



Environmental
Protection
Authority

APCr Immobilisation Plant and Interim Disposal Solution

Eastern Metropolitan Regional Council

Report 1796

November 2025

This assessment report has been prepared by the Environmental Protection Authority (EPA) under s. 44 of the *Environmental Protection Act 1986* (WA). It describes the outcomes of the EPA's assessment of the APCr Immobilisation Plant and Interim Disposal Solution proposal by Eastern Metropolitan Regional Council.

This assessment report is for the Western Australian Minister for the Environment and sets out:

- what the EPA considers to be the key environmental factors identified in the course of the assessment
- the EPA's recommendations as to whether or not the proposal may be implemented and, if it recommends that implementation be allowed, the conditions and procedures, if any, to which implementation should be subject
- other information, advice and recommendations as the EPA considers appropriate.



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14 November 2025

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Summary

Background

Proposal

The Air Pollution Control Residue (APCr) Immobilisation Plant and Interim Disposal Solution (the proposal) is a significant amendment to the 'Class IV Waste Disposal Cells Red Hill Waste Disposal Facility Toodyay Road, Red Hill, City of Swan' project authorised under Ministerial Statement (MS) 462. The proposal is to accept, treat and dispose of a new waste type being APCr which is a Class V waste generated as a by-product from flue gas treatment in Waste to Energy (WtE) facilities. The proposal includes the acceptance of APCr material, the construction of an immobilisation plant, treatment of the APCr to Class IV waste by immobilisation in concrete, disposal of the treated material in an existing MS 462 Class IV landfill cell, and the construction of a new Class IV APCr monocell for additional disposal.

The proposal is located approximately 12 kilometres (km) north-east of Midland, on the southern side of Toodyay Road and east of the Darling escarpment in Western Australia (Figure 1). It is located within the Red Hill Waste Management Facility (RHWMF), an existing facility licensed to accept various waste of Class I, II, III & IV located within the City of Swan, operated by the Eastern Metropolitan Regional Council (EMRC) (see Figure 2).

Context

The proponent is proposing to accept APCr waste from WtE facilities such as the recently commissioned facility at Kwinana and the facility under construction at East Rockingham. The WtE plants are new technology in WA and offer long term waste management solutions that are seen to be a significant step to contribute to WA's *Waste Avoidance and Resource Recovery Strategy 2030* as they repurpose unavoidable waste as an energy resource.

The EPA previously released strategic advice regarding its investigation of the environmental and health performance of waste to energy technologies under section 16(e) of the *Environmental Protection Act 1986* (EP Act) (Report 1468, April 2013). The EPA considers the proposal aligns with the advice specifically Recommendation 14 which states all air pollution control residues must be characterised and disposed of to an appropriate waste facility according to that characterisation.

The RHWMF has been operating since 1981 and is a prescribed premises licensed under Part V of the EP Act.

Contamination of groundwater beneath the facility and John Forest National Park has occurred historically and attributable to previous Class III and IV landfill operations. This is subject to ongoing monitoring and remediation under the *Contaminated Sites Act 2003*.

Consultation

The level of assessment was published as Referral Information with additional information on 26 April 2022. Additional information was provided by the proponent on 1 November 2023. After agency consultation, further additional information was requested on 6 March 2024. The revised ERD was provided on 15 November 2024. The EPA published the proponent's Environmental Review Document for a two-week public comment period from 13 January 2025 to 28 January 2025.

Assessment of key environmental factors

The EPA has identified the key environmental factors (listed below) in the course of the assessment. For each factor, the EPA has assessed the residual impacts of the proposal on the environmental values and considered whether the environmental outcomes are likely to be consistent with the EPA environmental factor objectives. As the proposal is a significant amendment to an existing proposal the EPA's assessment has been undertaken in the context of the existing proposal, having regard to the combined and cumulative effects on the environment. The EPA has also considered whether to inquire into the implementation conditions for the existing proposal.

Environmental Factors: Terrestrial Environmental Quality and Inland Waters	
Residual impact on key value	Assessment finding/environmental outcome
Potential impacts are: - to surface water quality through contaminated run-off. - to soil and groundwater quality from: - leaks or spills during handling and treatment - leachate from disposal cells - failure of disposal cells liners.	While immobilising APCr is a new process in WA, an independent peer-review confirms that the proposed treatment and disposal methods follow best practice and are expected to be effective and reliable. The design provided by the proponent of the current and proposed landfill cells are in accordance with Best Practice Landfill Standards (Victorian EPA 2015). Due to the characteristics of the site (low permeability of soils, topographical high point, distance to receptors), in the unlikely event of containment breach the spread of pollutants would be slow and could be attenuated. To further reduce the risk of contamination, the EPA recommends limiting the use of the existing Stage 2 Class IV cell. This provides a defined pathway towards use of the new dedicated monocell. The EPA also considers that temporary storage of APCr should be limited to the immobilisation plant silos to ensure there is no storage outside containment infrastructure. Controls relating to waste acceptance, handling, treatment, containment infrastructure, associated construction quality assurance verification and surface and groundwater

	monitoring requirements can be regulated under Part V of the EP Act. Significant residual impacts to terrestrial environmental quality and inland waters are unlikely. Subject to regulation under Part V of the EP Act and recommended conditions, the environmental outcome is likely to be consistent with the EPA objective for terrestrial environmental quality and inland waters.
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Environmental Factor: Air Quality	
Residual impact on key value	Assessment finding/environmental outcome
Potential impacts to air quality from dust emissions (total suspended particulates [TSP], PM₁₀ and PM_{2.5}) during construction and from acceptance, handling and treatment of APCr and cement powder as well as disposal of the mixed product. This includes fugitive dust generated from exposed areas.	The proponent has identified a range of control measures that can be implemented to minimise emissions to air of APCr. In particular, ensuring that the handling, storage and treatment of raw APCr is undertaken in an enclosed facility as much as possible which reduces the risk of emissions. The proponent's air dispersion modelling for the proposal predicted ambient pollutant concentrations would be well below relevant air quality guidelines at the nearest sensitive receptors. The human health risk assessment confirmed that predicted risk to human health is very low. The proposal is subject to regulation under Part V of the EP Act and DWER has advised that with the implementation of regulatory controls, air emissions can be managed to adequately mitigate the risk to sensitive receptors. Subject to regulation under Part V of the EP Act and recommended conditions prohibiting the temporary storage of raw APCr outside the immobilisation plant silos, the environmental outcome is likely to be consistent with the EPA objective for air quality.

Holistic assessment

The EPA considered the connections and interactions between relevant environmental factors and values to inform a holistic view of impacts to the whole environment. The EPA formed the view that the holistic impacts would not alter the EPA's conclusions about consistency with the EPA factor objectives.

Conclusion and recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values which may be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)

- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- EPA's confidence in the proponent's proposed mitigation measures
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment
- principles of the *Environmental Protection Act 1986* (EP Act).

The EPA has recommended that the proposal may be implemented subject to conditions recommended in Appendix A.

1 Proposal

The Air Pollution Control Residue (APCr) Immobilisation Plant and Interim Disposal Solution (the proposal) is a significant amendment to the 'Class IV Waste Disposal Cells Red Hill Waste Disposal Facility Toodyay Road, Red Hill, City of Swan' project authorised under Ministerial Statement (MS) 462. The proposal is to accept, treat and dispose of a new waste type being APCr which is a Class V waste generated as a by-product from flue gas treatment in Waste to Energy (WtE) facilities. The proposal includes the acceptance of APCr material, the construction of an immobilisation plant, treatment of the APCr to Class IV waste by immobilisation in concrete, disposal of the treated material in an existing MS 462 Class IV landfill cell, and the construction of a new Class IV APCr monocell for additional disposal.

The proposal is located within the Red Hill Waste Management Facility (RHWMF), approximately 12 kilometres (km) north-east of Midland, on the southern side of Toodyay Road and east of the Darling escarpment in Western Australia (Figure 1).

Existing approved operations

The RHWMF commenced operations as a landfill in 1981 operated by the EMRC accepting typical Class I, II and III wastes such as organic waste and household and commercial waste and has since expanded to accept Class IV waste (e.g. contaminated soils and industrial sludges) and process food organics and garden organics (FOGO). It is currently the only waste management facility in Perth licenced to accept Class IV waste, approved by MS 462 and under Part V of the EP Act.

The RHWMF is regulated by six separate ministerial statements which are discussed further in Appendix I. The establishment of several Class IV landfill cells at the RHWMF was previously assessed by the EPA (Bulletin 867) and authorised under MS 462 in 1997.

Significant amendment

The proponent is proposing to accept, treat and dispose of APCr waste from WtE facilities such as the recently commissioned facility at Kwinana and the facility under construction at East Rockingham.

The proposal includes the construction and operation of an immobilisation plant along with associated infrastructure, including a hardstand with storage silos, water tanks, washdown bay and a surface water pond. The immobilisation process stabilises the APCr material in low-heat concrete, altering its physical and chemical properties, which can then be classified as Class IV according to WA's *Landfill Waste Classification and Waste Definitions 1996*.

While construction of the immobilisation plant and the monocell would occur concurrently, the immobilisation plant is expected to be completed first. The immobilisation plant would begin operations once completed and treated APCr material would be disposed of into the existing Stage 2 Class IV landfill cell for up to 2 years until the monocell is completed, at which time the Stage 2 Class IV cell

would be capped. Once constructed, the APCr monocell would accept treated APCr material for 3-5 years (or until it reaches its maximum volume capacity). The total lifespan of the monocell including the construction and decommissioning phases, is expected to be 4-6 years.

The elements of the proposal which have been subject to the EPA's assessment are included in Table 1.

The EPA has assessed the proposal by considering the changes which are proposed in the context of the original proposal authorised under MS 462. The EPA has also considered the combined impacts of the original proposal and the proposed changes, and cumulative impacts with other proposals in the locality. The EPA has considered information on the mitigation of impacts for the original proposal and significant amendment, and proposed changes to the existing MS 462 conditions accordingly (Appendix I). The EPA has not reassessed the original proposal approved under MS 462.

