



Contents

Decision Document	1
Contents	2
1 Purpose of this Document	2
2 Administrative summary	3
4 Decision table	5
5 Advertisement and consultation table	10
6 Risk Assessment	11
Appendix A	12
Appendix B	13

1 Purpose of this Document

This decision document explains how the DER has assessed and determined the application and provides a record of DER's decision-making process and how relevant factors have been taken into account. Stakeholders should note that this document is limited to DER's assessment and decision making under Part V of the *Environmental Protection Act 1986*. Other approvals may be required for the proposal, and it is the proponent's responsibility to ensure they have all relevant approvals for their Premises.



2 Administrative summary

Administrative details		
Application type	Works Approval <input type="checkbox"/>	
	New Licence <input type="checkbox"/>	
	Licence amendment <input checked="" type="checkbox"/>	
	Works Approval amendment <input type="checkbox"/>	
Activities that cause the premises to become prescribed premises	Category number(s)	Assessed design capacity
	62	30 050 tonnes per annual period
	64	100 000 tonnes per annual period
Application verified	Date: N/A	
Application fee paid	Date: N/A	
Works Approval has been complied with	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Compliance Certificate received	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Commercial-in-confidence claim	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Commercial-in-confidence claim outcome	None applicable	
Is the proposal a Major Resource Project?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the <i>Environmental Protection Act 1986</i> ?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
		Referral decision No: Managed under Part V <input type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Is the proposal subject to Ministerial Conditions?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
		Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the <i>Environmental Protection Act 1986</i>)?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
		Department of Water consulted Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Is the Premises within an Environmental Protection Policy (EPP) Area Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		
Is the Premises subject to any EPP requirements? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>		



Executive summary of proposal and assessment

The Albany Refuse Site (ARS) is a Class II unlined landfill located adjacent Hanrahan Road about two kilometres from the Albany city centre and one kilometre from Princess Royal Harbour. The ARS has been operating for almost 40 years and approximately 70% of the 31 hectare site has been used for landfilling. Landfilling occurs through the centre of the site and a resource recovery area and reuse shop are located to the north at the entry to the site. Sustainable waste management activities carried out at the entry and located directly north of the ARS is the Materials Recycling Facility.

The ARS:

- is orientated in a north-south direction along the western flanks of Mount Melville, covering about one kilometre in length;
- hydraulic gradient runs generally north-east to south-west;
- stormwater flows into the Munster Hill drain and from there into Princess Royal Harbour;
- sensitive receptors are identified as:
 - residences located approximately 300 metres north east;
 - surface water flows into the Munster Hill drainage system;
 - groundwater, estimated to be <15 metres below ground level at the bioremediation facility proposal site; and
 - Princess Royal Harbour, located approximately 800 metre south.

Works Approval W5797/2015/1 was granted on 27 February 2015 authorising the Licensee to construct a temporary storage, bioremediation and immobilisation facility for the subsequent disposal of contaminated material (waste) excavated from the former Albany Gasworks and Cannery (AGC). Licence L6925/1997/9 was amended for the operation of the works on 16 March 2015.

The supporting information submitted for works approval W5797/2015/1, indicated that a large portion of the contaminated waste was classified as Class III and some as Class IV waste. The data indicated that hydrocarbons contributed to the bulk of the contamination. Subsequent to the operations commencing contaminated waste from the AGC was relocated to the bioremediation facility at the Albany Refuse Site. Testing results from the screened and stockpiled contaminated waste provided to DER on the 15 June 2015 indicates that the majority of the material is classified as Class III waste based on leachability results with lead being the significant contaminant. Cyanide and Polyaromatic Hydrocarbons (PAH) were also detected at higher levels than anticipated. Table 1 Summaries the new data.

Table 1: Available contaminated waste stockpile summary of lead monitoring data:

Stockpile number	Contaminant Threshold classification	Leachable Concentration ASLP classification
1, 2 and 3	Class III	Class I
4 and 12	Class IV	Class I
9, 10 and 11	Class IV	Class III
5, 6, 7 and 8	Class V	Class III

Bioremediation and immobilisation of the contaminated waste is no longer proposed to take place.

