



Licence Number	L8769/2013/1
Licence Holder	River Nominees Pty Ltd
ACN	109 054 239
File Number:	2013/003438-2
Premises	Purearth Woottating Facility 324 Horton Road WOOTTATING WA 6562 Legal description – Lot 13 on Diagram 87525 Certificate of Title Volume 2026 Folio 553
Date of Report	18/03/2020
Decision	Amendment granted

1. Definitions and interpretation

Definitions

In this Amendment Report, the terms in Table 1 have the meanings defined.

Table 1: Definitions

Term	Definition
AACR	annual audit compliance report
ACN	Australian company number
AEP	annual exceedance probability
AER	annual environmental report
Amendment Report	refers to this document
Category/ Categories/ Cat.	categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the <i>Environmental Protection Act 1986</i> Locked Bag 33 Cloisters Square PERTH WA 6850 info@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
Department	means the department established under section 35 of the <i>Public Sector Management Act 1994</i> and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DBCA	Department of Biodiversity, Conservation and Attractions
DFES	Department of Fire and Emergency Services
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986</i> (WA)
EP Regulations	<i>Environmental Protection Regulations 1987</i> (WA)
Existing Licence	The Licence issued under Part V, Division 3 of the EP Act and in force prior to the commencement of and during this Review
g/m ²	grams per square metre

Term	Definition
HDPE	high density polyethylene
Licence Holder	River Nominees Pty Ltd trading as Purearth
m ³	cubic metres
mbgl	metres below ground level
Noise Regulations	<i>Environmental Protection (Noise) Regulations 1997 (WA)</i>
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Amendment Report applies, as specified at the front of this Amendment Report.
Revised Licence	the amended Licence issued under Part V, Division 3 of the EP Act, with changes that correspond to the assessment outlined in this Amendment Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>
RIWI Act	<i>Rights in Water and Irrigation Act 1914 (WA)</i>
tpa	tonnes per annum

2. Amendment Description

The following guidance statements have informed the assessment and decision outlined in this Amendment Report.

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guideline: Decision Making (June 2019)*
- *Guidance Statement: Risk Assessment (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

2.1. Purpose and scope of assessment

River Nominees Pty Ltd (the Licence Holder) submitted a licence amendment application to the Department of Water and Environmental Regulation (DWER) on 30 September 2019. This application was then substantially changed and resubmitted on 26 November 2019. The Licence Holder operates an organics composting and soil blending facility at 324 Horton Road, Woottating. The facility mixes a range of liquid waste and organic waste in a mixing shed before the material is placed in windrows for composting. The composting operation uses forced aeration for membrane covered (Phase 1) and uncovered compost windrows (Phase 2), with odorous air from Phase 1 being directed to a biofilter. Phase 1 corresponds to the pasteurisation and active stages of composting, while Phase 2 refers to the maturation stage. The Licence Holder's facility is approved for the following premises categories:

- Category 61: Liquid waste facility
- Category 67A: Compost manufacturing and soil blending

The Licence Holder is seeking an amendment to address current site operations and discrepancies with the amount of waste material that is authorised for acceptance under the licence. The scope of the Application is summarised as follows:

- Increase the approved throughput of liquid waste from 7,100 to 15,000 tpa.
- Increase the approved liquid waste acceptance from 2,100 to 15,000 tpa.
- Increase the approved food waste acceptance from 2,500 to 5,000 tpa.
- Include poultry mortalities as an acceptable solid waste with an annual limit of 2,500 tonnes.
- Include K100 animal effluent and residues as an acceptable liquid waste.
- Removal of redundant liquid storage tank infrastructure from the licence.
- Addition of a new leachate containment dam.

The Department has also undertaken a reassessment of fire related emissions from the Premises at the request of stakeholders and following a fire event in May 2019.

2.2. Amendment background

Throughput increase and waste quantities

Currently the Existing Licence specifies an approved design capacity of 7,100 tpa under Category 61, however waste acceptance condition 1.3.1 limits liquid waste acceptance to 2,100 tpa. This discrepancy is related to the staged operational increases that the Licence Holder proposed in their initial Works Approval application, combined with the Licence not being amended at these stages. The Licence Holder has been operating the Premises based on the

approved design capacity on the licence rather than their waste acceptance requirements, resulting in the site accepting liquid waste at 7,100 tonnes per annum for a number of years.

The Licence Holder accepts liquid waste on an as needed basis, with deliveries being pre-arranged and scheduled. Unscheduled liquid waste deliveries are not accepted at the Premises. This results in compost batch processing being organised around waste deliveries, with liquid waste being incorporated immediately with a food and green waste swale in the mixing shed when it arrives. Subsequently no liquid waste is stored at the Premises and the limiting factor for acceptance is the size of the mixing shed and the availability for a new composting windrow. Food waste is also accepted on an as needed basis, however is occasionally stored for a maximum of 48 hours in a concrete bunker within the mixing shed.

The Licence Holder is seeking an increase to the liquid and food waste acceptance limits in order to increase nutrient content of their compost products. Subsequently the Licence Holder does not consider that the quantity of compost produced at the premises will increase above the current approved production capacity and hence no amendment to Category 67A is being sought. Table 2 below provides a summary of the proposed waste acceptance changes in relation to the prescribed premise categories.

Table 2: Proposed throughput capacity changes

Category	Current production/throughput capacity	Proposed production/throughput capacity	Description of proposed amendment
61	7,100 tonnes per annum	15,000 tonnes per Annual Period	Increase in the amount of liquid waste able to be accepted at the Premises to increase nutrient content of produced compost.
67A	58,000 tonnes per annum	No change	Actual quantity of compost produced is not expected to change as green waste acceptance is not increasing.