Table 1: Proposal elements

Proposal element	Location / description	Original proposal approved under MS 462	Significant amendment	Combined Maximum extent, capacity or range
Physical Elements				
Development Envelope (DE)	Figure 2	95.54 ha (Lots 11, 2 & 1)	+ 105.32 ha (part Lots 8, 9, 10 & 12)	200.86 ha
Class IV landfill cells (Stages 1, 2 and 3)	Within Lots 11, 2 and 1 within DE	Total (lifetime) capacity up to 750,000m ³	No Change	Total (lifetime) capacity up to 750,000m ³
Immobilisation Plant and associated infrastructure (storage silos, loss of weight hoppers, water storage tanks, mixer and loading area, washout/washdown bay and concrete hardstand)	Figure 2	-	Up to 2.84 ha	Up to 2.84 ha
Class IV APCr Monocell	Figure 2	-	Total (lifetime) capacity approximately 70,320 tonnes	Total (lifetime) capacity approximately 70,320 tonnes
Operational Elements				
Treatment of APCr through immobilisation	-	-	Up to 50,000 tonnes per annum of raw APCr	Up to 50,000 tonnes per annum of raw APCr

Rehabilitation		
Progressive rehabilitation will occur in accordance with a Closure Plan approved by the DWER in line with the <i>Environmental Protection (Rural Landfill) Regulations 2002</i> and the <i>Waste Avoidance and Resource Recovery Act 2007</i> .		
Decommissioning		
Decommissioning of the Immobilisation Plant will be undertaken in 25+years' time. A decommissioning plan will be prepared prior to commissioning.		
Timeframes APCr Immobilisation Plant		
APCr Immobilisation Plant	Maximum Project Life	Approximately 25 years
	Construction Phase	Approximately 6 months
	Operations Phase	Approximately 25 years
	Decommissioning Phase	2 Months
Class IV APCr Monocell	Maximum Project Life	Approximately 4 – 6 years
	Construction Phase	Approximately 9 months
	Operations Phase	Approximately 3 – 5 years
	Decommissioning Phase	Approximately 2 months

Units and abbreviations

ha – hectares

m³ – cubic meters

The proponent referred the proposal to the EPA in October 2021. On 26 April 2022, the EPA decided to assess the proposal at the level of Referral Information with additional information with a two-week public review period.

Proposal amendments

The proposal was amended after submission to include a dedicated disposal solution being the construction and operation of the Class IV monocell. Prior to this, only an interim disposal solution was proposed being the use of the existing Stage 2 Class IV cell. The EPA Chair's notice of 24 July 2023 consenting to the change is available on the EPA website.

Consultation

The EPA published the proponent's Environmental Review Document for a two-week public comment period from 13 January 2025 to 28 January 2025 and 16 public comments were received. The proponent has responded to all comments with a Response to Submissions (RtS) document published on the EPA website. The EPA considered the comments received and the proponent's response in its assessment.

Some of the concerns raised during the public comment period relate to matters beyond the scope of the proposal and therefore the EPA's assessment. This includes concerns around transportation of hazardous waste on public roads to the RHWMF and associated emergency response procedures. This activity is not part of the proposal but is subject to separate regulation under the *Environmental Protection (Controlled Waste) Regulations 2004* and the *Dangerous Goods Safety Act 2004*.

Nevertheless, the EPA understands the proponent has sought advice from the Department of Fire and Emergency Services (DFES) regarding how it can support appropriate emergency management and contingency measures should an emergency response situation arise.

Proposal context

The RHWMF is buffered on most sides by areas of remnant vegetation of varying size, management and conservation security. The southern border of the RHWMF adjoins the John Forrest National Park in the west and a conservation covenant and Crown Reserve 47206 in the east. This ensures a minimum secured buffer to residential premises in the south of approximately 350 m. At the time of first approval of Class IV operations under MS 462 (1997), the closest residence was 1,200 m away (EPA Bulletin 867) with subsequent residential expansion from around 2000 to 2006 reducing the distance by half.

The eastern border of the RHWMF adjoins a rural residential estate but is separated from active landfilling activities by approximately 500 m of parkland cleared areas owned by EMRC. The northern border abuts Toodyay Road with vegetation strips remaining between the road and the facility.

The land parcels within the RHWMF have been classified as a contaminated site under the *Contaminated Sites Act 2003* attributable to contamination from landfill leachate. The potential for additional contamination originating from the existing Stage 2 Class IV landfill cell has been subject to recent investigations.

Existing contamination (Stage 1 Class IV cell and Class III cell)

Groundwater contamination was recorded in 2015 beneath the first (Stage I) Class IV Cell on Lot 1 and a historic unlined Class III cell on Lot 11 in the southern area of the facility. Contamination remediation activities indicate that due to the geology of the area, the contamination was slow moving and not extensive although a plume has extended into the John Forest National Park from Class III activities. Some remedial activities have taken place, but the site remains classified as contaminated. The classification allows the continued use of the RHWMF as a managed and monitored landfill facility and requires the management of the site in accordance with the Contaminated Sites Guidelines (Department of Water and Environmental Regulation 2021) and the *National Environment Protection (Assessment of Site Contamination) Measure 1999*.

Stage 2 Class IV cell contamination investigations

For a period during 2014 to 2018 the Stage 2 Class IV cell was utilised for storage of excess leachate whilst a new centralised leachate pond system was built. Subsequent groundwater monitoring results raised concern regarding the integrity of the cell lining system particularly for the western sub cell. A Liner Integrity Engineering Assessment (LIA) to inspect the physical integrity of the visible lining system was undertaken and the findings reported to DWER. No major damage was found in the visible main liner, except for minor wear around gas vents, likely caused by stress from shifting drainage layers. Environmental exposure has caused some material degradation, prompting remedial works. The section of the liner beneath the

waste body could not be visually inspected, but after leachate levels were reduced, EMRC has reported minimal leachate in the leak detection system, indicating the lining system remains functional. Recent testing of the southwestern corner of the cell identified two small leaks in the geomembrane which were repaired and otherwise the integrity of the primary and secondary geomembranes was verified.

Waste hierarchy

The APCr that will be produced from the WtE facilities cannot be avoided, reused, reprocessed, recycled or used for further energy recovery. Disposal is the only option in WA at this time, and due to the potential for high concentrations of harmful contaminants, it is classified as Class V waste. By its nature, the consistency of the chemical makeup and concentration of APCr is highly variable due to the assortment of waste processed. Hazardous waste such as APCr poses risks to people and the environment if not managed correctly, and this proposal offers a way to mitigate those risks.

Waste technology and strategy

The WtE plants are new technology in WA and offer long term waste management solutions that are seen to be a significant step to contribute to *WA's Waste Avoidance and Resource Recovery Strategy 2030* as they repurpose unavoidable waste as an energy resource. The EPA previously released strategic advice regarding its investigation of the environmental and health performance of waste to energy technologies under section 16(e) of the EP Act (Report 1468, April 2013). The proposal aligns with the advice specifically Recommendation 14 which states all air pollution control residues must be characterised and disposed of to an appropriate waste facility according to that characterisation.

The *Waste Avoidance and Resource Recovery Strategy 2030* (the Strategy) outlines the 'Waste Hierarchy' which lays out the most preferred to least preferred waste options: Avoidance, Recovery, Reuse, Reprocessing, Recycling, Energy Recovery and Disposal. Energy Recovery is the second least preferred option, but for waste that cannot be used in any other way, WtE plants prevent this waste from disposal in landfills. While the WtE process does produce a hazardous waste in the form of APCr, the volume of waste that is diverted from landfills by this process is of more significance to meet one of the underlying objectives of the Strategy: 'Recover; Western Australians recover more value and resources from waste'.

Proposal alternatives

The proponent did not consider alternative locations for the proposal. The further processing to allow reuse or treatment of the APCr is also limited due to characteristics of this material. The potential to reuse the by-products of WtE facilities (bottom ash and fly ash) to manufacture bricks has not yet been reliably demonstrated to meet health, environmental safety and integrity requirements and is thus not a viable alternative at present. The EPA recognises the need for adequate and long-term hazardous waste management to ensure that Class IV and V wastes are appropriately managed into perpetuity in a suitable location.