This DER initiated amendment to Licence L6925/1997/9 is to:

- Remove the authorisation to accept, store, process and bioremediate or immobilise Class III and above contaminated waste and the associated monitoring requirements;
- Include additional groundwater ambient environmental monitoring requirements in response to the potential risk posed by contaminants identified in the contaminated waste;
- Include a requirement to assess and report on the environmental risk of any contamination of the bioremediation facility and material beneath it;
- Remove the reporting requirements with regards to the contaminated waste management process;
- Increase the storage limit for the solid waste depot activities until the fate of the contaminated waste is resolved; and
- Update licence conditions and formatting.



4 Decision table

All applications are assessed in line with the *Environmental Protection Act 1986*, the *Environmental Protection Regulations 1987*, and the DER Operational Procedure on Assessing Emissions and Discharges from Prescribed Premises. Where other references have been used in making the decision they are detailed in the decision document.

DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Interpretation and general conditions	L1.2.1-1.2.4	<p>Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Condition 1.1.2: amended to update contact details and remove definitions for terms not in the amended licence. • Condition 1.1.5: deleted; the provision was not a condition, it provided an explanatory statement that attempted to clarify the operation of a licence. • Condition 1.2.1: deleted; the condition is considered redundant. • Conditions 1.2.2 and 1.2.3: removed as the storage and remediation of spills of relevant materials can be effectively regulated by the general provisions of the <i>Environmental Protection Act 1986</i> and the <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i>. • Condition 1.2.4: deleted; the condition is considered redundant. The management of stormwater and leachate at the Premises are currently subject to improvements under Works Approval W5543/2013/1 (issued 9/01/2014) as indicated by the construction concept plans in Appendix A. • Condition 1.2.5: deleted, the condition is not necessary, the prescribed premise boundary is adequately defined by the Licence. 	<p><i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i></p> <p>General provisions of the <i>Environmental Protection Act 1986</i></p>
Premises operation	L1.2.2; 1.2.4; and 1.2.14-1.2.15	<p>Operation</p> <p>Assessment and decision making are detailed in Appendix B.</p> <p>Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • All conditions with the previous licence condition section 1.3 amended to 1.2; • Condition 1.2.2: amended to remove contaminated waste acceptance limit, no additional contaminated waste is to be accepted to the Premises. • Condition 1.2.4: amended to remove contaminated waste processing controls. 	<p>General provisions of the <i>Environmental Protection Act 1986</i></p> <p>GHD 2014, <i>LandCorp bioremediation of contaminated soil supporting information for works approval</i>, Perth,</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
		<p>Bioremediation and/ or immobilisation are no longer approved.</p> <ul style="list-style-type: none"> • Conditions 1.2.14, 1.2.15 and 1.2.16 which covered contaminated waste operational controls have been removed and are no longer approved. 	Western Australia
Emissions (general)	L2.1.1	<p>Operation Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Condition 2.1.1: amended to remove the reference to targets, no targets are contained within section 2 of the amended licence. • Section 2.2 removed as there are no conditions relevant to point source emissions to air. • Section 2.4 has been removed as there are no conditions relevant to point source emissions to groundwater. 	General provisions of the <i>Environmental Protection Act 1986</i>