Poultry abattoir wastes

The Licence Holder is proposing to accept waste from the K100 controlled waste category comprised of animal effluent and residues. The intent is to accept both liquid waste effluents and solid waste in the form of poultry mortalities. Both waste streams will be accepted from a metropolitan poultry abattoir. The two waste types will be incorporated into the composting process, following the operational process mentioned above.

Storage tank

In May 2019 a bushfire within the Shire of Mundaring and Northam burnt through a portion of the Premises, resulting in damage to two liquid waste storage tanks. At the time these tanks were no longer being used for their storage capacity, as the Licence Holder was accepting liquid wastes in an 'as-needed' basis that allowed for immediate use and no requirement for storage. Given the current redundancy of the storage tanks the Licence Holder is not intending on repairing the fire damage and subsequently the conditions related to them are requested for removal from the licence.

The Licence Holder is proposing to use their former Liquid Waste Receiving Pit (LWRP) as a contingency measure for the temporary storage of any non-conforming liquid waste. This would only occur where the waste transport is unable to immediately remove the load.

Leachate pond

The Licence Holder has constructed a leachate pond on the Premises without seeking prior authorisation under a Works Approval. The pond was constructed to address capacity issues

observed in the existing leachate pond following the use of freeboard capacity during a significant storm event. These capacity issues have been attributed to miscalculations in the initial water balance conducted for the site which did not account for stormwater runoff from the Phase 1 windrow covers entering the leachate control system.

The Licence Holder has subsequently provided a construction quality assurance (CQA) report for the construction of the pond and a water balance assessment to demonstrate that the current leachate containment system is suitable for the Premises. The new leachate pond is connected in parallel to the primary pond via a spillway and will act as a contingency overflow. The new dam is anticipated to be used only during significant rainfall events. Water containment infrastructure at the Premises is now comprised of a;

- 26,500 kL stormwater dam;
- 820 kL leachate dam; and
- 1000 kL leachate dam

3. Licence consolidation

As part of this amendment package DWER has consolidated the licence by incorporating changes made under the following Amendment Notices:

- Amendment by notice, granted 29 April 2016 – extension of licence duration.

The obligations of the Licence Holder have not changed in consolidating the licence. DWER has not undertaken any additional risk assessment of the Premises related to previous Amendment Notices.

In consolidating the licence, the CEO has:

- replaced the term ‘licensee’ with the term ‘licence holder’;
- replaced references to the Department of Environment Regulation with the Department of Water and Environmental Regulation, inclusive of abbreviations and contact details;
- deleted the redundant AACR form set out in schedule 1 of the previous licence and advised the Licence Holder to obtain the form from the Department’s website;
- revised licence condition’s numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

Previously issued Amendment Notices will remain on the DWER website for future reference and will act a record of DWER’s decision making.

4. Other approvals

The Licence Holder has provided the following information relating to other approvals as outlined in Table 3.

Table 3: Relevant approvals

Legislation	Number	Approval
<i>Planning and Development Act 2005</i>	P1692	Shire of Northam Planning Approval

5. Licensing history

Table 4 provides the instrument history for the Premises.

Table 4: Licensing history

Instrument	Issued	Amendment
W5441/2013/1	14 June 2013	Initial works approval
L8769/2013/1	27 February 2015	First issued licence
L8769/2013/1	10 September 2015	Licence amended as a result of the Minister's appeal determination.
L8769/2013/1	29 April 2016	Amendment by notice to extend the licence duration
L8769/2013/1	18 March 2020	Amended licence to increase waste acceptance and modify infrastructure; subject of this Amendment Report.

6. Applicant provided information

6.1. Leachate pond construction

The Licence Holder installed a 1,000 kL, HDPE lined leachate containment pond in 2018. The pond is connected in parallel to the 820 kL primary leachate pond by a HDPE lined spillway. The pond was constructed to meet a permeability less than 1×10^{-9} m/s and quality testing was undertaken on the HDPE liner following installation.

The CQA report shows that the liner is comprised of nine HDPE panels of seven metre width and 2 mm thickness, installed at various lengths in the arrangement shown in Figure 1. CQA documentation shows that all trial welds using sample liner material were successful and air pressure testing of the 8 weld seams did not display a pressure change before and after the test.

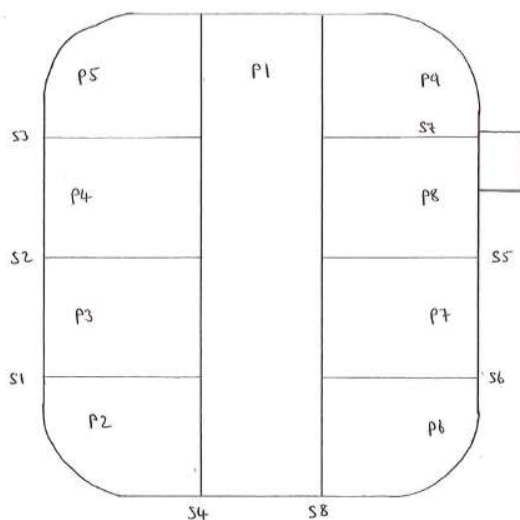


Figure 1: Layout of HDPE panels and welds for the new 1,000 kL leachate pond. (Source: Purearth Woottating Composting Facility - QA/AS Built Details)

The Delegated Officer notes that:

1. Installation of the pond was not in accordance with any instrument or conditions, however the pond design meets the general requirements for similar infrastructure stipulated in other works approvals and licences.
2. CQA documentation indicates that the leachate pond was installed with no defects and is suitable for use at the Premises.

6.2. Water balance

The Licence Holder engaged an environmental consultant to conduct a water balance assessment at the Premises, taking in to account the new leachate containment pond and storm water runoff from the Phase 1 windrow covers.

Table 5: Input values used in the water balance model.