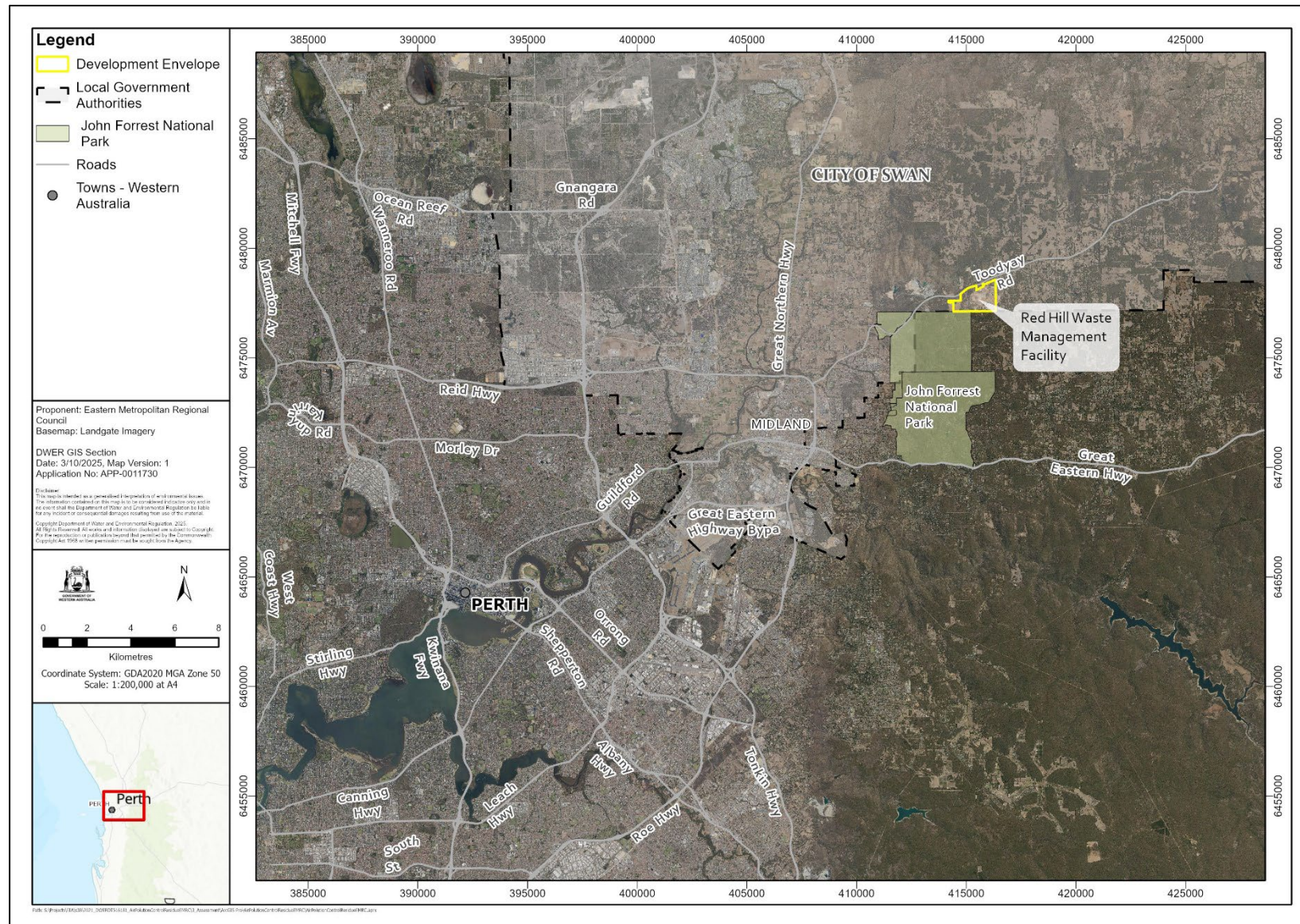
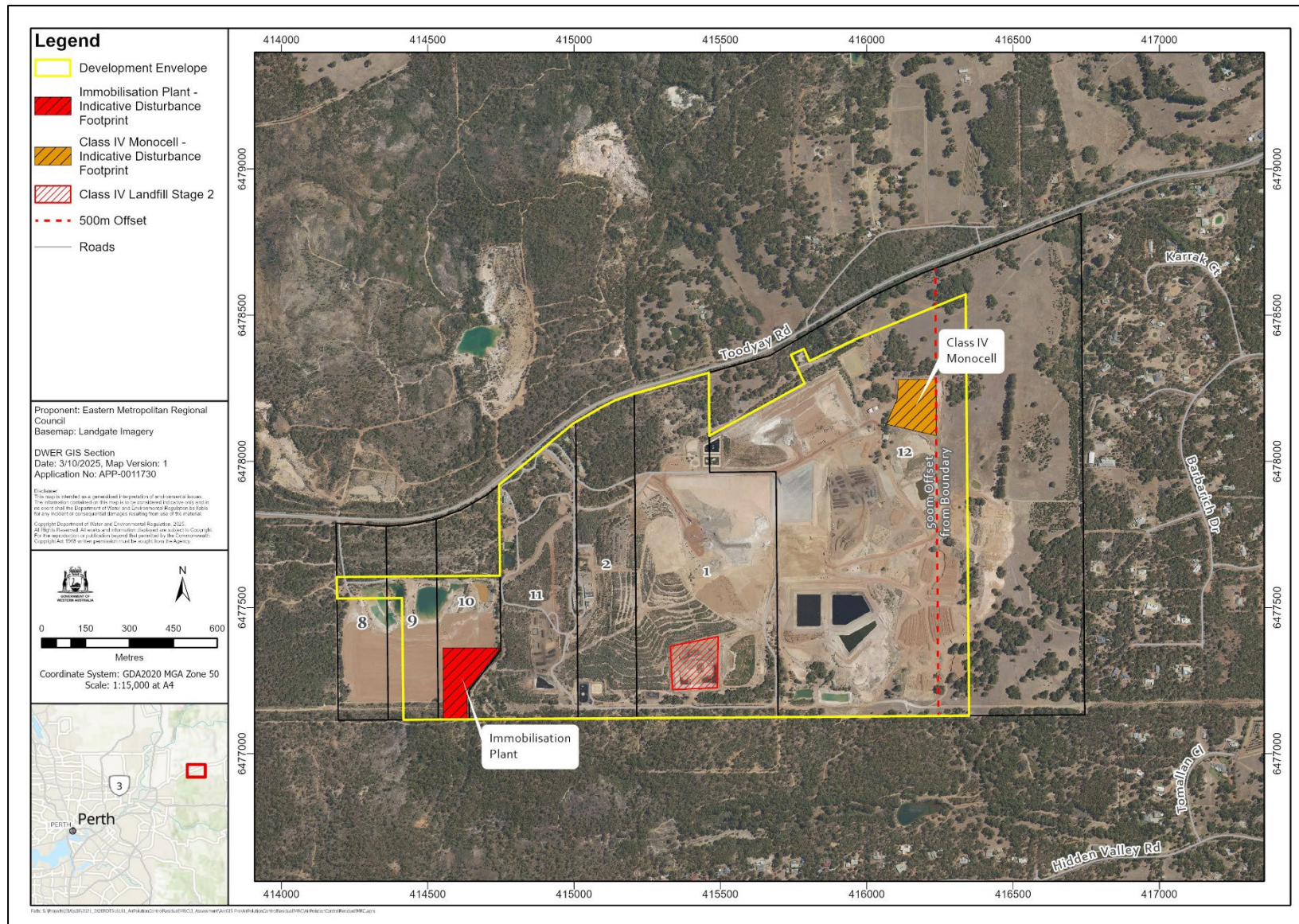


Figure 1: Proposal location



2 Assessment of key environmental factors

This section reports the outcome of the EPA's assessment of the key environmental factors against its environmental objectives, and its recommendations on conditions should the proposal be implemented. This includes assessment of the combined effects that the implementation of the original proposal approved under MS 462 and the significant amendment (i.e. the proposal) may have on the environment.

The EPA has also:

- considered the principles of the EP Act in assessing whether the residual impacts will be consistent with its environmental factor objectives (see Appendix D)
- evaluated the impacts of the proposal on other environmental factors and concluded these were not key factors for the assessment (see Appendix E).

2.1 Terrestrial Environmental Quality and Inland Waters

The EPA has assessed the key environmental factors Terrestrial Environmental Quality and Inland Waters in tandem noting the primary risk of impacts to both soil and water from the proposal is contamination.

The EPA environmental objective for Terrestrial Environmental Quality is *to maintain the quality of land and soils so that environmental values are protected* (EPA 2016).

The EPA environmental objective for Inland Waters is *to maintain the hydrological regimes and quality of groundwater and surface water so that environmental values are protected* (EPA 2018).

The proponent submitted the following studies and reports for the assessment:

- Interim Solution Hydrogeological Risk Assessment (Talis 2023a).
- Dedicated Solution Hydrogeological Risk Assessment (Talis 2023b).

Noting disposal of APCr waste is new to WA, a peer review was also completed by the proponent (Ramboll 2025). The report provides:

- a peer review of the operational and engineering aspects of the proposal
- a gap analysis of the conceptual description of the proposed immobilisation facility against the Best available techniques (BAT) reference document for waste treatment – Industrial Emissions Directive 2010/75/EU (Pinasseau et al. 2018)

The EPA considers that the information available is adequate to appropriately inform the assessment.

Table 2: Assessment of Terrestrial Environmental Quality and Inland Waters

Key environmental values and context	
Surface water The RHWMF is located at a topographical high point at the intersection of three sub-catchments of the Swan River: Jane Brook, Susannah Brook, and Strelly Brook. Natural drainage around the proposed immobilisation plant and Stage 2 Class IV landfill cell generally flows southwards to Christmas Tree Creek (a tributary of Jane Brook), which is approximately 400 m from the RHWMF's southern boundary. Drainage around the proposed APCr monocell generally flows northeast towards Susannah Brook which is approximately 1 km away. Geology and groundwater The surface geology at the RHWMF consists of lateritic soils over granite and dolerite. Groundwater flows mainly through a thin (~5 m) saprock zone and fractures in fresh bedrock. The aquifer is confined or semi-confined, with low hydraulic conductivity, limiting vertical water movement. Groundwater contours broadly follow the site topography with groundwater generally flowing north/northeast near the proposed monocell and south/southwest near the immobilisation plant and Stage 2 Class IV landfill cell. The slope and groundwater gradient become steeper near the southern boundary of the site. Separation to groundwater varies as follows: • 4.2–5.7 m for the existing Stage 2 Class IV landfill cell • 2m minimum separation proposed for the APCr monocell (current depth to groundwater is 4.73–7.32 m) • 4.5–8.5 m for the immobilisation plant A portion of the RHWMF shows historical contamination from landfill leachate (see Section 1).	
Consultation	
The key matters raised during the consultation period include: • Capacity for washing down of potentially contaminated vehicles (i.e. agitator trucks). • Spillage of APCr during unloading. • Distance and buffers to sensitive receptors especially John Forrest National Park. • Migration of pollutants to the Swan River. • Leaching of chemicals, PFAS, dioxins and other persistent organic pollutants (POPs). • Human health concerns. • Durability of the containment barriers. • Pollution of soils and groundwater. • Management of leachate from the disposal cells.	
Impacts from the proposal	Assessment finding, environmental outcomes and recommended conditions
Potential impacts: The proposal involves the handling, treatment and disposal of APCr waste. Potential impacts are:	Assessment findings: In assessing whether the proposal is consistent with the relevant EPA factor objectives for terrestrial environmental quality and inland waters, the EPA has considered the treatment and disposal methods,