Emissions (point source emissions)	L2.2.3	<p>Operation Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Condition 2.2.3: has been removed. Condition 2.2.2 regulates emissions of nitrogen to surface water through emission limits. Regulation through emission targets in addition to limits is no longer considered necessary. Targets relating to nitrogen and phosphorous have been removed. Phosphorous is not considered to be a contaminant of significant concern from the Premises. Condition 3.2.1 requires monitoring of phosphorous in surface water emissions to identify any changing trends in the phosphorous loading of the emissions. 	General provisions of the <i>Environmental Protection Act 1986</i>
Emissions (dust)	N/A	<p>Operation DER's assessment and decision making are detailed in Appendix B.</p> <p>Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Conditions 2.6.1 - 2.6.3 have been removed. It is considered that the provisions of Section 49 of the <i>Environmental Protection Act 1986</i> are sufficient to regulate fugitive dust emissions. 	<p>General provisions of the <i>Environmental Protection Act 1986</i></p> <p>GHD 2014, <i>LandCorp bioremediation of contaminated soil supporting information for works approval</i>, Perth, Western Australia</p>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Emissions (odour)	N/A	<p>Operation Odour represents a moderate risk to the environment as demonstrated by the risk assessment below.</p> <p><u>Emission Description</u> The acceptance, movement and disposal of putrescible waste can generate considerable odour. The nearest residential receptor to the landfill area is 400 metres away. There are no odour complaints on record.</p> <p><u>Risk Assessment</u> <i>Likelihood:</i> Possible <i>Consequence:</i> Minor <i>Risk rating:</i> Moderate</p> <p><u>Regulatory Controls</u> It is considered that the provisions of Section 49 of the <i>Environmental Protection Act 1986</i> are sufficient to regulate odour emissions. Condition 2.7.1 has therefore been removed from the licence.</p> <p><u>Residual Risk</u> <i>Likelihood:</i> Possible <i>Consequence:</i> Minor <i>Risk rating:</i> Moderate</p>	General provisions of the <i>Environmental Protection Act 1986</i>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Monitoring (point source emissions)	L3.2.1	<p>Operation Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Section 3.2 has been removed as there are no point source emissions to air that require monitoring. • Section 3.3 has been removed as there are no point source emissions to groundwater that require monitoring. • Section 3.4 has been removed as there are no emissions to land that require monitoring. • Condition 3.3.1 (now 3.2.1): amended to include additional monitoring parameters at the stormwater management system sedimentation basin and discharge weir based on the risk of discharge of contaminated waste at the Premises. Additional parameters to be monitored on a monthly basis include cyanides, polycyclic aromatic hydrocarbons and total recoverable hydrocarbons (previously based on an annual monitoring frequency). 	General provisions of the <i>Environmental Protection Act 1986</i>
Monitoring (process)	L3.4.1	<p>Operation Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Condition 3.7.1 (now 3.4.1): Table 3.7.2 has been removed; it is no longer relevant to the storage of contaminated waste. 	General provisions of the <i>Environmental Protection Act 1986</i>
Monitoring (ambient environmental quality)	L3.5.1	<p>Operation Amendment to licence conditions on the previous licence include:</p> <ul style="list-style-type: none"> • Condition 3.8.1 (now 3.5.1): amended to include additional monitoring parameter, cyanide, for all groundwater monitoring bores. • Section 3.6 has been removed as no conditions relating to meteorological monitoring are required. <p>Elevated levels of cyanide have been detected in the contaminated waste on the bioremediation facility. Cyanide has therefore been added to the groundwater monitoring parameters to identify if any impacts have occurred as a result of the contaminated waste being deposited at the Premises.</p>	General provisions of the <i>Environmental Protection Act 1986</i>



