporting the State Agreements are a series of Ministerial Statements under Part IV of the *Environmental Protection Act 1986 (EP Act)* that outline the approval framework to manage Alcoa's operations, including the establishment of the Mine Management Planning and Liaison Group (MMPLG). The MMPLG is an interagency committee chaired by JTSI with representation from DWER, DBCA, DMIRS and the Water Corporation.

Alcoa submit rolling annual 5 year Mine Management Programs (MMP) to the MMPLG through a consultative process. This ensures that adequate consultation has occurred with relevant agencies prior to the MMP being submitted to the Minister for State Development, who consults with the Minister for Environment.

Alcoa's access to ore is associated with ministerial endorsement of the 5 Yr MMP, that facilitates a Clearing Exemption Order granted to Alcoa in 2004 and allows Alcoa to clear areas of state forest identified in the annual MMP.

MMPLG member organisations, including the Water Corporation and DWER have identified an increasing risk profile associated with Alcoa's mining operations.

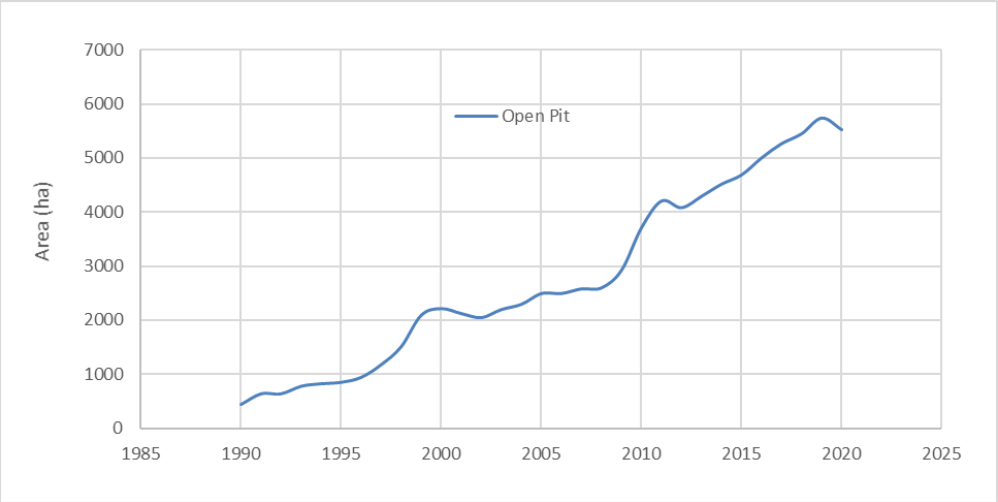
The increased risks profile is associated with:

- Increased mining in close proximity to key Water Corporation assets.
- Mining operations impacted more than 30% of sub catchment areas.
- Increased mining of steep slope (> 16%).
- Greater interactions between mining and areas of shallow groundwater.
- Cumulative impacts including the proposed expansion of mining into previously unmined areas.

- Plans by Alcoa to undertake additional mining in previously mined areas, effectively creating a second wave of disturbance.

A key indicator of risk is the area of open mine area, which has double in the last 10 years (refer Figure 1). The increase in open mine area has occurred because Alcoa have cleared 30% more land than they have revegetated in the period 2000 - 2020.

Figure 1 Area of open mine 1900 – 2020



Current Situation:

Alcoa's mining operations currently impact nine (9) drinking water catchments. To date 22,258 ha have been cleared for mining in drinking water catchments of which 5,150 ha is considered currently open (cleared and being mined) (refer Table 1).

Table 1: Water Supply Dams - Catchment area cleared

Mine	Catchment	Catchment Area (ha)	Cleared Area (ha)	Proportion of catchment Cleared	Currently Open (ha)
Huntly	Serpentine Main	65,389	6,655	10%	3,054
	North Dandalup	14,709	4,433	30%	778
	Conjurunup	3,916	1,654	42%	31
	South Dandalup	29,611	2,113	7%	-
	Lower South Dandalup	3,805	574	15%	18
	Serpentine Pipehead	2,836	169	6%	71
Willowdale	Samson Brook	6,287	2,040	32%	808
	Samson Brook Pipehead	1,080	142	13%	-
	Stirling Dam	25,024	389	2%	389
Jarrahdale	Wungong	12,495	4,090	33%	
	Totals	***165,153***	***22,258***		***5,150***

Bauxite mining activities are predominately associated with the western part of the Darling Plateau and in close proximity to reservoirs. This activity reflects the higher concentrations of bauxite reserves coinciding with areas of higher value Northern Jarrah Forest. Current mining under State Agreement processes is

expected to increase the footprint area of disturbance within Serpentine Man dam, North Dandalup and Stirling catchments, with additional exploration identified in the Canning, Mundaring and Harris catchments.

[redacted]

Alcoa's mining operations represent risks to water Corporation Assets including:

- Increase in risk of pathogens.
- Increase turbidity from mine pit runoff and draining failures.
- Changes to catchment hydrology resulting from clearing, revegetation and removal of the upper regolith (soil profile) as a result of mining.
- Risk of contamination from hydrocarbons and chemicals of emerging concern.
- Decline in water quality (various parameters) and impacts to catchment yield.
- Changes to fire behaviour and catchment stability.

Alcoa report hydrocarbon spills, drainage failures and turbidity exceedances (high turbidity events) to the Water Corporation and DWER via the Water Working Arrangements (WWA). A summary of the frequency of failures is presented in Table 1.