• To surface water quality through contaminated run off. • To soil and groundwater quality from: ○ leaks or spills during handling and treatment ○ leachate from disposal cells ○ failure of the disposal cells liners. Mitigation hierarchy: The proponent has proposed the following avoidance, minimisation and rehabilitation: <i>Avoidance</i> • Only accept waste which meets the chemical waste acceptance criteria. A material acceptance and sampling plan (MASP) is to be implemented. • Surface water management measures to direct clean stormwater away from the landfill to prevent its contamination. <i>Minimisation</i> • Operations at the immobilisation plant will occur on a hardstand and will be bunded to minimise emissions of contaminated water to the environment. • The agitator truck will be cleaned within the Class IV landfill, thereby containing the contaminated water within the cell. Any additional cleaning will be done at the washdown bay. • A double composite basal lining system and a leachate management system will be used for the landfill to minimise the risk of leaks. <i>Rehabilitation</i> • Any contaminated soils will be removed and disposed of into either Class III or Class IV landfill cells. • Should a leak occur from the leachate pond(s), the leachate	the suitability of containment infrastructure, and the nature of the contamination risk. These matters are discussed in turn below. <i>Treatment and disposal methods</i> The peer review (Ramboll 2025) commissioned by the proponent identified that: • there are four potential treatment methods for APCr - solidification, which is proposed by the proponent, is among best practice and is the most widespread technology for reducing leachability of organic and inorganic substances • use of cement treatment is appropriate in Western Australia due to presence of groundwater at possible disposal sites • the proponent's proposed use of an agitator truck to pour the cement mixture in bunded areas within landfill cells will result in the lowest amount of dust from three potential disposal methods. While immobilising APCr is a new process in WA, the independent peer-review confirms that the proposed treatment and disposal methods follow best practice and are expected to be effective and reliable. While the peer review also makes some recommendations regarding potential improvements to design and monitoring elements, the EPA considers these can be considered under Part V of the EP Act. <i>Suitability of containment infrastructure</i> The suitability of the containment infrastructure for the Stage 2 Class IV cell has been the focus of investigations and remedial works. The proponent has been undertaking progressive inspection and recent testing of the southwest corner of the cell, being the area of greatest concern, has verified the integrity of the primary and secondary HDPE geomembrane liners. DWER advised that the cell is not a current contamination risk and any ongoing monitoring and remediation can be managed under Part V instruments and the CS Act. Ultimately the capping and closing of the cell would prevent the ingress of water into the waste body and cease the production of leachate (timeframe will depend on rate of utilisation). Immobilised APCr would not generate leachate in and of itself. With regards to the APCr monocell, the proponent has proposed a double composite lining system. This includes a primary and secondary geosynthetic clay liner (GCL), a primary and secondary high-density polyethylene (HDPE) geomembrane, cushion/protection geotextile, and a drainage
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can be removed, and the lining system repaired or replaced. - Landfill cells to be capped to inhibit rainfall infiltration and then rehabilitated. Regulation by other decision-making authorities (DMAs): The proposal will be subject to regulation under Part V of the EP Act, which can impose conditions relating to waste acceptance, waste treatment, infrastructure design and quality assurance, management measures and monitoring. Existing operations at the RHWMF are regulated under Part V of the EP Act through Licence L8889/2015/2 which includes conditions relating to: - Waste acceptance criteria, waste processing and deposition and monitoring of waste. - Prescribed infrastructure requirements for Class IV cells, leachate and stormwater management structures. - Leachate and wastewater management requirements. Existing groundwater contamination at the site is subject to regulation under the <i>Contaminated Sites Act 2003</i> (CS Act). This includes requirements for: - Ongoing groundwater monitoring and targeted analysis of leachate/groundwater samples. - Preparation of monitoring reports and management plans as outlined in '<i>Contaminated Sites Guidelines</i>' and the '<i>National Environment Protection (Assessment of Site Contamination) Measure 1999</i>'. - A mandatory auditor's report (MAR) prepared by an accredited contaminated sites auditor required by <i>Regulation</i>	geocomposite leak detection layer between the composite liners. The EPA notes that the design provided by the proponent of the current and proposed cells, are in accordance with Best Practice Landfill Standards (Victorian EPA 2015) and international standards for hazardous waste landfill cells. Contamination risk The leachate studies of comparable immobilised APCr (Ramboll 2020) identified the main contaminant of potential concern (COPC) is lead (Pb). Although metals leach from immobilised APCr at very low concentrations, acidic conditions can accelerate leaching. The existing Stage 2 Class IV cell currently maintains an alkaline pH in the range 7.1 to 8.8 and the treated APCr is highly alkaline meaning conditions in the landfill cells are unlikely to exacerbate metal leaching. Due to the site characteristics (low permeability of soils, topographical high point, distance to receptors), in the unlikely event of containment breach the spread of pollutants would be slow and could be attenuated. The combined effects with the original proposal include the acceptance, treatment and disposal of additional Class IV waste types and quantities including construction of additional infrastructure. With regards to combined effects and cumulative impacts, existing buffers to sensitive receptors from existing, proposed and foreseeable activities at the RHWMF would generally be maintained. The geological settings support the ability to contain and support remediation of potential contamination events. It follows that any combined effects and cumulative impacts are not expected to be significant. Summary and recommended conditions Waste acceptance, handling, treatment, containment infrastructure, associated construction quality assurance verification and surface and groundwater monitoring requirements can be regulated under Part V of the EP Act. However, the EPA considers that conditions should be imposed to limit the use of the existing Stage 2 cell and to regularly review its operation noting the potential for mixing of waste types which may generate acidic conditions. Direct disposal of immobilised APCr to a landfill cell should also be required as proposed to prevent any risk of emissions from temporarily stored material. Furthermore, the performance of overall operations should be regularly reviewed to minimise the risk of
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<i>31(1)(b) of the Contaminated Sites Regulations 2006</i>	contamination, identify improvement opportunities and inform future planning of new cells. The recommended conditions include: Condition A1 - disposal of immobilised APCr to the existing Stage 2 cell shall only be for a maximum of five years - no temporary storage of immobilised APCr. Condition D6-1 - undertake annual independent audits of the effectiveness of operations to contain immobilised APCr within the existing Stage 2 cell including of the placement and mixing of waste, leachate volumes and characterisation and integrity of the lining system. Condition B1 - undertake 3-yearly environmental performance reporting to: - confirm the containment infrastructure and immobilised APCr are performing as expected - identify adaptive management and continual improvement opportunities - identify alternatives for reducing waste acceptance in future - adjust forward plans for Class IV cells taking the above into account and publish the performance reports online. The EPA advises that the potential for APCr to contaminate soils, surface water and groundwater can be mitigated through recommended conditions and regulation under Part V of the EP Act so that the environmental outcome for the proposal is consistent with the EPA's objectives for terrestrial environmental quality and inland waters.
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2.2 Air Quality

The EPA environmental objective for Air Quality is *to maintain air quality and minimise emissions so that environmental values are protected* (EPA 2020).

The proponent submitted the following studies and reports for the assessment:

- Operational Management and Air Quality Impact Assessment (Environmental and Air Quality Consulting Pty Ltd (EAQ 2024)
- Human Health Risk Assessment (HHRA) (JBS&G 2025).
- Technical Peer review – Air Pollution Control Residue (APCr) Immobilisation Plant and Disposal Solution at Red Hill (Ramboll 2025).

The EPA considers that the proponent has completed the relevant studies to appropriately inform the assessment.

Table 3: Assessment of Air Quality

Key environmental values and context	
The key environmental values associated with air quality are human health and amenity. The site is located at the top of the Darling Escarpment with the Swan Coastal Plain immediately to the west. The coastal plain areas near the Scarp often experience stronger easterly winds due to downhill air flow. As a result, the site is mainly influenced by easterly winds, with little wind coming from the west (EAQ 2024). Ambient air quality monitoring was conducted by EMRC in 2011 and provides a comprehensive assessment of the background air quality in the Red Hill area. Current sources of pollutants in the local area include the RHWMF (for particulates and metals), traffic on Toodyay Road, and smoke from wood heating, waste burning, and controlled burns (JBS&G 2025).	
Consultation	
The key matters raised during the consultation period include: • Health concerns due to release of fugitive dust containing APCr. • Concerns relating to the methodology used in the Operational Management & Air Quality Impact Assessment. • Changing toxicity and hazardous properties of APCr depending on the types and volumes of waste incinerated. • Dust control measures.	
Impacts from the proposal	Assessment finding, environmental outcomes and recommended conditions
Potential impacts: Potential impacts to air quality from dust emissions (total suspended particulates [TSP], PM₁₀ and PM_{2.5}) during construction, from acceptance, handling and treatment of APCr and cement powder, and from disposal of the mixed	Assessment findings: The proponent's modelling of potential air quality impacts from the proposal found that the predicted ambient pollutant concentrations at the nearest sensitive receptors are well below relevant air quality guidelines and measures (EAQ 2024).

product. This includes fugitive dust generated from exposed areas.

Combined effects:

Potential impacts from the current Class IV landfill operations primarily relate to fugitive dust. Therefore, combined effects include a greater area over which fugitive dust may be generated.

Mitigation hierarchy:

The proponent has proposed the following avoidance, minimisation and rehabilitation:

Avoidance

- Only accept waste which meets the chemical waste acceptance criteria. A material acceptance and sampling plan (MASP) is to be implemented.

Minimisation

- Design elements such as enclosed transportation, storage and mixing of APCr and cement including warning systems, systems integrity checks and cleaning practises.
- Wetting down and wash down practises to reduce generation and spread of dust and residue.
- Vehicle speed restrictions.

Rehabilitation

- Landfill cells to be capped and rehabilitated.

Regulation by other DMAs

The proposal will be subject to regulation under Part V of the EP Act, which can impose conditions relating to waste acceptance, waste treatment, infrastructure design and quality assurance, management measures and monitoring.

Existing operations at the RHWMF are currently regulated under Part V of the EP Act through Licence L8889/2015/2 which includes conditions relating to:

- compliance with the *National Environment Protection (Ambient Air Quality) Measure (NEPM) 2003* national environment protection standards for PM₁₀, PM_{2.5} and lead

The HHRA compared the modelled levels of air pollutants against Air Guideline Values (AGVs) which are based on the approved health guidelines from the Department of Health (Draft Guideline for Air Emissions; DWER 2019).

The predicted ambient concentrations of pollutants (including PM₁₀, metals, dioxins and furans) were compared against the AGVs for each pollutant. All ambient pollutant concentrations are below 15% of the relevant AGVs at the site boundary, meaning the risk is insignificant in terms of health. Cadmium was the substance with the highest short-term concentration at 3.7% of the AGV at the nearest sensitive receptor, confirming very low risk. It is noted that the assessment used a conservative “worst-case” scenario, adding confidence to the findings.

Overall, the risk to public health from emissions is considered very low, and no further detailed analysis is required. This conclusion is based on raw APCr only being accepted and stored at the immobilisation plant with associated controls.

In relation to cumulative impacts, the EPA noted that background pollutant sources in the area have largely remained unchanged, except for an increase in traffic. There are no new industrial activities contributing to higher background pollution levels. The cumulative air quality assessment (JBS&G 2025) found a low risk of adverse health impacts from emissions from the Immobilisation Plant when combined with existing background levels.

Recommended conditions:

The proposal is subject to regulation under Part V of the EP Act and DWER has advised that with the implementation of regulatory controls, air emissions can be managed to mitigate the risk to sensitive receptors. The EPA considers that the following conditions should be imposed:

Condition A1

- storage of raw APCr shall only be within the immobilisation plant silos – this is to ensure that the proposal is implemented as proposed and APCr is not accepted and temporarily stored elsewhere.