DECISION TABLE			
Works Approval / Licence section	Condition number W = Works Approval L = Licence	Justification (including risk description & decision methodology where relevant)	Reference documents
Improvements	L4.1.1	Operation Amendment to licence conditions on the previous licence include: <ul style="list-style-type: none">• Condition 4.1.1: improvement reference IR2/IR3 has been included. These conditions have been added to ensure that the extent of any potential contamination of the bioremediation facility and material adjacent to and beneath the bioremediation facility as a result of contaminated waste storage is assessed and that actions to manage any contamination are implemented to minimise risks to the environment.	General provisions of the <i>Environmental Protection Act 1986</i>
Information	L5.2.3	Operation Amendment to licence conditions on the previous licence include: <ul style="list-style-type: none">• Condition 5.2.3: (BFR1) amendment to remove reporting requirements, these are no longer relevant.• Condition 5.2.3: (BFR2) amended to remove reporting requirements, these are no longer relevant.• Condition 5.3.1: amendment to remove notification requirements covered by the general provisions of the <i>Environmental Protection Act 1986</i>.	General provisions of the <i>Environmental Protection Act 1986</i>
Licence Duration	N/A	No changes to the licence duration have been made or are required as part of this amendment process.	N/A



5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
06/11/2015	Proponent sent a copy of draft instrument	<ul style="list-style-type: none">• Agreement on additional administrative changes to referred draft licence version.• Request for amendment of term Total Residual Chloride to Total Residual Chlorine.	<ul style="list-style-type: none">• Additional administrative changes made.• Term change, administrative error.
12/12/2015	Amended instrument was advertised in West Australian		



6 Risk Assessment

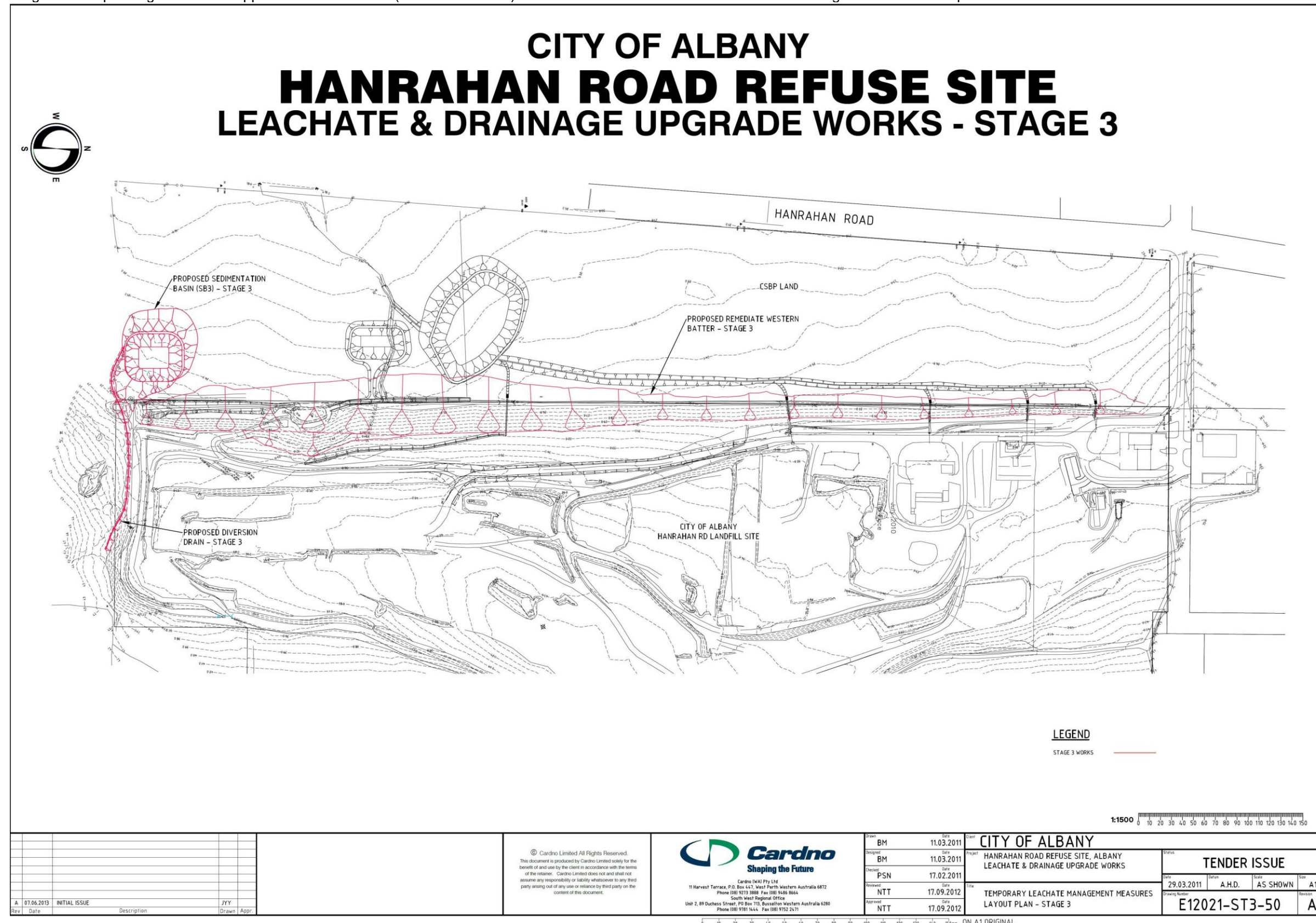
Note: This matrix is taken from the DER Corporate Policy Statement No. 07 - Operational Risk Management