Table 1 Average annual reporting of incidents reported 2018 – 2022 (via the Water Working Arrangements)

Hydrocarbon Spills	140 spill / year (18,150 L/yr)
Drainage Failures	42 / yr
*PFAS / P3	13 / year
Turbidity exceedances	30 / yr

** Alcoa have phased out PFAS from their operations replacing Aqueous Fire Fighting Foam in operational vehicles with P3 based compound during 2020 2021.*

Risk to the Corporation

Impacts associated with the mining operational phase and the potential for longer term cumulative impacts associated with significant changes to the post-mining landscape need to be considered at a strategic level. The Water Corporation (AIP and TARR) have undertaken a strategic risk assessment of the risks of Alcoa's mining operations to drinking water assets in response to the increasing risks stemming from bauxite mining operations.

The risk profile associated with mining operations is impacted by key geographical factors including extent of mining operations, proximity of mining to reservoirs, steepness of slope, and proximity of mining to areas of shallow groundwater and stream zones. The assessment revealed that risks are predominately linked to long term increases in turbidity and risk of contamination with hydrocarbons and PFAS.

Suitable water treatment options considered suitable to address potential contamination included Carbon Adsorption and Speciality Anion Exchange Resin. Reverse Osmosis was not considered a viable option due to the underlying complexities associated with its operation, including management of the resultant residue.

TotEx for treatment on dams subject to Alcoa's mining operations (including proposed exploration) ranged from $1.31 B - $2.62 B. This expenditure translates into an increase in costs of water to customers of between $0.32 and $0.58 /kL (~ 55% - 100% increase).

The potential loss of a dam though temporary contamination would significantly impact the IWSS distribution capacity, particularly in the central part of the system, where 250,000 customers can only be supplied water directly from key dams due to the nature of the distribution system. In addition, the security of supply of the IWSS is reliant on dams providing redundancy for potential outages and failures within the system.

The loss of a water supply dam (especially those in which desalinated water is banked) would have significant implications to the overall security of supply. The estimated value of critical storages is approximately $6.5 B. The loss of a critical dam would potentially result in billions of dollars investment in replacement storage and potential long-term impacts to the IWSS capacity to supply customers and support development.

It is noted that risks to Water Corporation assets from mining operations in the Darling Plateau extends beyond Alcoa's mining operations. [redacted].

Recommendations:

The nature and extent of Alcoa's mining operations represent a very significant intergenerational risk to water quality and security of supply in drinking water catchments. This may result in dramatic cost implications for the Corporation and its customers unless key risks are effectively mitigated. Previous mining operations have not been effectively regulated, primarily due to limitations associated with the outdated management framework associated with the relevant State Agreements.

More recently, the Water Corporation and DWER have applied a catchment risk assessment framework to better assess and manage risk to key Water Corporation assets arising from Alcoa's mining operations. The application of this risk assessment framework has resulted in protracted negotiations associated with the last two 5 yr MMPs. It is considered that the application of the sub - catchment risk has resulted in a reduction in the overall risk profile to the Water Corporation.

Reducing risks of mining operations to acceptable levels to date has involved:

- *Restricting mining to areas where slope < 16% slope.*
- *Restricting mining operations to < 30% of sub catchment areas.*
- *Maintaining 2m separation from groundwater during and post mining operations.*

The above-mentioned measures have been negotiated for Alcoa's recent clearing operations (post 2020) and are reflected in the current 2021 – 2025 MMP and therefore apply to mining operations being considered under the State Agreement.

[redacted]

- [redacted]

Public access is restricted to RPZ areas to prevent contamination of drinking water. As a result, public scrutiny of Alcoa's access through the State Agreement is likely to be challenged by the community due to the extent and scale of disturbance associated with its mining activity. Maintenance of source protection is currently offsetting considerable state expenditure associated with additional treatment to account for water quality contamination risk. Access to the RPZ raises policy implications currently being examined by DWER concerning water security and the water industry the IWSS supports.

The Water Corporation and DWER have developed 12 recommendations to contemporise mine planning approvals and have been endorsed by the Ministers for Water and Environment in concurrence with the Minister for State Development. These recommendations will improve the robustness and transparency of the MMP consultative process. Adoption of these recommendations is considered essential to reducing future risk to the Water Corporation to acceptable levels.

[redacted]

[redacted]

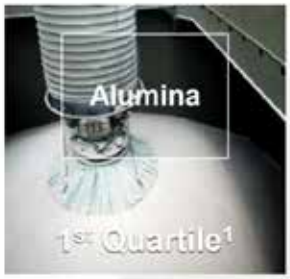
Annexure G

Alcoa

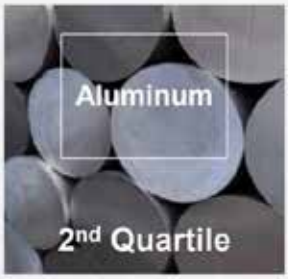
At steady state, well positioned across three product groups

Alcoa portfolio cost curve position and key factors, 2024

- World's second largest bauxite miner with assets across four continents
- World class mine rehabilitation
- Utilize best-in-class mining methods



- Largest third-party alumina producer
- EcoSource low carbon alumina
- Increased costs due to lower bauxite grade in Australia[2]



- Low CO_2e intensity producer, 87 percent of production from renewable energy[3]
- EcoLum® (low carbon), EcoDura® (recycled content) products

Source: CRU, Alcoa analysis (includes McIlvain equity position). 1. First quartile by CRU analysis. 2. Full imports being assessed and could place Alumina in second quartile until new mine regions are accessed. 3. Defined as energy derived from natural processes that are replenished constantly, such as sunlight, wind and hydropower, per 2023 Alcoa Form 10-K.