Condition B1

Three yearly performance reporting for the APCr Immobilisation Plant including:

• compliance with criteria in the <i>draft Guideline: Air emissions</i> (DWER 2019) for TSP, metals, metalloids, dioxins and furans.	• an analysis and summary of air quality impacts from any exceedances measured under Part V regulatory instruments • adaptive management and continuous improvement strategies for the acceptance, handling, treatment and disposal of waste • requirements for the proponent to publish the performance report on their website. The EPA considers that the impacts of the combined proposal can be mitigated through recommended conditions and regulation under Part V of the EP Act so that the environmental outcome for the proposal is consistent with the EPA's objective for air quality.
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3 Holistic assessment

While the EPA assessed the impacts of the proposal against the key environmental factors above, given the link between factors, the EPA also considered connections and interactions between them to inform a holistic view of impacts to the whole environment.

The EPA has considered the proposal in the context of holistic impacts. The possible impacts to human health are through pollutant emissions to air and discharges to soil and inland waters. The potential changes to terrestrial environmental quality from the proposal has the potential to interact with inland waters.

The EPA considers that the site selection, and proposed mitigation and management measures will minimise the emissions and discharges at or close to source. This in turn minimises inter-related impacts to other environmental factors. Holistic impacts from the combined proposals and historic contamination are considered unlikely to significantly compound individual impacts to environmental factors.

When the separate environmental factors and values affected by the proposal are considered together in a holistic assessment, the EPA considers that the impacts from the proposal would not alter its views about consistency with the EPA's factor objectives as assessed in section 2.

4 Recommendations

The EPA has taken the following into account in its assessment of the proposal:

- environmental values likely to be significantly affected by the proposal
- assessment of key environmental factors, separately and holistically (this has included considering cumulative impacts of the proposal where relevant)
- EPA's confidence in the proponent's proposed mitigation measures
- likely environmental outcomes which can be achieved with the imposition of conditions
- consistency of environmental outcomes with the EPA's objectives for the key environmental factors
- whether other statutory decision-making processes can mitigate the potential impacts of the proposal on the environment and
- principles of the EP Act.

The EPA recommends that the proposal may be implemented subject to the conditions recommended in Appendix A.

Appendix A: Recommended conditions

Recommended Environmental Conditions

STATEMENT THAT A PROPOSAL MAY BE IMPLEMENTED (*Environmental Protection Act 1986*)

CLASS IV WASTE DISPOSAL AT RED HILL WASTE MANAGEMENT FACILITY INCLUDING AIR POLLUTION CONTROL RESIDUE (APCR) IMMOBILISATION PLANT AND INTERIM DISPOSAL SOLUTION

Proposal: Acceptance and disposal of Class IV waste at the Red Hill Waste Management Facility (RHWMF) including construction and operation of an Immobilisation Plant to treat APCr and disposal of the treated material to the existing Stage 2 Class IV landfill cell (interim solution) or a new Class IV monocell (dedicated solution).

Proponent: EASTERN METROPOLITAN REGIONAL COUNCIL
Australian Business Register 89631866056

Proponent address: 226 Great Eastern Highway
ASCOT WA 6104

Assessment number: 2337

Report of the Environmental Protection Authority: 1796

Previous Assessment Number: 1088

Previous Report of the Environmental Protection Authority: 867

Previous Statement Number: 462

Introduction: The proposal is a significant amendment to the existing proposal 'Class IV Waste Disposal Cells, Red Hill Waste Disposal Facility, Toodyay Road, Red Hill, Shire of Swan' which was agreed to be implemented under Ministerial Statement 462. The EPA's Report for the existing proposal is Bulletin 867, EPA Assessment Number 1088.

Pursuant to section 45 of the *Environmental Protection Act 1986*, it is now agreed that:

1. the significant amendment proposal described and documented in the proponent's Proposal Content Document (21 April 2023), may be implemented;
2. Ministerial Statement 462 for the existing proposal is superseded under section 40AA(6)(b) of the *Environmental Protection Act 1986*; and

3. the implementation of the significantly amended proposal (being the existing proposal as amended by the significant amendment proposal) is subject to the following implementation conditions and procedures.

Conditions and procedures

Part A: Proposal extent

Part B: Environmental outcomes, prescriptions and objectives

Part C: Environmental management plans and monitoring

Part D: Compliance, time limits, audits and other conditions

PART A – PROPOSAL EXTENT**A1 Limitations and Extent of Proposal**

A1-1 The proponent must ensure that the proposal is implemented in such a manner that the following limitations or maximum extents / capacities are not exceeded:

Proposal element	Location	Maximum extent or capacity
Physical elements		
Development Envelope (DE)	Figure 1	201 hectares
Immobilisation Plant	Figure 1	Design capacity of up to 50,000 tonnes per annum of raw APCr
Class IV landfill cells (Stages 1, 2 and 3)	Within Lots 11, 2 and 1 within DE	Total (lifetime) capacity of 750,000 m ³
APCr Class IV monocell	Figure 1	Total (lifetime) capacity of 70,320 tonnes
Operational elements		
Storage of APCr	-	Storage of raw APCr shall only be within the immobilisation plant silos. No temporary storage of raw and immobilised APCr elsewhere at the Facility .
Disposal of APCr	-	Disposal of immobilised APCr to Class IV Stage 2 cell shall only occur for a maximum of 5 years commencing from the date of first acceptance of raw APCr. Thereafter, disposal of immobilised APCr only to the APCr Class IV monocell.

PART B – ENVIRONMENTAL OUTCOMES, PRESCRIPTIONS AND OBJECTIVES

B1 Environmental Performance Reporting

- B1-1 The proponent shall submit an Environmental Performance Report to the **CEO** every three (3) years.
- B1-2 The first Environmental Performance Report shall be submitted within three (3) months of the expiry of the three (3) year period commencing from the date of this Statement, or such other time as approved by the **CEO**.
- B1-3 Each Environmental Performance Report shall report on the following:
- (1) whether all required regulatory approvals and permits including but not limited to the Controlled Waste Regulations and Part V, *Environmental Protection Act 1986* requirements were in place for transport and disposal of the waste;
 - (2) an analysis and summary of operational monitoring results and any exceedances of **air quality guideline values and criteria** from operation of the Immobilisation Plant; and
 - (3) an analysis and summary of the containment performance of the Class IV landfill cells and leachability of immobilised APCr, including but not limited to **leachate quality monitoring**.
- B1-4 The Environmental Performance Report must include:
- (1) a comparison of the state of the environment at the end of each three (3) year period against:
 - (a) the state of the environment at the beginning of the three (3) year period; and
 - (b) the state of the environment identified in the **first Environmental Performance Report submitted**.
 - (2) proposed adaptive management and continuous improvement strategies for the acceptance, handling, treatment and disposal of waste;
 - (3) analysis of whether other options have become available to reuse, recycle or recover wastes that are being accepted; and
 - (4) improvement strategies and a description of forward planning for future Class IV landfill cells considering the information from condition B1-3(3), and types and volumes of Class IV waste anticipated to be accepted.
- B1-5 Each Environmental Performance Report must be published on the proponent's website and provided to the **CEO** in electronic form suitable for on-line

publication by the Department of Water and Environmental Regulation within twenty (20) business days of being approved by the **CEO**.

PART C – ENVIRONMENTAL MANAGEMENT PLANS AND MONITORING**C1 Conditions Related to Monitoring**

- C1-1 The proponent must undertake monitoring capable of substantiating whether the proposal limitations and extents in Part A are exceeded.
- C1-2 The proponent must submit as part of the Compliance Assessment Report required by condition D2, a compliance monitoring report that:
- (1) outlines the monitoring that was undertaken during the implementation of the proposal;
 - (2) identifies why the monitoring was capable of substantiating whether the proposal limitation and extents in Part A are exceeded;
 - (3) outlines the results of the monitoring;
 - (4) reports whether the proposal limitations and extents in Part A were exceeded; and
 - (5) reports any actions taken by the proponent to remediate any potential non-compliance.

PART D – COMPLIANCE, TIME LIMITS, AUDITS AND OTHER CONDITIONS**D1 Non-compliance Reporting**

D1-1 If the proponent becomes aware of a potential non-compliance, the proponent must:

- (1) report this to the **CEO** within seven (7) days;
- (2) implement **contingency measures**;
- (3) investigate the cause;
- (4) investigate environmental impacts;
- (5) advise rectification measures to be implemented;
- (6) advise any other measures to be implemented to ensure no further impact;
- (7) advise timeframe in which contingency, rectification and other measures have and/or will be implemented; and
- (8) provide a report to the **CEO** within twenty-one (21) days of being aware of the potential non-compliance, detailing the measures required in conditions D1-1(1) to D1-1(7).

D1-2 Failure to comply with the requirements of a condition constitutes a non-compliance with these conditions, regardless of whether the **contingency measures**, rectification or other measures in condition D1-1 have been or are being implemented.

D2 Compliance Reporting

D2-1 The proponent must provide an annual Compliance Assessment Report to the **CEO** for the purpose of determining whether the implementation conditions are being complied with.

D2-2 Unless a different date or frequency is approved by the **CEO**, the first annual Compliance Assessment Report must be submitted within fifteen (15) months of the date of this Statement, and subsequent reports must be submitted annually from that date.

D2-3 Each annual Compliance Assessment Report must be endorsed by the proponent's Chief Executive Officer, or a person approved by proponent's Chief Executive Officer to be delegated to sign on the Chief Executive Officer's behalf.

D2-4 Each annual Compliance Assessment Report must:

- (1) state whether each condition of this Statement has been complied with, including:

- (a) exceedance of any proposal limits and extents;
 - (b) implementation of **contingency measures**; and
 - (c) reporting requirements;
- (2) provide evidence to substantiate statements of compliance, or details of where there has been a non-compliance;
- (3) include the corrective, remedial and preventative actions taken in response to any potential non-compliance;
- (4) be provided in a form suitable for publication on the proponent's website and online by the Department of Water and Environmental Regulation; and
- (5) be prepared and published consistent with the latest version of the Compliance Assessment Plan required by condition D2-5 which the **CEO** has confirmed by notice in writing satisfies the relevant requirements of Part C and Part D.

D2-5 The proponent must prepare a Compliance Assessment Plan which is submitted to the **CEO** at least six (6) months prior to the first Compliance Assessment Report required by condition D2-2, or prior to implementation of the proposal, whichever is sooner.

D2-6 The Compliance Assessment Plan must include:

- (1) what, when and how information will be collected and recorded to assess compliance;
- (2) the methods which will be used to assess compliance;
- (3) the methods which will be used to validate the adequacy of the compliance assessment to determine whether the implementation conditions are being complied with;
- (4) the retention of compliance assessments;
- (5) the table of contents of Compliance Assessment Reports, including audit tables; and
- (6) how and when Compliance Assessment Reports will be made publicly available, including usually being published on the proponent's website within sixty (60) days of being provided to the **CEO**.