Table 1: Emissions Risk Matrix

Likelihood	Consequence				
	Insignificant	Minor	Moderate	Major	Severe
Almost Certain	Moderate	High	High	Extreme	Extreme
Likely	Moderate	Moderate	High	High	Extreme
Possible	Low	Moderate	Moderate	High	Extreme
Unlikely	Low	Moderate	Moderate	Moderate	High
Rare	Low	Low	Moderate	Moderate	High

Appendix A

Stage 3 concept design for Works Approval W5543/2013/1 (issued 9/01/2014). The red line indicates the additional works being undertaken to help control leachate and stormwater at the Premises.





Appendix B

The Albany Refuse Site bioremediation facility was authorised to operate in accordance with information submitted by the proponent in support of works approval (W5797/2015/1). The supporting documentation indicated that a large portion of the contaminated waste from the Albany Gas Works and Cannery was classified as Class III and some as Class IV waste. The data indicated that hydrocarbons contributed to the bulk of the contamination. Subsequent to the operations commencing all contaminated waste from the AGC was relocated to the bioremediation facility at Albany Refuse Site. Testing results from the screened and stockpiled contaminated waste provided to DER on the 15 June 2015 indicate that the majority of the material is classified as Class III based on leachability results with lead being the significant contaminant.

Subsequently, following a site visit on 19 June 2015 with City of Albany representatives DER understands that:

- Bioremediation is no longer proposed to take place.
- A contaminated waste immobilisation processed was initially planned as a contingency measure in the event that waste could not be bioremediated to Class II waste acceptance criteria however, specifications on how immobilisation would be undertaken were limited (including concrete batching ration, unit size and expected leachable concentration results from the immobilised waste).
- All stockpiled contaminated waste was until recently uncovered.
- Until recently of the approximately twenty four contaminated waste stockpiles only twelve screened stockpiles are known to have received laboratory results. The stockpiles that were awaiting laboratory results were until recently not covered by a HDPE liner.
- Asbestos contamination has been found in some of the contaminated waste.
- The integrity of the bioremediation facility stormwater and leachate retention pond HDPE liner was not, until recently, maintained to contain all leachate.

The asbestos and lead contamination, together with the elevated cyanide in the contaminated waste was unanticipated and, together with a lack of adequate monitoring results for all contaminated waste, creates uncertainty regarding the contaminant levels within the waste and the effectiveness of the management controls put in place by the Licensee. The failure to cover the waste with a HDPE liner and maintain the HDPE liner in the bioremediation sorting area stormwater and leachate retention pond has increased the risk of unanticipated emissions from the Premises. Subsequently DER has reassessed the emission risk for the storage of the contaminated waste.

Emission Risk Assessment – Operations (Dust)

Emission Description

Emission: Dust emissions arising from the stockpiled contaminated waste which contain lead, asbestos and other contaminants. Lead Contaminant Threshold levels in the stockpiles which have results provide to DER ranged as follows: stockpiles 1-3 (<5-17 mg/kg); stockpiles 4 and 12 (20-82 mg/kg); stockpiles 9-11 (22-180 mg/kg); and stockpiles 5-8 (56 -1600 mg/kg). Based on these results, total lead concentrations are Class IV and Class V. Asbestos contamination is known to have occurred within the contaminated waste stockpiles. From a human health risk perspective DER notes that the concentrations of lead in most samples are below the health-based investigation levels for lead in soil at residential sites – 300mg/kg, as published in the National Environment Protection (Assessment of Site Contamination) Measure, however, no monitoring results have been provided to verify the level of contamination.

