



Amendment Notice 2

Licence Number	L7060/1997/13
Licence Holder	Peel Resource Recovery Pty Ltd
ACN	149 428 697
File Number:	DER2014/001334
Premises	Cross Resource Management 70 Stanley Road, WELLESLEY WA 6233
Legal Description	Lot 43 on Plan 17161
Date of Amendment	5 January 2018

Amendment

The Chief Executive Officer (CEO) of the Department of Water and Environmental Regulation (DWER) has amended the above Licence in accordance with section 59 of the *Environmental Protection Act 1986* as set out in this Amendment Notice. This Amendment Notice constitutes written notice of the amendment in accordance with section 59B(9) of the EP Act.

Date signed: 5 January 2018

Steve Checker

MANAGER LICENSING (WASTE INDUSTRIES)

an officer delegated under section 20 of the *Environmental Protection Act 1986* (WA)

Definitions and interpretation

Definitions

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

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
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-der@dwer.wa.gov.au
Delegated Officer	an officer under section 20 of the EP Act
DWER	Department of Water and Environmental Regulation
EP Act	<i>Environmental Protection Act 1986 (WA)</i>
EP Regulations	<i>Environmental Protection Regulations 1987 (WA)</i>
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
Licence Holder	Peel Resource Recovery Pty Ltd
m ³	cubic metres
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 Decision Report applies, as specified at the front of this Decision Report.
Risk Event	as described in <i>Guidance Statement: Risk Assessment</i>

Amendment Notice

This amendment is made pursuant to section 59 of the *Environmental Protection Act 1986* (EP Act) to amend the Licence issued under the EP Act for a prescribed premises as set out below. This notice of amendment is given under section 59B(9) of the EP Act.

The following guidance statements have informed the decision made on this amendment:

- *Guidance Statement: Regulatory Principles (July 2015)*
- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Land Use Planning (February 2017)*
- *Guidance Statement: Licence Duration (August 2016)*
- *Guidance Statement: Decision Making (November 2016)*
- *Guidance Statement: Risk Assessment (November 2016)*
- *Guidance Statement: Environmental Siting (November 2016)*

Amendment description

An amendment application was received by DWER on 13 April 2017 from the Licence Holder containing two requests:

- 1) the removal of the requirement to store processed recycled glass on a hardstand with a maximum permeability of 1×10^{-9} m/s from the Licence; and
- 2) the revision of the definition for 'non-biodegradable plastics' on the Licence.

A second request to amend the Licence was received via email on 5 September 2017, relating to the storage of lime at the premises. The proposed amendment includes the following which has been incorporated into this amendment process:

- 1) Receipt and storage of recycled lime product for resale/ reuse outside of the premises boundary.

More detail on the requested amendments is included below.

1) Storage of processed recycled glass

Glass waste is accepted on the site for storage on a low-permeability hardstand, after which it goes through a screening process to remove contaminants (such as paper and plastics) and is crushed into a final product. The final crushed glass is mixed with crushed concrete and eventually sold in this form.

Condition 1.2.3 (Table 1.2.2) of the Licence states: "All putrescible waste must be stored on a hardstand area surrounded by bunds which is designed to prevent the discharge of any leachate to the environment", with 'hardstand' being defined as: "a surface with a permeability of 10^{-9} metres/second or less". For the purposes of the condition, 'Putrescible waste' is as defined in the *Landfill Waste Classification and Waste Definitions* (as amended) but is limited to green waste and recycled glass for the this Licence.

Grounds for the amendment request as stated by the Licence Holder are as follows:

- The requirement for storage of processed recycled glass on a low-permeability hardstand is not commensurate to the level of environmental risk of leachate;
- Processed glass has had contaminants removed through the screening process;
- Based on a chemical analysis of the processed glass, it does not exceed the thresholds in the *Landfill Waste Classifications and Waste Definitions 1996 (as amended)* (LWCWD) for Class I landfills.

2) Definition of 'non-biodegradable plastics'

As part of its Class I inert landfill (Category 63) activities, the Licence Holder accepts inert construction and demolition wastes for burial that inherently contain some plastic contamination. Under the LWCWD, some plastics are considered as 'Inert Waste Type 2', and therefore suitable for burial at Class I inert landfill facilities. Under the LWCWD, inert wastes are defined as being "non-hazardous, non-biodegradable (half-life greater than 2 years)".