D3 Contact Details

D3-1 The proponent must notify the **CEO** of any change of its name, physical address or postal address for the serving of notices or other correspondence within

twenty-eight (28) days of such change. Where the proponent is a corporation or an association of persons, whether incorporated or not, the postal address is that of the principal place of business or of the principal office in the State.

D4 Time Limit for Proposal Implementation

- D4-1 The APCr immobilisation plant must be **substantially commenced** within five (5) years from the date of this Statement.
- D4-2 The proponent must provide to the **CEO** documentary evidence demonstrating that they have complied with condition D4-1 no later than thirty (30) days after **substantial commencement**.
- D4-3 If the APCr immobilisation plant has not been **substantially commenced** within the period specified in condition D4-1, implementation of the APCr immobilisation plant must not be commenced after the expiration of that period.

D5 Public Availability of Data

- D5-1 Subject to condition D5-2, within a reasonable time period approved by the **CEO** upon the issue of this Statement and for the remainder of the life of the proposal, the proponent must make publicly available, in a manner approved by the **CEO**, all validated environmental data collected before and after the date of this Statement relevant to the proposal (including sampling design, sampling methodologies, monitoring and other empirical data and derived information products (e.g. maps)), environmental management plans and reports relevant to the assessment of this proposal and implementation of this Statement.

- D5-2 If:

- (1) any data referred to in condition D5-1 contains trade secrets; or
- (2) any data referred to in condition D5-1 contains particulars of confidential information (other than trade secrets) that has commercial value to a person that would be, or could reasonably be expected to be, destroyed or diminished if the confidential information were published,

the proponent may submit a request for approval from the **CEO** to not make this data publicly available and the **CEO** may agree to such a request if the **CEO** is satisfied that the data meets the above criteria.

- D5-3 In making such a request the proponent must provide the **CEO** with an explanation and reasons why the data should not be made publicly available.

D6 Independent Audit

- D6-1 During the period of disposal of immobilised APCr to the Class IV Stage 2 cell, the proponent must engage an independent auditor to undertake annual audits of the effectiveness of containment operations including:

- (1) the placement and potential mixing of waste within the cell;
- (2) leachate volumes and characterisation; and
- (3) integrity of the lining system.

- D6-2 The proponent must arrange for additional independent audits of compliance with the conditions of this statement, as and when directed by the **CEO**.
- D6-3 The independent audits must be carried out by a person with appropriate qualifications who is nominated or approved by the **CEO** to undertake the audits under conditions D6-1 and D6-2.
- D6-4 The proponent must submit the independent audit report with the Compliance Assessment Report required by condition D2, or at any time as and when directed in writing by the **CEO**. The audit reports are to be supported by credible evidence to substantiate their findings.
- D6-5 The independent audit reports required by conditions D6-1 and D6-2 are to be made publicly available in the same timeframe, manner and form as a Compliance Assessment Report, or as otherwise directed by the **CEO**.

Table 1: Abbreviations and definitions

Acronym or abbreviation	Definition or term
Adverse impacts	Negative change that is neither trivial nor negligible that could result in a reduction in health, diversity or abundance of the receptor/s being impacted, or a reduction in environmental value.
Air quality guideline values and criteria	Air quality guideline values and criteria as required under a works approval or licence issued under Part V of the <i>Environmental Protection Act 1986</i> .
CEO	The Chief Executive Officer (CEO) of the Department of the Public Service of the State responsible for the administration of section 48 of the <i>Environmental Protection Act 1986</i> , or the CEO's delegate.
Contingency measures	Contingency measures include changes to operations or reductions in disturbance or adverse impacts .
Disturb/ Disturbance	Means directly has or materially contributes to the disturbance effect on health, diversity or abundance of the receptor/s being impacted or on an environmental value.
EP Act	<i>Environmental Protection Act 1986</i>
Facility	Red Hill Waste Disposal Facility
First Environmental Performance Report Submitted	Means the first performance review submitted in accordance with condition 7 of Ministerial Statement 462.
Leachate quality monitoring	Leachate quality monitoring as required under a works approval or licence issued under Part V of the <i>Environmental Protection Act 1986</i> .
Significant amendment	Has the same meaning as in section 3(1) of the <i>Environmental Protection Act 1986</i> .
Substantially commenced/ Substantial commencement	Substantial commencement is more than the preparatory works for a proposal and generally includes ground disturbance activities which are solely attributed to proposal elements described in the proposal content document, and a substantial portion of the total disturbance and infrastructure works physically commenced.

Figures (attached)

Figure 1 Development envelope and proposal elements

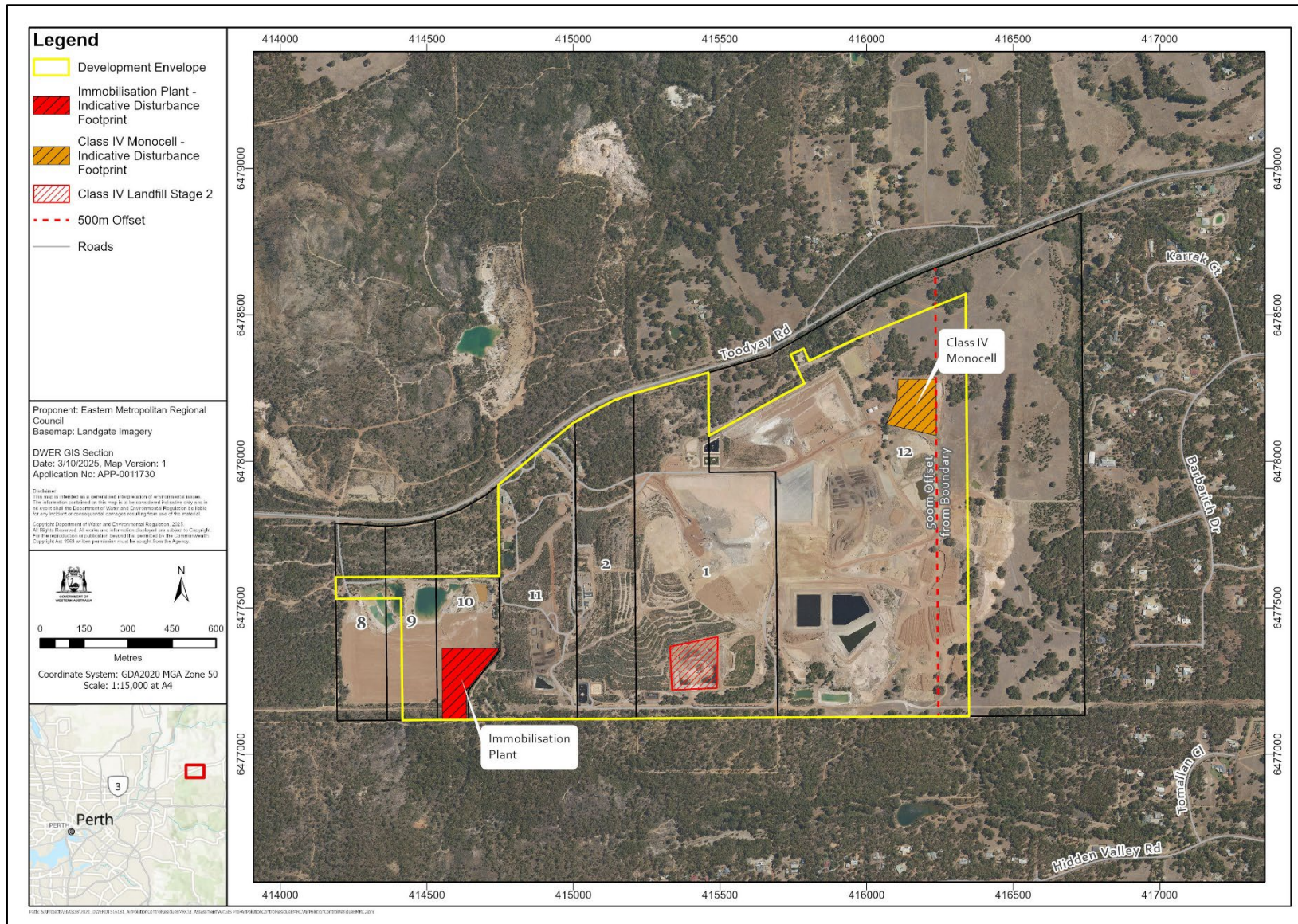


Figure 1 Development envelope and proposal elements

Schedule 1

All co-ordinates are in metres, listed in Map Grid of Australia Zone 50 (MGA Zone 50), datum of Geocentric Datum of Australia 2020 (GDA20).

Spatial data depicting the figures are held by the Department of Water and Environmental Regulation. Record no. APP-0011730 (Doc ID: DWER-801164602465946)

Appendix B: Decision-making authorities

Table B1: Identified relevant decision-making authorities for the proposal

Decision-Making Authority	Legislation (and approval)
1. Minister for Water	<i>Rights in Water and Irrigation Act 1914</i> - licence to construct bores
2. Chief Dangerous Goods Officer Department of Local Government, Industry Regulation and Safety	<i>Dangerous Goods Safety Act 2004</i> - storage and handling of dangerous goods
3. Chief Executive Officer Department of Water and Environmental Regulation	<i>Environmental Protection Act 1986</i> - part V works approval and licence - approval for noise management plans for construction outside of prescribed hours - part IV compliance (Ministerial Statements)
4. Minister for the Environment	<i>Contaminated Sites Act 2003</i> - mandatory auditor's report (MAR)

Appendix C: Regulation under other statutory processes

Table C1: Regulation under other statutory processes

Statutory decision-making process	Environmental outcome
<i>Contaminated Sites Act 2003</i>	The RHWMF is currently classified as contaminated - remediation required, under the <i>Contaminated Sites Act 2003</i> (CS Act) based on its ongoing use as a class IV landfill facility. Where a change in the contamination status of the facility occurs, the CS Act is the primary legislation responsible for its assessment and management. Contamination, such as from spills or leaks, which occur as a result of transportation are required to be reported under section 11 of the CS Act so it can be appropriately investigated and managed.
<i>Environmental Protection Act 1986</i> Part V Division 3 - Part V works approval and licence.	The works approval and licence are to regulate emissions and discharges during construction, commissioning and operations to achieve the following outcomes: • minimise and manage noise and dust emissions to protect environmental values and amenity at sensitive receptors • maintain air quality and minimise emissions so that environmental values are protected • no adverse impacts to soil, surface water and groundwater quality. The facility is currently regulated under Part V in such a manner as to support the EPA objectives for the key environmental factors Terrestrial Environmental Quality, Inland Waters, Air Quality and Social Surroundings. Amendment to the Part V instruments to incorporate the proposal will see the continuation of this regulation.
<i>Rights in Water and Irrigation Act 1914</i>	Water licenses regulate the use, management, allocation, and protection of water resources with the key objectives being to: • protect the state's water resources • promote the sustainable and efficient use of water • meet the needs of current and future users • protect ecosystems and the environment The creation of monitoring bores can be adequately regulated under this Act and it is considered to support the EPA objective for inland waters.