Parameter	Value
Surface area of hardstand and capture area	61,000 m ²
Surface area of leachate ponds (2)	936 m ²
Percentage capture of stormwater on composting hardstand	75%
Percentage capture of stormwater on leachate ponds	100%
2018 annual rainfall for Chidlow weather station (9007)	773 mm
Annual evaporation average for Chidlow weather station (9007)	228 mm
Capacity of leachate ponds (including 0.5 m freeboard)	1,820 kL
Freeboard capacity of leachate ponds (0.5 m)	468 kL
Maximum depth of leachate ponds (not including freeboard)	2.0 m
Phase 1 composting windrow leachate capture	0%
Phase 2 composting windrow leachate capture	25%
Leachate re-use in composting process	800-1000 kL/month

Using the input values listed in Table 5 above, the cumulative leachate volumes and storm event freeboard usage shown in Figure 2 and Figure 3 respectively was modelled. The results indicate that cumulative leachate volume within the storage ponds will peak annually at approximately 850 kL during October. Based on a total capacity of 1,352 kL (excluding freeboard) there is sufficient storage availability for leachate across the two ponds under normal conditions. There is also sufficient contingency contained within the freeboard capacity of 468 kL to contain a range of storm events.

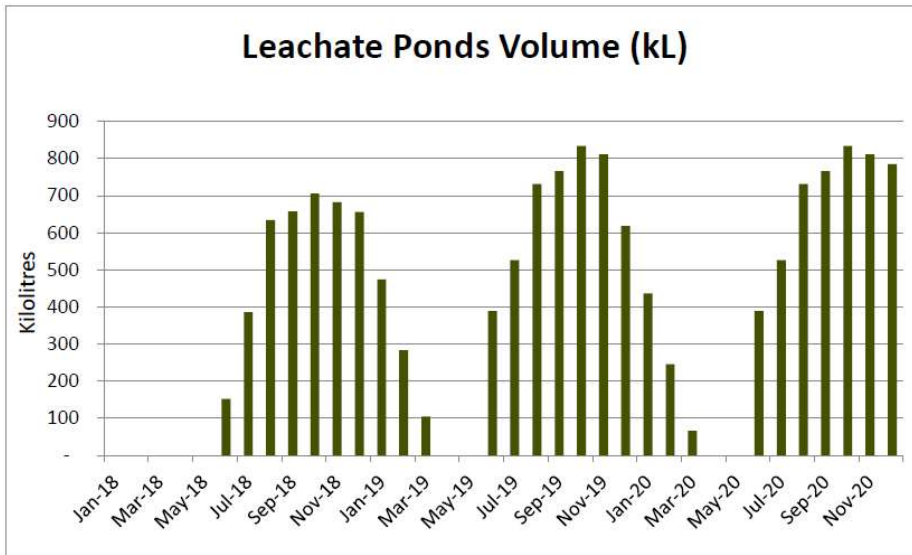


Figure 2: Modelled cumulative volume of leachate within the combined leachate ponds across three years. (Source: Purearth Woottating Composting Facility - Water Balance Report)

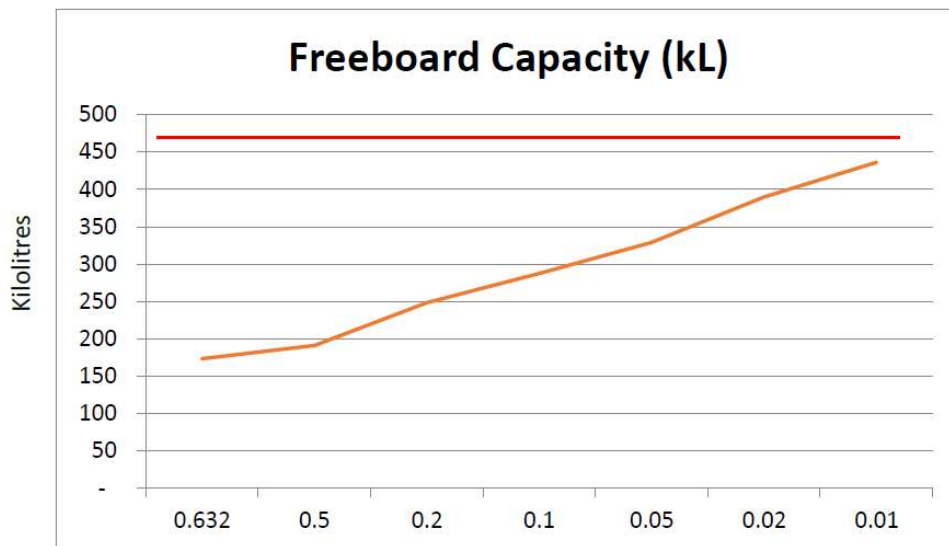


Figure 3: Volume of freeboard used during a 72hr storm event with an AEP between 63.2 - 1%. (Source: Purearth Woottating Composting Facility - Water Balance Report)

The Delegated Officer notes that:

1. Various errors have been made with the parameter inputs listed in the water balance assessment such as;
 - a. Leachate pond freeboard was input as 0.5 m instead of 0.6 m. With a freeboard height of 0.6 m the ponds have a combined freeboard capacity of 562 kL. This results in a combined pond capacity of 1,258 kL excluding freeboard;
 - b. Pan evaporation measurements for the Chidlow weather station (9007) do not exist. The Bureau of Meteorology (BoM) website lists the station as not having ever recorded pan evaporation measurements. The nearest listed weather station (Bakers Hills 10244) with available evaporation data only has records between 1965-1985; and

- c. Average evaporation rates used in the water balance are significantly lower than those displayed in average evaporation mapping produced by BoM and the values in the initial licence application (Bowman 2012). BoM data shows that average annual evaporation rates for the area are higher than annual rainfall volumes and approximately 7 times higher than the rates listed in the water balance.
2. Water balance modelling using undervalued evaporation rates indicates yearly cumulative volume in the leachate ponds would not exceed a maximum of 850 kL, based on full leachate usage in the compost process each year.
 3. The incorrect average evaporation rates would result in over-calculation of the volume of leachate generated and captured at the Premises.
 4. 850 kL represents a highly conservative estimate of maximum leachate volume and is well below the combined leachate pond capacity of 1,258 kL excluding freeboard.
 5. Despite errors in the water balance calculation, the Licence Holder has demonstrated that sufficient capacity exists within the leachate ponds at the Premises, both under normal conditions and during rainfall events.