In 2016, the Licence was amended to clarify that the burial of inert (non-biodegradable) plastics was allowed, resulting in the addition of the following definition for non-biodegradable plastics:

'non-biodegradable plastics' means strapping, pipes, buckets, cable reels and pallets which have arrived within loads of construction and demolition waste, providing they are clean of any chemical or putrescible residues, and have a half-life of greater than 2 years (for example polypropylene, high-density polypropylene and nylon)

As part of their amendment request, the Licence Holder has requested the reference to "strapping, pipes, buckets, cable reels and pallets" be removed from the definition. The inclusion of the examples limits the scope of non-biodegradable plastics that can be received, as there are other plastics with a half-life of more than two years which could be received under the LWCWD.

3) Recycled lime product

The Licence Holder is proposing to receive approximately 4,160 tonnes of lime product annually and to store up to 5,000 tonnes of product at the premises on an annual basis for reuse/ resale outside of the premises.

The application proposes that the recycled lime product will be stored as follows:

- Dimensions: 50 metres Long X 50 metres wide x 350 mm Height
- Lining: None
- Bund details: 500 mm on sides
- Design permeability: Based on the PSD (Particle Size Distribution) data received the D10 value for material is about 0.2mm
- So, the permeability is 10⁻⁴
- This value is typical of the material in its loosest state. This material will be compacted to 95-97% - required dry density ratio and permeability will alter, as obviously the air voids between particles will be much less.
- Unfortunately a test will need to be performed after construction to get an accurate indication of permeability in its compacted state.

The product is to be used as an agricultural lime soil ameliorant and the Licence Holder has identified that it will be received from Southern Seawater Desalination Plant (SSDP) located to the north of Binningup. *"The material is a by-product from the use of Hydrated Lime which is used in the water potabilisation process. The plant had SGS Laboratories conduct a chemical analysis of the material and the results indicated that it was basically a dolomitic lime (Ca/Mg lime) with a soil pH of 12.0. The lime has approximately a 70-30 ratio of calcium (as CaCO₃) to magnesium (as MgCO₃), with its calcium hydroxide and calcium oxide concentrations (percent weight/weight) ranging from 2.6-12% and 2-9%, respectively. The chemical composition of the lime by-product produced by this plant should remain relatively constant based on the specifications of the commercial hydrated lime product (Cockburn Cement and Chememan). These chemical supply companies have strict chemical composition requirements for their products. The Desalination plant and Peel Resource Recovery Pty Ltd (PRR) will have the lime analysed on a regular basis (before each planting/application season).*

The lime's chemical analysis along with its pH level will be handed to customers buying this product. There will be a recommendation to utilise a soil scientist who can calculate the appropriate application rate for them."

The Licence Holder undertook testing in July 2017 (through SGS Laboratories) of the lime product against LWCWD guidelines, and has determined that the product meets Class I – Inert solid waste contaminant and leachability values.

The lime product is proposed to be stored next to the screening and crushing area within the premises boundary. The product has a pH of 12 which will require adequate containment infrastructure to ensure that the premises is compliant with Schedule 1 of the *Environmental Protection (Unauthorised Discharges) Regulations 2004*.

The total annual volume of lime received at the premises will be required to comply with the throughput capacity total for the premises under the existing Licence Category 62 – Solid Waste Depot, of 50,000 tonnes per annual period.

Amendment history

Table 2 provides the amendment history for L7060/1997/13.

Table 2: Licence amendments

Instrument	Issued	Amendment
L7060/1997/13	21/08/2014	Licence reissue. Category 61A removed. Issued for 5 years.
L7060/1997/13	18/02/2016	Licence amendment. Acceptance of plastics for landfilling, and increase to approved capacity for solid waste depot (50,000 – 300,000 tpa) and crushing of building material (15,000 – 65,000 tpa).
L7060/1997/13	29/04/2016	Amendment Notice Extension of expiry date to 11 September 2025
L7060/1997/13	28/02/2017	Amendment Notice 1 Review of green waste storage conditions
L7060/1997/13	5/01/2018	Amendment Notice 2 Review of processed glass storage conditions and plastics definition (May 2017), and recycling of lime product inclusion (September 2017)