Appendix D: Environmental Protection Act Principles

Table D1: Consideration of principles of the *Environmental Protection Act 1986*

EP Act principle	Consideration
1. The precautionary principle <i>Where there are threats of serious or irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In application of this precautionary principle, decisions should be guided by –</i> (a) <i>careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and</i> (b) <i>an assessment of the risk-weighted consequences of various options.</i>	The EPA has considered the precautionary principle in its assessment and has had particular regard to this principle in its assessment of Terrestrial Environmental Quality, Inland Waters and Air Quality. The proponent has undertaken appropriate studies and investigations as well as an independent peer review to understand the potential risks and has provided management and mitigation measures to manage these risks to human health and the biophysical environment. The EPA has recommended conditions that reflect the requirements to implement the avoidance, minimisation and management of impact to the environment and considered the role of other decision-making authorities. The EPA is satisfied that these measures, if implemented, would mean that the significant amendment and approved proposal is likely to be consistent with the EPA objectives and that the measures are consistent with the precautionary principle.
2. The principle of intergenerational equity <i>The present generation should ensure that the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.</i>	The EPA had regard to the principle of intergenerational equity in its assessment of Terrestrial Environmental Quality, Inland Waters and Air Quality. The EPA noted advice that emissions and discharges including dust and leachate can be managed under Part V of the EP Act. The EPA has recommended conditions requiring performance review, including continual improvement and adaptive management. The EPA has concluded that the key environmental values will be protected, and the health, diversity and productivity of the environment is maintained and enhanced for the benefit of future generations.

EP Act principle	Consideration
3. The principles of the conservation of biological diversity and ecological integrity <i>Conservation of biological diversity and ecological integrity should be a fundamental consideration.</i>	The EPA has considered the extent of potential impacts from the proposal to flora and vegetation and terrestrial fauna to ensure consistency with the principle of conservation of biological diversity and ecological integrity. The proponent has selected an existing disturbed site for the proposal to avoid clearing of any native vegetation. The EPA has recommended conditions requiring regular performance review, including reporting of the state of the environment from implementation of the proposal. The EPA has concluded that given the nature of the impacts, the proposal is not likely to reduce the extent of any biological or ecological values within the area to a significant degree. The EPA is satisfied the proposal is not likely to be inconsistent with the EPA objectives and is consistent with the principles of the conservation of biological diversity and ecological integrity.
4. Principles relating to improved valuation, pricing and incentive mechanisms <i>(1) Environmental factors should be included in the valuation of assets and services.</i> <i>(2) The polluter pays principle — those who generate pollution and waste should bear the cost of containment, avoidance or abatement.</i> <i>(3) The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any wastes.</i> <i>(4) Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which enable those best placed to maximise benefits and/or minimise costs to develop their own solutions and responses to environmental problems.</i>	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors, particularly Terrestrial Environmental Quality. In considering this principle, the EPA notes that the proponent is responsible for cost relating to waste and pollution, including avoidance, containment, decommissioning, rehabilitation, and closure of the proposal. The cost for ongoing management and monitoring of the proposal would be the responsibility of the proponent until it could be demonstrated that the site is safe, stable and non-polluting. The proposal is consistent with the polluter pays principle where those who generate pollution and waste should bear the cost of containment, avoidance and abatement. The EPA has had regard to this principle during the assessment of the proposal.

EP Act principle	Consideration
5. The principle of waste minimisation <i>All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment.</i>	This principle is a fundamental and relevant consideration for the EPA when assessing and considering the impacts of the proposal on the environmental factors, particularly Terrestrial Environmental Quality and Inland Waters. In considering the principle of waste minimisation, and within the context of the <i>Western Australia Waste Avoidance and Resource Recovery Strategy 2030</i>, the EPA considers that the proposal addresses the waste hierarchy by providing a solution for waste such as APCr for which no other practicable alternatives are available at present and disposal to land is the last alternative. The EPA has also recommended conditions requiring regular performance review, including on options that have become available to reuse, recycle or recover wastes that are being accepted.

Appendix E: Other environmental factors

Table E1: Evaluation of other environmental factors

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
Land			
Flora and vegetation	No direct impact to flora and vegetation is proposed but flora and vegetation health may be indirectly impacted from spillage/seepage during operations and post-immobilisation storage.	No public or agency comments received.	The site has been historically cleared, and no additional vegetation will be disturbed. Indirect impacts to vegetation are unlikely and no significant flora or vegetation communities exist within the area surrounding the site. Accordingly, the EPA did not consider flora and vegetation to be a key environmental factor at the conclusion of its assessment.
Terrestrial fauna	No likely impacts as site is already developed.	No public or agency comments received.	The proposed infrastructure areas were historically cleared of vegetation and APCr waste is not expected to attract vermin that may lead to indirect impacts to native fauna in surrounding remnant vegetation. Accordingly, the EPA did not consider terrestrial fauna to be a key environmental factor at the conclusion of its assessment.
Subterranean fauna	If present, subterranean fauna may be impacted from spillage/seepages during operations and post-immobilisation storage.	No public or agency comments received.	No subterranean fauna communities identified as present within site or within surrounding area and geology of site is not consistent with typical habitat types for subterranean fauna communities. Accordingly, the EPA did not consider subterranean fauna to be a key environmental factor at the conclusion of its assessment.
Landforms	No likely impacts as site is already developed.	No public or agency comments received.	There are no significant landforms within the Development Envelope, and the proposal will not significantly alter the existing landscape.

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
			Accordingly, the EPA did not consider landforms to be a key environmental factor at the conclusion of its assessment.
Air			
Greenhouse gas emissions	Generation of greenhouse gas (GHG) scope 1 and 2 emissions.	<u>Public comments</u> - The ERD fails to adequately quantify the GHG emissions during the Scope 1 (Transportation of APCr to the facility) and 2 Operational Emissions (Supply and use of cement in operation), Scope 2 Construction Emissions (Supply and use of concrete in construction). - GHG emission assessment does not include emissions produced from using concrete to immobilise the APCr <u>Agency comments</u> - No comments received	Emissions from the transport of APCr and cement products to the facility, including any embodied emissions are Scope 3 emissions. The proposal does not exceed the Scope 1 and 2 GHG emission thresholds outlined in the EPA's GHG environmental factor guideline. Accordingly, the EPA did not consider GHG emissions to be a key environmental factor at the conclusion of its assessment.
People			
Social surroundings	Dust, noise, odour and visual impacts on nearby receptors.	<u>Public comments</u> - Concerns regarding the impacts to visual amenity. - Noise produced from the APCr Immobilisation Plant and from increased traffic to and from the facility are a concern. - Concerns dust from the facility and proposed activities will impact amenity. <u>Agency comments</u> - Future developments adjacent to proposed facility will need to take	The APCr Immobilisation Plant will be located in the lower section of the facility and will be screened by mature trees from all directions and will not break the natural ridge line, which will mitigate any visual impacts. Odour emissions from the facility are regulated under Part V and this proposal does not introduce additional sources of odour. Predicted noise emissions of operations will comply with <i>Environmental Protection (Noise) Regulations 1997</i> and sources of noise are approximately 730m away from the closest sensitive receptor. Sources of noise emissions from operations will be managed by

Environmental factor	Description of the proposal's likely impacts on the environmental factor	Government agency and public comments	Evaluation of why the factor is not a key environmental factor
		account of potential emissions from the facility's operations	the proponent to reduce the impact to amenity to surrounding noise sensitive receptors. Traffic associated with transport of APCr to the facility will be 2 trucks per day, 5-6 days of the week. Noise generated by traffic to the facility will not contribute to current traffic noise levels as current traffic levels are expected to be significantly reduced when the WtE facility commences operation as a significant amount of waste currently transported to the RHWMF will be diverted to the WtE facility. Due to the distance to sensitive receptors and proposed mitigation measures, no significant impacts to social amenities are expected. Accordingly, the EPA did not consider social surroundings to be a key environmental factor at the conclusion of its assessment.
Human health	Human health may be impacted from the generation of dust/emissions from the treated APCr as it may contain radionuclides.	<u>Public comments</u> - Concern for future, additional Class V wastes to be accepted by the facility based on the approval of this proposal. - Concern for potential containment failures based on RHWMF's previous containment failure and emphasizes the necessity for adequate monitoring for contamination events. - Uranium and Thorium radionuclides concentration in raw APCr material potentially harmful <u>Agency comments</u> - No comments received	The APCr material will be treated to be downgraded to a Class IV waste prior to disposing of it. Radioactive waste is not permitted to be accepted or processed by either the Kwinana or Rockingham Waste to Energy plants as conditioned in their respective Ministerial Statements, 1016 and 1090. As the waste that is processed to produce APCr will not include radioactive material, the APCr is considered unlikely to be radioactive. Accordingly, the EPA did not consider human health to be a key environmental factor at the conclusion of its assessment.

Appendix F: List of submitters

7-day comment on referral

Organisations and public

- 9 submissions were received from the public during the 7-day public comment period.

Government agencies

- Department of Health
- Department of Energy, Mines, Industry Regulation and Safety
- Department of Water and Environmental Regulation
- City of Swan

Public review of proponent information

Organisations and public

- 16 submissions were received from the public during the 14-day public comment period.

Government agencies

- Department of Health
- Department of Water and Environmental Regulation

Appendix G: Assessment timeline

Date	Progress stages	Time (weeks)
26 April 2022	EPA decided to assess – level of assessment set	
3 May 2022	EPA requested additional information	1
17 February 2023	Proponent applied to amend proposal under assessment (s. 43A)	41
24 July 2023	EPA accepted amendment to proposal under assessment (s. 43A)	22
1 November 2023	EPA received additional information	14
6 March 2024	EPA requested additional information	18
15 November 2024	EPA received additional information	36
16 December 2024	EPA accepted Environmental Review Document	4
13 January 2025	Environmental Review Document released for public review	4
28 January 2025	Public review period for Environmental Review Document closed	2
3 October 2025	EPA received final information for assessment	35
16 October 2025	EPA completed its assessment (s. 44(2b))	2
6 November 2025	EPA published proponent's Response to Submissions	-
18 November 2025	EPA provided report to the Minister for Environment	5
21 November 2025	EPA report published	3 days
12 December 2025	Appeals period closed	3

Timelines for an assessment may vary according to the complexity of the proposal and are usually agreed with the proponent soon after the EPA decides to assess the proposal and records the level of assessment.