6.3. Groundwater monitoring

The Licence Holder currently monitors three groundwater bores on the Premises as part of requirements in their Existing Licence. The three groundwater bores are located around water containment infrastructure, have been installed and screened at the depth of the seasonal perched aquifer and generally are unable to be sampled during the summer months.

Table 6 below contains the results of groundwater monitoring undertaken since operations began at the Premises. Results of baseline monitoring prior to construction and operation of the facility has also been included. Due to the perched nature of groundwater at the Premises, summer monitoring events have been unsuccessful.

Table 6: Summary of groundwater sampling undertaken at the Premises since licence commencement in 2015. Results of summer sampling have not been included as bores were dry during the period for all years.

Bore	Sampling event	Total nitrogen (mg/L)	Total phosphorus (mg/L)	Total kjeldahl nitrogen (mg/L)	Nitrate + nitrite as nitrogen (mg/L)	Ammonium as nitrogen (mg/L)
Bore 1	Baseline (Oct 2009)	5.7	0.02	0.64	5.1	0.09
	2016 (Aug)	6.2	0.012	3.2	3	1.94
	2017 (Aug)	5.95	0.005	0.8	5.15	0.05
	2018 (Nov)	6.2	0.025	1.3	4.9	0.019
Bore 2	Baseline (Oct 2009)	8.3	0.01	0.095	8.2	0.02
	2016 (Aug)	6.23	0.005	0.05	6.18	0.02
	2017 (Aug)	8.7	0.005	1.3	7.4	0.005

Bore	Sampling event	Total nitrogen (mg/L)	Total phosphorus (mg/L)	Total kjeldahl nitrogen (mg/L)	Nitrate + nitrite as nitrogen (mg/L)	Ammonium as nitrogen (mg/L)
	2018 (Nov)	DRY	DRY	DRY	DRY	DRY
Bore 3	Baseline (Oct 2009)	4.4	0.01	0.78	3.6	0.06
	2016 (Aug)	8.39	0.004	0.05	8.34	0.03
	2017 (Aug)	DRY	DRY	DRY	DRY	DRY
	2018 (Nov)	DRY	DRY	DRY	DRY	DRY

The Delegated Officer notes that:

1. Results of groundwater monitoring to date show only minor fluctuations around baseline nutrient concentrations measured prior to Premises operations.
2. Bi-annual groundwater sampling at the Premises appears redundant, as monitoring shows that the perched aquifer is only present during the winter period.

6.4. Operational odour analysis

The Licence Holder undertook an operational odour analysis of their current site activities and the proposed activities subject to this amendment. The analysis identified three odour sources; raw materials, compost windrows and leachate, with the following processes considered to be odour emitting:

- Green waste shredding, grinding and storage.
- Liquid waste mixing and agitation during delivery.
- Putrescible waste acceptance and occasional temporary storage.
- Composting of material in windrows, with Phase 1 windrows having the highest odour generation risk.
- Storage of leachate within the containment ponds.

Distance to the three closest sensitive receptors was calculated from the mixing shed and composting hardstand, as activities at these locations were considered to have the highest potential to generate nuisance odours. The three receptors were identified as residences within rural properties located between 1.6 – 1.7 km to the southwest, northwest and southeast. The Licence Holder considers that due to the distance to the nearest receptors and their current odour controls, the potential for odour emissions to impact offsite receptors is low and the proposed amendments do not change the odour risk of the Premises.

The Licence Holder proposes the following controls for odour emissions, which are currently being implemented at the Premises:

- Mixing of liquid, solid and green waste for a composting batch will occur within an enclosed mixing shed. The shed is walled on three sides, with the fourth side capable of being fully enclosed by the use of a sliding 900 g/m² PVC curtain. The doorway to the mixing shed is only opened to accept deliveries.

- No storage of liquid waste will occur at the Premises and putrescible waste is stored for a maximum 48 hours within the enclosed mixing shed.
- Phase 1 of the composting process takes place as a covered, forced aerated windrow. This prevents odour emissions directly from the windrow as odorous air is contained by the membrane cover and extracted to a biofilter for treatment. Forced aeration also prevents anaerobic conditions from forming, as air is supplied to the compost by an automated system which monitors oxygen, temperature and moisture levels within the windrows.
- Phase 2 windrows are monitored and aerated using an automated process to prevent anaerobic conditions from forming.
- Leachate containment ponds are aerated to prevent anaerobic conditions from forming.

7. Environmental siting

The Premises is located in Woottating, approximately 50 km east of the Perth CBD within the Shire of Northam. The operational area of the Premises is located on a westerly oriented downslope within the Darling Scarp and has an area of approximately eight hectares. The Premises is predominately cleared with fringing vegetation around the southern perimeter of the operational area. Surrounding land uses are mostly rural agricultural, with two extractive industry premises being located adjacent to the north and south.

7.1. Potential receptors

Table 7 below lists the relevant sensitive land uses and environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 7: Potential receptors

Human receptors	Description	Distance from activity and prescribed premises
Sensitive human receptor	Residence on rural property at Lot 3 Great Eastern Highway	Approximately 550 m west of the Premises boundary and 1250 m west-northwest of the prescribed activities.
	Residence on rural property at 1495 Carter Road	Approximately 400 m southwest of the Premises boundary and 1300 m west-southwest of the prescribed activities.
	Residence on rural property at 598 Warin Road	Approximately 1400 m southeast of the Premises boundary and prescribed activities.
Industrial premises	Basic raw material screening facility	Immediately adjacent to the northern Premises boundary and approximately 575 m northwest of the prescribed activities.
	Voyager II Quarry	Approximately 1100 m southwest of the Premises boundary and prescribed activities.