Location and receptors

Table 3 below lists the relevant sensitive land uses in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 3: Receptors and distance from activity boundary

Residential and sensitive premises	Distance from Prescribed Premises
Industry: Putrescible landfill site (Shire of Harvey)	Immediately adjacent and to the north of the Premises
Industry: Transport company (Agsread Bulk Haulage)	Immediately adjacent and to the west of the Premises
Industry: Transport and earthmoving company (B & J Catalano Pty Ltd)	Immediately northwest of the Premises
Special Residential area	400m to the west of the Premises boundary
Residential Development	360m to the southwest of the Premises boundary

Special Rural area	260m to the southwest of the Premises boundary
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Table 4 below lists the relevant environmental receptors in the vicinity of the Prescribed Premises which may be receptors relevant to the proposed amendment.

Table 4: Environmental receptors and distance from activity boundary

Environmental receptors	Distance from Prescribed Premises
Shallow groundwater	The soil on the premises is sandy and there is a shallow aquifer (2 – 4 mBGL) under the Premises
Brunswick River	250 metres south
Conservation category geomorphic wetland - Dampland	90m east of the eastern Premise boundary
Conservation category geomorphic wetland - Floodplain	Immediately adjacent to southern Premises boundary
<i>Peel Harvey Environmental Protection Policy (EPP)</i>	Premises falls within policy area

Risk assessment

Table 5 below describes the Risk Events associated with the amendment consistent with the *Guidance Statement: Risk Assessments*. It identifies whether the emissions present a material risk to public health or the environment, requiring regulatory controls.

Table 5: Risk assessment for proposed amendments during operation

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
<p>Category 62:</p> <p><i>Solid waste depot</i></p>	Storage of potentially contaminated processed glass on unlined area	Contaminated stormwater / leachate generation	<p>Groundwater quality: The soil on the premises is sandy and there is a shallow aquifer (under the Premises). There are a number of groundwater bores within 1km and downgradient (S – SW) of the Premises for domestic uses or garden irrigation.</p> <p>Surface water quality: The Brunswick River is located approximately 250 metres south of the operational area of the Premises. The southern (vegetated) portion of the Premises immediately borders the river</p>	Infiltration through soil into shallow groundwater, and potentially recharging nearby surface water	Contamination of shallow groundwater, recharging nearby surface water	<p><i>Major</i></p> <p>Mid-level offsite impacts; Specific consequence criteria for environment not met</p>	<p><i>Almost certain</i></p> <p>Risk event is expected to occur in most circumstances</p>	<p><i>Extreme</i></p> <p><i>Contaminant analysis undertaken on a representative sample initially determined that the (processed glass indicates it met Class I (inert) waste criteria for all sampled contaminants.</i></p> <p><i>The applicant advises that recycled glass is no longer received and therefore processed glass volumes are decreasing with time, minimising the likelihood of contamination of shallow groundwater occurring. However, a DWER inspection of the premises identified leachates occurring with elevated nutrients (TN 1,300 mg/L, Ammonia 200 mg/L, TP 48 mg/L) and heavy metal content (lead and nickel especially).</i></p> <p><i>Soils at the Premises are well-drained and sandy increasing the risk of leachate transport to shallow water table.</i></p>

Risk Event					Consequence rating	Likelihood rating	Risk	Reasoning
Source/Activities	Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts				
<p>Category 62:</p> <p><i>Solid waste depot</i></p>	<p>Receipt, storage and handling of recycled lime product</p>	<p>Nutrient loading from leachates (calcium and magnesium) and elevated pH levels</p>	<p>Groundwater quality: The soil on the premises is sandy and there is a shallow aquifer (under the Premises). There are a number of groundwater bores within 1km and downgradient (S – SW) of the Premises for domestic uses or garden irrigation.</p> <p>Surface water quality: The Brunswick River is located approximately 250 metres south of the operational area of the Premises. The southern (vegetated) portion of the Premises immediately borders the river</p>	<p>Infiltration through soil into shallow groundwater, and potentially recharging nearby surface water</p>	<p>Contamination of shallow groundwater, recharging nearby surface water</p>	<p><i>Moderate</i></p> <p>Low-level offsite impacts; Specific consequence criteria for environment not met</p>	<p><i>Possible</i></p> <p>The risk event could occur at some time</p>	<p><i>Medium</i></p> <p><i>Contaminant analysis undertaken on a representative sample (in accordance with LWCWD procedures) agricultural lime indicates it meets Class 1 (inert) solid waste criteria.</i></p> <p><i>The applicant proposes that lime product will be stored within a 500 mm bunded, 350 mm compacted crushed concrete hardstand area with permeability approximately 1×10^{-4} m/s.</i></p> <p><i>pH of the lime product is approximately 12.</i></p> <p><i>Soils at the Premises are well-drained and sandy increasing the risk of leachate transport to shallow water table.</i></p>