Impact: Potential reduction in local air quality and impact on the health and amenity of persons on and adjacent to the ARS. The nearest residences are located about 300 metres north east. Prevailing winds in the afternoons, when stockpiles are likely to be driest, are from the west, south west and around to the southeast. Dust may also contain contaminants that enter stormwater drains.



Controls: The licence required the bioremediation facility to be operated in accordance with the works approval supporting documentation. However, no HDPE covers were sighted on any contaminated waste stockpiles on the 19 June 2015. At this time a spray had been applied to the surface of the stockpiles to form a crust; fauna ingress had compromised the crust at the time of visiting the site. The Licensee has subsequently undertaken measures to ensure:

- All contaminated waste is completely covered by a HDPE liner to prevent any emissions of dust leachate, liquid or solid waste.
- All water originating from the bioremediation facility is appropriately managed subject to the level of contamination within the waste.
- The HDPE liner for the bioremediation facility stormwater and leachate pond has been reinstated.

Risk Assessment

Consequence: Moderate

Likelihood: Possible

Risk Rating: Moderate

Regulatory Controls

Acceptance and processing of the contaminated waste are no longer approved under the Licence.

This Licence amendment:

- Amends condition 1.3.4 to remove all conditions relevant to the processing and operational controls for the contaminated waste.
- Removes conditions 2.6.1- 2.6.3; it is considered that the provisions of Section 49 of the *Environmental Protection Act 1986* are sufficient to regulate dust emissions.

Residual Risk

Consequence: Moderate

Likelihood: Rare

Risk Rating: Moderate

Emission Risk Assessment – Operations (Leachate)

Emission Description

Emission: Leachate arising from the contaminated waste stockpiles on the temporary bioremediation facility which could contain lead (which bio-accumulates), hydrocarbons, cyanide and other contaminants. Leachate could also enter the environment from the bioremediation facility stormwater and the leachate retention pond HDPE liner not being maintained such that all leachate is contained. The pond was under hydraulic load when sighted on the 19 June 2015.

Impact: Leachate could migrate to groundwater through the in-situ landfill mass and increase the contaminant load (including hydrocarbons, lead and cyanide) within the existing landfill leachate plume which migrates towards Princess Royal Harbour.

Controls: The existing Class II landfill is not lined. A 100 mm clean fill liner for the bioremediation facility was authorised through works approval W5797/2015/1. No low permeability liner was until recently in place to control leachate arising from the uncovered contaminated waste stockpiles.

Risk Assessment

Consequence: Moderate

Likelihood: Possible

Risk Rating: Moderate

Regulatory Controls

Acceptance and processing of the contaminated waste is no longer approved under the Licence.

Residual Risk



Consequence: Moderate
Likelihood: Unlikely
Risk Rating: Moderate

Emission Risk Assessment – Operations (Stormwater)

Emission Description

Emission: Stormwater and wastewater arising within the bioremediation facility may become contaminated from contact with the contaminated waste and from leachate arising from the contaminated waste stockpiles. Currently any stormwater leaving the bioremediation facility would enter the clean stormwater management system at the Premises. The clean stormwater management system is directed to a sedimentation basin prior to discharge to the local drainage line which flows to Princess Royal Harbour.

Impact: Contaminated stormwater may contain suspended solids which could include hydrocarbons, lead, cyanide and other contaminants. Suspended solids could impact water quality and/ or contaminants could have toxic effects on aquatic biota in the local draining line and Princess Royal Harbour. Broader catchment inflows and the receiving environment will have a diluting effect on any contaminants however lead bio-accumulates and ongoing discharges could have impacts.

Controls: All stormwater arising within the bioremediation facility is directed to a stormwater and leachate retention pond. The pond was constructed with HDPE and should have been maintained in accordance with condition 1.3.13(c) of Licence L6925/1997/9. The bioremediation facility stormwater and the leachate retention pond HDPE liner was not being maintained such that all leachate is contained on the 19 June 2015.

Risk Assessment

Consequence: Minor
Likelihood: Unlikely
Risk Rating: Moderate

Regulatory Controls

Acceptance and processing of the contaminated waste is no longer approved under the Licence.

Residual Risk

Consequence: Minor
Likelihood: Rare
Risk Rating: Low