Environmental receptors	Description	Distance from activity and prescribed premises
Watercourse	Minor non-perennial watercourse flowing northward through the Premises.	Located within the Premises, approximately 150 m west of the prescribed activities and down topographic gradient.
	Minor non-perennial watercourse flowing northwest through the Premises.	Located within the Premises, approximately 575 m northeast of the prescribed activities and up topographic gradient.
	Wooroloo Brook: formed from the confluence of two minor non-perennial watercourses that flow through the Premises.	Approximately 220 m north of the Premises boundary and 750 m north of the prescribed activities.
Groundwater ¹	<p>Present as a seasonal perched unit above the pallid clay zone of the laterite profile. The thickness of the perched aquifer, when present, is expected to range between <1 – 3 m.</p> <p>Groundwater flow is inferred to be north-northeast with a shallow gradient of 0.002.</p> <p>Regional groundwater occurs in a low yielding, fractured rock aquifer located between the pallid clay zone and granite bedrock</p>	<p>Depth to the perched groundwater table across the prescribed activity area ranges from approximately 3.5 – 9 mbgl.</p> <p>Depth to the regional groundwater table is approximately 20 – 25 mbgl.</p>
Regional park	Darling Range regional park	Approximately 400 m southwest of the Premises boundary and 1150 m southwest of the prescribed activities.
DBCA managed land and waters	Keaginine Nature Reserve	Approximately 2.9 km north of the Premises boundary and 3.3 km north of the prescribed activities.
Environmental aspects	Description / environmental value	Distance from activity / prescribed premises
Public Drinking Water Source Area	Priority 1 and 2 zones of the Mundaring Weir Catchment Area proclaimed for the protection of surface water.	Approximately 2.3 km south of the Premises and prescribed activities.
RIWI Act Surface Water Area	Swan River System	The Premises is located within the proclaimed area.

¹ Groundwater information is derived from Licence Holder commissioned studies and groundwater monitoring previously provided to the department.

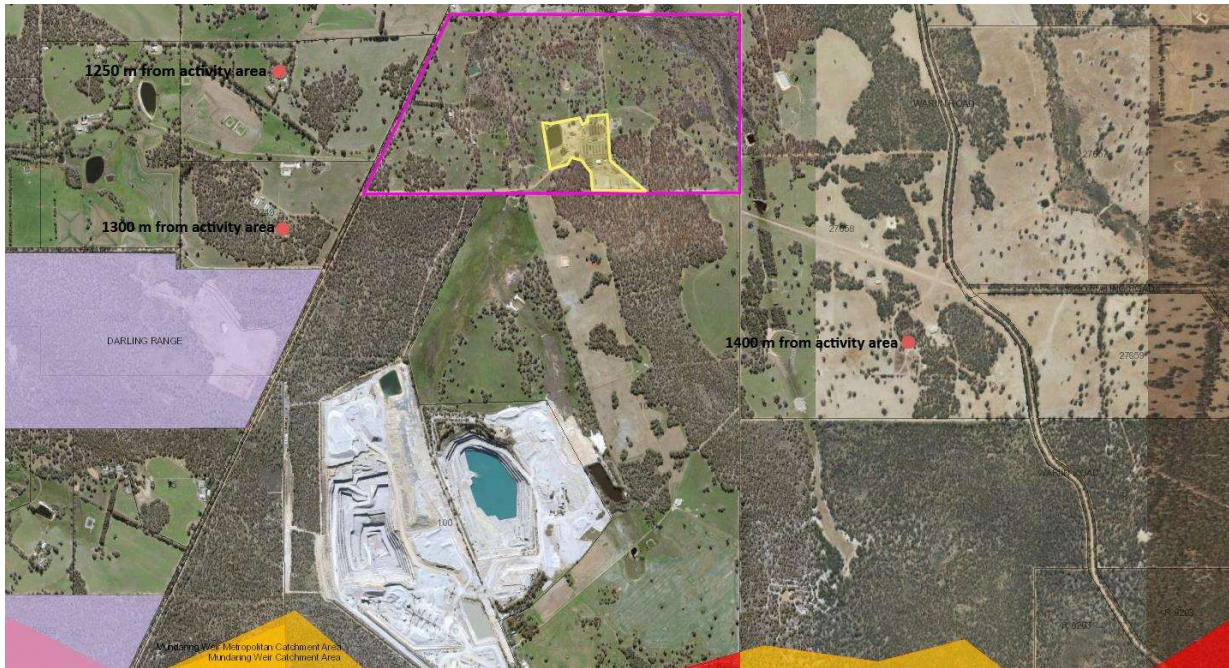


Figure 4: Sensitive and environmental receptors surrounding the Premises. The Premises boundary is shown by the pink line and the prescribed activity area is shown by the yellow shading. Red dots indicate the nearest three sensitive receptors.

7.2. Potential pathways

Air, soil seepage, surface run-off and groundwater have been considered potential pathways during the assessment. The meteorological, topographical and geological conditions at the Premises have been presented in Table 8 below and this information has been considered in the risk assessment table in Section 8. Groundwater information is contained in Table 7 above and is considered a potential pathway.