<p>Category 63: <i>Class I inert landfill</i></p>	<p>Burial of all non-biodegradable plastics in unlined landfill</p>	<p>Contaminated stormwater / leachate generation from decomposition underground</p> <p>Contaminants may include metals, styrene, sulfates, phthalates, Polychlorinated biphenols (DER 2014)</p>	<p>Groundwater quality</p> <p>The soil on the premises is sandy and there is a shallow aquifer (under the Premises). There are a number of groundwater bores within 1km and downgradient (S – SW) of the Premises for domestic uses or garden irrigation.</p> <p>Surface water quality</p> <p>The Brunswick River (<i>leading into the Leschenault estuary</i>) is located approximately 250 metres south of the operational area of the Premises. The southern (vegetated) portion of the Premises immediately borders the river</p>	<p>Infiltration through soil into shallow groundwater, and potentially recharging nearby surface water</p>	<p>Contamination of shallow groundwater, recharging nearby surface water</p>	<p><i>Moderate</i></p> <p>Specific consequence criteria for environment (ANZECC Guidelines) and human health (DoH 2014) at risk of not being met in the long term</p>	<p><i>Possible</i></p> <p>The risk event could occur at some time</p>	<p><i>Medium</i></p>	<p><i>The Licence Holder is currently authorised to bury up to 35,000 tonnes of inert waste type 2 per year. The Licence Holder suggests that all plastics are non-biodegradable and is therefore seeking to bury any plastics which are received.</i></p> <p><i>The Premises has a shallow water table and any rainfall drains freely into the sandy soils. The access of water and oxygen into the waste mass may facilitate more rapid degradation of plastics. Contaminants from plastic breakdown such as phthalates can occur for decades from unlined municipal landfills (Bauer & Herrmann 1997)</i></p> <p><i>Site elevations indicate the Brunswick River is likely to receive any subsurface flows from shallow groundwater under the landfill.</i></p> <p><i>The derivatives of plastic degradation may include endocrine disrupting chemicals (e.g. phthalates and BPA, Oehlmann et al. 2009) and carcinogens (e.g. benzene, lead, styrene, dioxins, CDC 2016) which could have direct impacts on the ecology of the surface water body and health impacts on users of groundwater bores.</i></p>
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		<p>Leachate from burning plastics in the case of fire</p> <p>Contaminants may include metals, styrene, sulfates, phthalates, Polychlorinated biphenols (DER 2014)</p>				<p><i>Major</i></p> <p>Short-term impacts expected to an area of high conservation value (Brunswick River, and the associated Conservation Category Geomorphic Wetland – Dampland) and potential exceedance of specific consequence criteria (DoH 2014)</p>	<p><i>Rare</i></p> <p>The risk event may only occur in exceptional circumstances</p>	<p><i>Medium</i></p>	<p><i>The Premises is fenced and locked when unattended; however plastics are not currently landfilled with any special fire management.</i></p> <p><i>The overall likelihood of the risk event is considered to be rare, given that fire itself would be an exceptional circumstance.</i></p>
		<p>Smoke emissions in the case of a fire</p> <p>Carbon monoxide, free radicals, Particulates, heavy metals, PAH's (Valavanidis et al. 2008)</p>	<p>Air quality</p> <p>The Premises is located in close proximity to a 'special residential' area (400m west of the Premises).</p>	<p>Air and wind dispersion</p>	<p>Localized air pollution affecting the health of nearby human receptors (rural and residential developments within 500m).</p>	<p><i>Major</i></p> <p>High impacts to health and amenity in the short term (smoke) and potential mid- level health effects (inhalation of derivatives from burning plastic such as Carbon monoxide, dioxins, furans, PAH, alkanes, and phthalates)</p>	<p><i>Rare</i></p> <p>The risk event may only occur in exceptional circumstances</p>	<p><i>Medium</i></p>	<p><i>The overall likelihood of the risk event is considered to be rare, given that fire itself would be an exceptional circumstance.</i></p>