In this case, the EPA met its timeline objective to complete its assessment and provide a report to the Minister.

Appendix H: Relevant policy, guidance, procedures and references

The EPA had particular regard to the policies, guidelines and procedures listed below in the assessment of the proposal.

Department of Water and Environmental Regulation 2019, *Guideline – Air emissions*, draft for external consultation, Government of Western Australia, October 2019, retrieved from <https://www.wa.gov.au/government/publications/draft-guideline-air-emissions>.

Department of Water and Environmental Regulation 2021, *Assessment and Management of Contaminated Sites*. Department of Water and Environmental Regulation, Perth, WA.

EAQ Consulting 2024, *Operational Management & Air Quality Impact Assessment of Air Pollution Control Residue (APCr) Treatment & Disposal Facility*, October 2024.

EPA 2016, *Environmental factor guideline – Terrestrial environmental quality*, Environmental Protection Authority, Perth, WA.

EPA 2018, *Environmental factor guideline – Inland waters*, Environmental Protection Authority, Perth, WA.

EPA 2020, *Environmental factor guideline – Air quality*, Environmental Protection Authority, Perth, WA.

EPA 2021, *Interim Guidance- Taking decision-making processes into account in EIA*, Environmental Protection Authority, Perth, WA.

EPA 2023, *Statement of environmental principles, factors and objectives*, Environmental Protection Authority, Perth, WA.

EPA 2024, *Environmental impact assessment (Part IV Divisions 1 and 2) procedures manual*, Environmental Protection Authority, Perth, WA.

JBS&G 2025, *Human Health Risk Assessment – EMRC Red Hill APCr Immobilisation Project*, 16 April 2025.

Ramboll 2020, *APCr Treatment Trials*, November 2020.

Ramboll 2025, *Technical Peer review – Air Pollution Control Residue (APCr) Immobilisation Plant and Disposal Solution at Red Hill*, October 2025.

State of Western Australia 2024, *Western Australia Government Gazette, No. 153, Environmental Impact Assessment (Part IV Divisions 1 and 2) Administrative Procedures 2024*, 10 December 2024.

Talis 2023a, *Hydrogeological Risk Assessment Air Pollution Control Residue – Interim Solution*, 16 February 2023.

Talis 2023b, *Hydrogeological Risk Assessment Air Pollution Control Residue – Class IV Monocell*, 26 October 2023.

Victorian EPA 2015, *Best Practice Environmental Management: Siting, Design, Operation and Rehabilitation of Landfills*, August 2015 (Best Practice Landfill Standards)), retrieved from

<https://www.epa.vic.gov.au/sites/default/files/epa/publications/788-3.pdf>

Appendix I: Existing Ministerial Statements applicable to the RHWMF

The proposal is a significant amendment to existing Class IV activities approved under MS 462. The existing conditions of MS 462 have been reviewed as outlined in Table I1 to determine whether they remain relevant. The proposed changes to conditions have been incorporated into the recommended conditions in Appendix A.

Table I1: Contemporising of existing Ministerial Statement 462 conditions

Ministerial Statement	Ministerial condition or proponent's environmental management commitment	Environmental factor	Proposed change	Comments including assessment and evaluation of proposed changes where relevant to ensure the combined proposal can be implemented consistently with EPA objectives
462	Condition 1 Proponent Commitments	Inland waters	Delete condition. The commitments are regulated under Part V of the EP Act and the CS Act or through new conditions B1 and D2.	Condition 1 sets out that the proponent must fulfil a range of commitments made during the original assessment. A consolidated list of the commitments is provided at the end of MS 462 and these can be categorised into three topics; rehabilitation and closure, inland waters and community involvement. <u>Rehabilitation and closure</u> Commitment 1 of the consolidated list sets out that progressive rehabilitation of the site is to occur in accordance with an updated Rehabilitation Program with the aim of establishing a sustainable cover of native vegetation and achieving a stable non-polluting landform. Commitment 6 sets out that a Post Closure Management Plan will be prepared and implemented to restore the site to an end land use of passive recreation. It is considered that matters relating to rehabilitation and closure will be subject to regulation under Part V of the EP Act and the <i>Contaminated Sites Act 2003</i> (CS Act). Part V licenses routinely require the capping and rehabilitation of landfill cells. The provisions of the CS Act also require a site be remediated in a manner compatible with the proposed end land use which is determined through planning legislation. Accordingly, rehabilitation and

Ministerial Statement	Ministerial condition or proponent's environmental management commitment	Environmental factor	Proposed change	Comments including assessment and evaluation of proposed changes where relevant to ensure the combined proposal can be implemented consistently with EPA objectives
				closure will be fulfilled through other legislative requirements and to prevent regulatory duplication no such conditions are recommended. <u>Inland waters</u> Commitments 2 to 4 set out that the proponent would develop and implement surface water and groundwater monitoring programs aimed at maintaining water quality standards in the area and protecting freshwater ecosystems and groundwater users. A contingency plan would also be developed and implemented for any groundwater pollution identified with both this plan and the monitoring programs to be developed in consultation with relevant government departments. These actions would augment similar monitoring activities under MS 274 for the larger RHWMF. It is considered that surface water and groundwater monitoring activities including the implementation of contingencies are regulated through the licensing provisions of Part V of the EP Act. To prevent regulatory duplication no such conditions are recommended. <u>Community involvement</u> Commitment 5 sets out that the proponent would provide public access to EMRC meeting minutes, invitations to 'Open Days', community involvement in management systems, and would address public concerns raised on an ongoing basis including maintaining a public record of concerns. The EPA assessment process has included opportunities for public input and the recommended conditions provide for the publishing of performance reports (B1) and compliance reports (D2) to ensure the public remains informed of ongoing site management.
462	Condition 2	N/A	Delete condition and replace with	This condition allowed changes to the proposal that are not substantial to be made if approved by the Minister for the Environment. This condition has

Ministerial Statement	Ministerial condition or proponent's environmental management commitment	Environmental factor	Proposed change	Comments including assessment and evaluation of proposed changes where relevant to ensure the combined proposal can be implemented consistently with EPA objectives
	Implementation		contemporary condition A1.	been replaced with a contemporary condition A1 which places limits on the proposal. Any non-substantial changes would be subject to assessment under s. 45C of the EP Act.
462	Condition 3 Proponent	N/A	Delete condition and replace with contemporary condition D3.	Condition 3 requires the proponent to notify the CEO of DWER of any change of name and address. This condition has been replaced with condition D3 which includes the same requirement.
462	Condition 4 Environmental Management System	N/A	Delete condition and replace with new condition B1.	This condition requires the proponent to exercise care and diligence in accordance with best practise environmental management principles to be incorporated in an environmental management system. This condition has been replaced with condition B1 which requires environmental performance reviews.
462	Condition 5 Decommissioning	N/A	Delete condition. Regulated under Part V of the EP Act and the CS Act.	This condition requires the proponent to undertake decommissioning in accordance with a decommissioning and rehabilitation plan to be prepared 6 months prior to decommissioning. It is considered that matters relating to rehabilitation and decommissioning will be subject to regulation under Part V of the EP Act and the <i>Contaminated Sites Act 2003</i> (CS Act). Part V licenses routinely require the capping and rehabilitation of landfill cells. The provisions of the CS Act also require a site be remediated in a manner compatible with the proposed end land use which is determined through planning legislation. Accordingly, rehabilitation and decommissioning will be fulfilled through other legislative requirements and to prevent regulatory duplication no such conditions are recommended.
462	Condition 6 Commencement	N/A	Delete condition and replace with new condition D4.	Condition 6 set out that approval would lapse if the proposal was not substantially commenced within 5 years.

Ministerial Statement	Ministerial condition or proponent's environmental management commitment	Environmental factor	Proposed change	Comments including assessment and evaluation of proposed changes where relevant to ensure the combined proposal can be implemented consistently with EPA objectives
				As the acceptance of APCr is a new operation, a new condition D4 has been included requiring that the immobilisation plant must be commenced within 5 years or the approval will lapse.
462	Condition 7 Performance Review	N/A	Replace with new condition B1.	Condition 7 requires the proponent to conduct a performance review every six years after construction begins to assess the environmental performance of the proposal. This condition has been replaced with condition B1 which requires three yearly reviews.
462	Condition 8 Compliance Auditing	N/A	Delete condition and replace with contemporary condition D2.	Condition 8 requires the proponent to prepare Performance and Compliance Reports to be periodically submitted to the Department. This condition has been replaced with condition D2 which includes the same requirements but with a contemporary structure that aligns with the current format of Ministerial Statements.
462	Procedures	N/A	Delete as redundant.	The Procedure condition confirms that the Department of Environmental Protection (now the Department of Water and Environmental Regulation) is responsible for assessing the proponent's compliance with the conditions of Ministerial Statement 462 and that any dispute over compliance is to be determined by the Minister for the Environment. This condition is redundant as compliance reporting and assessment is described under the new Part D of the conditions which includes reference to the defined role of the CEO of DWER.

Related EPA Assessments

There are several other Ministerial Statements that are also applicable to the RHWMF. The primary statement is MS 274 which approved the acceptance of Class I, II and III types of waste. The authorised extent of the landfill physical and operational elements under MS 274 have been subject to two amendments under s. 45C of the EP Act to increase these elements extents. Groundwater monitoring requirements under MS 274 have also been amended under s. 46 of the EP Act through MS 1140 in July 2020.

EMRC also has approval to implement a Resource Recovery Facility through aerobic composting within the site which was approved under MS 976 in July 2014. This predates many of the existing WtE projects and strategies in the broader Perth and WA area, at a time when the WA government was shifting towards reducing waste by avoiding and recycling. MS 976 was amended by MS 1092 in March 2019 with the inclusion of additional implementation conditions of Residual Waste Management and Waste Acceptance Monitoring and Management, shortly after the Waste Authority Annual Report 2018-19 proposed increased resource recovery targets for the state. MS 976 was amended again in 2020 through MS 1122 with a change to the time limit condition of the Resource Recovery Proposal. The Resource Recovery Facility has not yet been constructed.