Table 8: Potential pathways

Environmental aspects	Description
Soil type and surface geology	Lateritic, duplex soil profile with generally medium to coarse, rounded and granular fragments at the surface and layers of coarse to very coarse angular fragments in a low permeability sheet at depths ranging from 2 to 5m, underlain by creamy coloured clays. Sandy clays from 2 to 6 m becoming clayey sands with light brown clay below this to at least 10 m.
Topography	The regional area is predominantly undulating hill terrain with meander streamlines and creek systems dissecting the depressions, The site has a north-westerly orientated fall from a height of 305 mAHD in the south-eastern corner to 290 mAHD in the north-western corner. The operating area of the Premises has also been graded to provide a 2% fall towards a stormwater dam located to the northwest.
Prevailing wind direction and strength	The Bakers Hill 10244 weather station is the closest station to the Premises, however wind speed and direction measurements have not been recorded since 1985. Weather stations located approximately 30km east (Northam 10111) and west (Bickley 9240) of the Premises indicate that the prevailing wind direction would likely be east to south-easterly in the mornings and westerly in the afternoon.

8. Risk assessment

Table 9 below describe the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. The table identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls. Receptors that are up-gradient have not been included in the risk assessment below as the Delegated Officer considers that no pathway exists.

Table 9: Risk assessment for proposed amendments during operation

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
<p>Increased liquid waste acceptance and mixing</p> <p>K100 liquid waste acceptance</p> <p>Increased food waste acceptance, mixing and temporary storage</p> <p>Poultry mortality acceptance</p> <p>Leachate storage</p>	Odour	<p>Air/windborne pathway causing impacts to amenity of the closest human receptors:</p> <ul style="list-style-type: none"> Residence 1250 m west-northwest. Residence 1300 m west-southwest. Residence 1400 m southeast. 	<p>Inspection of incoming waste loads.</p> <p>Liquid waste is incorporated on arrival.</p> <p>No storage of food waste or poultry mortalities longer than 48 hours. Storage is within a bunker located in an enclosed mixing shed.</p> <p>Waste loads are not accepted when no windrow space is available.</p> <p>Membrane windrow cover.</p> <p>Forced aeration of Phase 1 windrows by automated process control system.</p> <p>Air extraction from Phase 1 windrows and direction to a biofilter.</p> <p>Continuous monitoring of biofilter performance.</p> <p>Daily equipment checks and inspections.</p>	Moderate – local scale, mid-level impact to amenity	Unlikely	Medium	<p>The Delegated Officer considers the highest potential for odour emissions as a result of this amendment are from waste mixing, temporary storage of poultry mortalities with food waste and the pasteurisation/active stage of composting.</p> <p>The Licence Holder controls odour emissions from these sources by having an enclosed structure for waste mixing and only storing putrescible waste in the short term (48 hours). Potential odour emissions from liquid waste streams have not been considered outside of the mixing and composting processes, as there is no storage of liquid waste on the Premises.</p> <p>The covering of Phase 1 windrows and treating of odorous air through a biofilter disrupts the pathway for odour emissions from the pasteurization stage of composting. The Licence Holder is able to mitigate odour emissions from the leachate storage ponds through aeration of the ponds preventing anaerobic conditions from occurring.</p> <p>A search of the Department's Incidents and Complaints Management System indicates that no odour complaints have been received in relation to the Premises. Annual reports submitted by the Licence Holder indicate that the biofilter has been well maintained and is effective at treating odorous air from the Phase 1 composting windrows.</p> <p>The Delegated Officer considers that existing Licence Holder controls are likely to be sufficient at mitigating odour emissions from the Premises, given the distance to the nearest sensitive receptor and low density of residences in the area.</p> <p>Existing licence conditions relating to waste containment infrastructure and waste acceptance in the existing licence will be modified to give effect to this amendment.</p>	<p>Condition 1.3.1: <i>Waste acceptance</i></p> <p>Condition 1.3.3: <i>Waste processing</i></p> <p>Condition 1.3.4: <i>Containment infrastructure</i></p>
<p>Increased liquid waste acceptance and mixing</p> <p>K100 liquid waste acceptance</p> <p>Increased food waste acceptance, mixing and temporary storage</p> <p>Poultry mortality acceptance</p> <p>Removal of storage tanks</p> <p>Leachate storage</p>	Leachate / liquid waste	<p>Seepage through the soil profile to groundwater causing contamination of groundwater.</p> <p>Seepage through the soil profile to groundwater causing downgradient impact to beneficial use of groundwater.</p> <p>Overland flow and groundwater discharge causing impact to surface water (Wooroloo Brook and associated minor non-perennial watercourses).</p>	<p>Waste loads are not accepted when no windrow space is available.</p> <p>LWRP for contingency storage of any non-conforming liquid waste.</p> <p>No storage of food waste or poultry mortalities longer than 48 hours. Storage is within a concrete bunker located in an enclosed mixing shed.</p> <p>Mixing of waste within an enclosed mixing shed above a concrete hardstand.</p> <p>Composting windrows situated above a concrete hardstand.</p> <p>HDPE lined leachate collection system directing leachate to two parallel HDPE lined leachate containment ponds.</p> <p>Activity area graded towards a HDPE lined stormwater containment dam.</p>	<p>Moderate – local scale, low-level offsite impacts</p> <p>Moderate – Non-potable use of groundwater criteria at risk of not being met</p> <p>Moderate – local scale, low-level offsite impacts</p>	<p>Unlikely</p> <p>Rare</p> <p>Unlikely</p>	<p>Medium</p> <p>Medium</p> <p>Medium</p>	<p>The removal of liquid waste storage tanks is not considered to increase the potential for liquid waste emissions at the Premises. This is due to the wastes being accepted directly into the batch composting process above an impermeable hardstand. Any spill/loss of containment that may occur during acceptance would result in the liquid waste being directed to the HDPE lined leachate collection system. The Licence Holder has also retained the LWRP infrastructure for contingency use in the event that unacceptable liquid waste is delivered to the Premises and is unable to be immediately removed.</p> <p>The Delegated Officer considers that existing Licence Holder controls are likely to be sufficient at mitigating leachate emissions from the Premises. This is due to all activities with possible leachate generation occurring on impermeable hardstands, preventing the leachate from seeping through the soil profile and reaching groundwater. Leachate is contained in an impermeable storage pond, with a demonstrated capacity to not overflow unless extreme circumstances occur.</p> <p>Existing licence conditions relating to leachate containment infrastructure and waste acceptance in the existing licence will be modified to give effect to this amendment.</p>	<p>Condition 1.3.1: <i>Waste acceptance</i></p> <p>Condition 1.3.3: <i>Waste processing</i></p> <p>Condition 1.3.4: <i>Containment infrastructure</i></p>