		<p>Landfill gas generation from the breakdown of plastics in the waste mass</p> <p>Common landfill gases include carbon monoxide, carbon dioxide, methane and VOC's.</p>	<p>Air quality</p> <p>The Premises is located in close proximity to a 'special residential' area (400m west of the Premises).</p>	<p>Air and wind dispersion</p>	<p>Localized air pollution affecting the health of nearby human receptors (rural and residential developments within 500m).</p> <p>Explosions are not considered to be realistic for the Premises, given the sandy soil structure</p>	n/a	n/a	n/a	<p><i>The Delegated Officer considers that the generation of landfill gas from the breakdown of plastics in the waste mass is not foreseeable due to the slow rate of breakdown of plastics and absence of any other putrescible wastes being buried at the Premises.</i></p>
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Decision

1) Storage of processed recycled glass

The Delegated Officer initially considered that the overall risk to the environment of the proposed storage of processed glass on an unlined area is low. This is largely due to the removal of contaminants prior to crushing and the statement by the Licence Holder that unprocessed glass is no longer being received and therefore stockpiles of processed glass will be reducing over time and eventually discontinued entirely. Sample results (Envirolab 2017) were submitted by the Licence Holder in support of the Amendment Application to demonstrate that the processed glass would be appropriate for disposal at a Class I inert landfill site (in accordance with the LWCWD) and therefore storage on a hardstand was not necessary.

The Licence Holder also confirmed that sampling was undertaken via four 4 – 5 kg samples taken from varying locations and depths of the 200m³ stockpile of processed glass on the Premises at the time. The Delegated Officer considers that this methodology is in accordance with the LWCWD recommendations for representative sampling of bulk waste stockpiles.

However, a site inspection carried out at the premises identified that leachates were being generated from the glass stockpiles, and testing of the emissions identified high nutrient and heavy metal content. The Delegated Officer has revised the initial determination and considers that the potential risk to the environment of the proposed storage of processed glass on an unlined area is not acceptable. This is largely due to the high contaminant concentration of cumulative leachates generated and emitted to land which is almost certain to occur.

The Delegated Officer has found the request for processed glass to be allowed to be stored on unlined areas is unacceptable. The requirement to store all recycled glass on a bunded, concrete hardstand will remain on the Licence.

Conditions on the Existing Licence:

Conditions 1.2.1 and 1.2.3 on the Existing Licence capture operational controls relating to the quantity of putrescible waste (including recycled glass) allowed to be received and its treatment (including storage on a hardstand and maximum volume allowed to be crushed).

Changes to Conditions:

Condition 1.2.3 has been updated to include authorisation for processed glass which meets Class I waste criteria to be stored on bare ground. Specific verification monitoring has not been included in the licence conditions, as it is expected that the Licence Holder will determine their own system and frequency of verification for this waste, depending on quantities.

2) Definition of 'non-biodegradable plastics'

The Delegated Officer considers that the justification for the applicant's request to amend conditions of the Licence in relation to the definition of 'non-biodegradable plastics' is not relevant. The current amendment is assessed in accordance with DWER's Regulatory Framework. Older licenses will be reviewed as part of DWER's ongoing licence review program and will be risk assessed and conditioned in accordance with DWER's most recent regulatory framework and updated accordingly. The proposed changes to the conditions of the Licence in relation to this definition have therefore not been undertaken.

The Delegated Officer considers that the foreseeable risk events to the environment and public health associated with the burial of additional plastics include leachate from the breakdown of plastics in the landfill over the long term; leachate from the burning of plastics in the case of a fire; and smoke from the burning of plastics in the case of a fire. The level of risk assessed for each of these risk events is medium.

Landfill gas emissions from the breakdown of plastics in the landfill are not considered by the Delegated Officer to be a 'foreseeable' due to the likely slow rate of decomposition of the majority of plastics buried.