Risk Event				Consequence rating ¹	Likelihood rating ¹	Risk ¹	Reasoning	Regulatory controls (refer to conditions of the granted instrument)
Source/Activities*	Potential emissions	Potential receptors, pathway and impact	Applicant controls					
Increased food waste acceptance, mixing and temporary storage	Dust	Air/windborne pathway causing impacts to health and amenity of the closest human receptors: <ul style="list-style-type: none"> Residence 1250 m west-northwest. Residence 1300 m west-southwest. Residence 1400 m southeast. 	Captured stormwater is used for dust suppression across the hardstand area.	Minor – local scale, low-level impact to amenity	Rare	Low	The Delegated Officer does not consider that the proposed amendments change the risk profile for dust emissions at the Premises.	N/A
		Air/windborne pathway causing impacts to surface water quality (Wooroloo Brook and associated minor non-perennial watercourses).						
Increased liquid waste acceptance and mixing Increased food waste acceptance, mixing and temporary storage	Sediment	Overland flow causing impacts to surface water quality (Wooroloo Brook and associated minor non-perennial watercourses).	Activity area graded towards a HDPE lined stormwater containment dam.	Moderate – local scale, low-level offsite impacts	Rare	Medium	The Delegated Officer does not consider that the proposed amendments change the risk profile for sediment emissions at the Premises.	N/A
Ignition of green waste or composting windrows	Particulates and noxious gases from combustion	Air/windborne pathway causing impacts to health and amenity of the closest human receptors: <ul style="list-style-type: none"> Residence 1250 m west-northwest. Residence 1300 m west-southwest. Residence 1400 m southeast. 	Storage of green waste on a cleared hardstand.	Major – mid-level or frequent medical treatment and local scale, high level impact to amenity	Rare	Medium	The Delegated Officer has considered comments from the Shire of Northam regarding the May 2019 fire event. During the event it was stated that the manner in which green waste was stockpiled reduced the capability of fire control equipment to efficiently access and extinguish all parts of the green waste. As the green waste stockpiling area is located near to vegetation, the Delegated Officer considers that further regulatory control of green waste stockpiling is warranted. The Delegated Officer does not consider that further regulatory control for the containment of fire wash waters is needed, as grading of the premise should direct any runoff towards the HDPE lined stormwater dam or leachate ponds. The Delegated Officer has considered additional controls and infrastructure proposed by the Licence Holder during consultation (Appendix 2). These controls and infrastructure will be conditioned in the amended licence.	Condition 1.3.3: <i>Waste processing</i>
		Overland flow causing impacts to surface water quality (Wooroloo Brook and associated minor non-perennial watercourses).						
	Wastewater/leachate generated from extinguishing a fire	Seepage through the soil profile to groundwater causing contamination of groundwater.	HDPE lined leachate collection system directing leachate to two parallel HDPE lined leachate containment ponds.	Activity area graded towards a HDPE lined stormwater containment dam.	Moderate – local scale, low-level offsite impacts	Rare		

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Department's Guidance Statement: Risk Assessments (February 2017)

9. Consultation

Table 9: Summary of consultation

Method	Comments received	DWER response
Application advertised on DWER website (11/12/2019)	None received	N/A
Local Government Authority advised of proposal (12/12/2019)	<p>The Shire of Northam replied on 24/12/2019 advising the following:</p> <ul style="list-style-type: none"> The proposed activities and new infrastructure at the Premises are not authorised under the Licence Holder's current development approval (P1692). No application for the proposed activities has been received or is currently being processed by the Shire. The proposed amendments have the potential to impact on amenity for the locality. The length, size and location of stockpiles were considered a hindering factor in controlling the May 2019 fire event. <p>The Shire requested that:</p> <ul style="list-style-type: none"> fire risk and controls at the Premises be reassessed; and an amendment to the Licence should not be determined until the Licence Holder has obtained an amended development approval. 	<p>The Delegated Officer will not make a final determination on the application until evidence of an amended planning approval has been provided.</p> <p>Evidence of an amended planning approval was provided by the Shire of Northam on 12/03/2020.</p>
Applicant referred draft documents (30/01/2020)	Refer to Appendix 2.	Refer to Appendix 2.

10. Decision

Based on the assessment in this Amendment Report, the Delegated Officer has determined that a licence amendment will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

10.1. Summary of amendments

Table 10 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 10: Licence amendments

Condition No.	Proposed amendments
Premises	The Category 61 capacities have been amended to reflect a liquid waste acceptance of 15,000

Condition No.	Proposed amendments
categories	tpa.
Table 1.3.1 Waste type	Waste acceptance criteria updated to reflect: <ul style="list-style-type: none"> • Increase in food waste acceptance to 5,000 tpa. • Poultry mortalities - 2,500tpa.
Table 1.3.1 Liquid waste quantity	Liquid waste acceptance has been increased to 15,000 tpa
Table 1.3.1 Liquid waste specification	Liquid waste has been specified for direct application to green waste in the mixing shed and K100 waste has been added to the acceptance specification. Reference to the redundant IR1 condition 4.1.1 has been removed.
Table 1.3.3 Storage process requirements (i-ii)	Poultry mortalities have been included in the 48 hour storage limit and have been specified for storage in the mixing shed only.
Table 1.3.3 Storage process requirements (v-vii)	Green waste stockpile size and separation distances have been conditioned based on separation distances and firefighting equipment proposed by the Licence Holder.
Table 1.3.3 Storage process requirements (ix-x)	Liquid waste has been specified for receipt in the mixing shed only and storage of liquid waste on the Premise has been restricted.
Table 1.3.4 Waste storage area	The waste storage area has been further defined to be for green waste only. The Licence Holder's proposed firefighting equipment has been listed as an infrastructure requirement associated with the green waste storage area.
Table 1.3.4 Mixing shed	The mixing shed has been added to Table 1.3.4 as containment infrastructure for green waste, food waste, poultry mortalities and liquid waste.
Table 1.3.4 Composting area	Poultry mortalities have been added to the list of material types.
Table 1.3.4 Leachate dam	The condition has been reworded to reflect that two dams are present. Infrastructure requirements have been added that the two dams must be connected by a HDPE lined spillway. Reference to a 1 in 10 year ARI rainfall event has been changed to a 10% AEP event, in line with units of measure used in the water balance and by BoM.
Table 3.9.1 Frequency	The groundwater monitoring frequency has been reduced from six monthly to annually. This reflects observed conditions at the Premises where perched groundwater is unable to be sampled during drier periods. To ensure consistency and comparability with previous monitoring events DWER has specified the annual frequency to occur between August and October each year (late winter to post-winter conditions). Where it is not possible to retrieve representative groundwater samples during the first scheduled monitoring event then a subsequent monitoring event specifically targeting previously dry bores should be planned within the specified date range for the annual monitoring frequency. Should targeted bores be dry at the follow-up monitoring event then field records should reflect the situation and no further follow-up is required.

Condition No.	Proposed amendments
3.9.2 on draft revised licence	Removed from the final revised licence. Related to requirements that annual groundwater monitoring must be done at a time where groundwater is available for sampling in the bore network. See amendments to Table 3.9.1 (above) for the revised approach.
4	The improvement conditions have been removed as they have previously been addressed. IR1 and 2 required a liquid waste acceptance plan and groundwater sampling plan that have been previously submitted. The liquid waste plan was revised as part of this amendment. Previous 'Information' section (5) renumbered as a result of Section 4 being removed.
Schedule 1	The Premise and operation maps have been updated to reflect current activities and infrastructure.

**MANAGER WASTE INDUSTRIES
REGULATORY SERVICES**

An officer delegated by the CEO under section 20 of the EP Act

Appendix 1: Key documents

Document title	Availability
DER, July 2015. <i>Guidance Statement: Regulatory principles</i> . Department of Environment Regulation, Perth.	accessed at www.dwer.wa.gov.au
DER, October 2015. <i>Guidance Statement: Setting conditions</i> . Department of Environment Regulation, Perth.	
DER, November 2016. <i>Guidance Statement: Risk Assessments</i> . Department of Environment Regulation, Perth.	
DWER, June 2019. <i>Guideline: Decision Making</i> . Department of Water and Environmental Regulation, Perth.	
Licence L8769/2013/1 – Purearth Woottating Facility	accessed at www.dwer.wa.gov.au
Licence application and supporting document	DWER records (A1839000)
Modified licence application and supporting document	DWER records (DWERDT227950)
Original works approval and licence supporting document.	DWER records (A639734)
Purearth Woottating Facility, Liquid Waste Acceptance Plan Revision 3	DWER records (A1336042)
Purearth Woottating Facility, Biofilter Management Plan	DWER records (A707515)
Minister's Appeal Determination, Appeal Number 016 of 2015	DWER records (A945658)
Groundwater Sampling and Analysis Plan	DWER records (A639734)
Purearth Woottating Facility, 2015 Annual Environmental Report	DWER records (A1068519)
Purearth Woottating Facility, 2016 Annual Environmental Report	DWER records (A1390320)
Purearth Woottating Facility, 2017 Annual Environmental Report	DWER records (A1627288)
Purearth Woottating Facility, 2018 Annual Environmental Report	DWER records (DWERDT138250)
Voyager Quarry Groundwater Monitoring and Remedial Programme	DWER records (DOC10646)

Appendix 2: Summary of Licence Holder comments

The Licence Holder was provided with the draft Amendment Report on 30 January 2020 for review and comment. The Licence Holder responded on 31 January 2020. The following comments were received on the draft Amendment Report and Revised Licence.

Condition	Summary of Licence Holder comment	DWER response
1.3.1 (Food waste and poultry mortalities)	<p>The combined total of 5,000 tonnes per annual period for food waste and poultry mortality acceptance is not the intent of the amendment.</p> <p>Purearth wishes to accept 5,000 tpa of food waste and up to 2,500 tpa of poultry mortalities.</p>	<p>DWER considered the proposed quantity for poultry mortality acceptance and revised the risk assessment accordingly. The additional quantity of poultry mortalities did not change the risk rating due to existing controls and siting of the Premises.</p> <p>The licence was revised following the risk assessment to list poultry mortalities with its own quantity limit.</p>
1.3.3 (green waste stockpiles)	<p>The listed separation distances for the green waste stockpiles are large and cannot be accommodated on the existing green waste hardstand without reducing the current 40m separation distance from surrounding vegetation. With the quantities of green waste that are accepted at the Premises, a stockpile separation of 10m is achievable while still maintaining the existing boundary separation of 40m.</p> <p>Purearth have installed 3x 60 kL steel water storage tanks at the green waste hardstand dedicated to fire control.</p> <p>Purearth request that this new firefighting infrastructure be considered as an applicant proposed control and the proposed stockpile separation distances be reconsidered with these controls in mind.</p>	<p>DWER will reconsider the listed separation distances in light of the provided information.</p> <p>Taking in to account Purearth's comments the licence will be revised to specify a separation distance of 10m between stockpiles and 40m from existing vegetation around the green waste hardstand boundary. DWER considers that maintaining separation from surrounding vegetation is a more significant control for fire risk.</p> <p>The specified firefighting equipment will be conditioned in the licence with a requirement to keep it maintained.</p>