Leachate risk events are exacerbated by the local characteristics of the Premises (shallow water table, sandy soils and close proximity to the Brunswick River which is expected to receive shallow groundwater and subsurface runoff from the landfilled waste at the Premises).

In the event of a fire, risk events of leachate and smoke are considered to be major. Although the likelihood of a fire occurring is rare, it is noted that there are no deliberate management measures in place to reduce the risk of these events if a fire does occur. For example, under the Existing Licence, plastics are not currently required to be landfilled in separate batches to reduce the extent of a fire or the risk of the fire spreading throughout the landfill.

Conditions on the Existing Licence:

Conditions 1.2.1 and 1.2.3 on the Existing Licence capture operational controls relating to the quantity of plastics allowed to be accepted, and the management of the waste when it is buried (including location and buffer to groundwater level). Condition 1.2.5 of the Existing Licence sets the cover requirements (minimum depth and frequency) for wastes buried. Under this condition, the requirements of Part 6 of the EP Regulations are required to be adhered to for tyres only, where inert wastes which contain plastics are only required to be buried with 150mm of cover. Condition 2.2.1 on the Existing Licence requires the monitoring of volumes of each waste type accepted, and each waste type leaving (transferred or rejected) the Premises. Condition 2.4.1 of the Existing Licence requires the monitoring of ambient groundwater quality for a range of contaminants, including some heavy metals (e.g. lead) and organics (e.g. PAH, TPH, BTEX and PCB) which may be indicators of plastic biodegradation.

Changes to Proposed Conditions:

The Delegated Officer has determined that a change to the maximum particulate size from 7 mm to 30 mm - in accordance with the applicant's current procedure - is acceptable. The intent of this condition was to minimise void space for fire prevention. The revised maximum particle size is considered adequate for this purpose, given that the proponent proposes to use recycled sand screened at 30mm.

The Delegated Officer has determined that 500mm of cover material as initially proposed is not required. The conditions of the Licence will be amended to reflect a standard cover requirement of 300mm which is consistent with cover requirements across for flammable/hazardous material other prescribed premises within the State, and general industry standard principles for the identified waste type cover requirements.

Condition 1.2.3 has been updated to include a requirement for the burial of waste containing any plastics to be undertaken in separated batches, analogous to the tyre burial requirements under the EP Regulations to reduce fire risk (being 100mm of Clean Fill separating batches). If Inert Waste Type 1 is used for separating batches instead of Clean Fill, the Delegated Officer considers that a maximum particle size of 30mm will achieve sufficient density and minimise pore space to provide any buffering for fire spread, and has therefore set this as a requirement.

Condition 1.2.5 of the Existing Licence has been amended to specify that where Inert Waste Type 1 is used to cover Inert Waste Type 2, it must have a maximum particle size of 30mm for the same reason explained under Condition 1.2.3 above. An additional requirement for 300mm of final cover (of Inert Waste Type 1 only), has also been added to reduce future fire risk.

Condition 2.2.1 has been updated to include a requirement to monitor the volumes of each of the waste types committed to the landfill for burial. This will enable the Delegated Officer to have a more accurate understanding of the volumes of plastics, and other wastes which are buried at the Premises.

Condition 2.4.1 has been updated to include a requirement to monitor phthalates in groundwater bores on an annual basis, as an additional indicator for pollution leaching from the biodegradation of plastics within the waste mass.

3) Recycled lime product

The Licence Holder has stored recycled lime product historically, however the characterisation of this material has not been adequately captured within the Licence.

The Delegated Officer considers that the recycled lime product is a hazardous solid waste in its concentrated form (as it is an oxidative agent which poses a risk to the environment as per the definition of hazardous waste in the LWCWD). The product has a high pH (12) which is normally prohibited from discharge to the environment under Schedule 1 of the *Environmental Protection (Unauthorised Discharges) Regulations 2004*. Exemptions are provided however for products applied to land in accordance with manufacturer's specifications.

The Delegated Officer has determined that it is necessary to ensure that all contaminated stormwater or leachate from the lime product stockpiles are contained within the premises boundary and that all product received is stored within a bunded, impervious area. All product sold from the premises must be accompanied with manufacturers specifications to ensure appropriate land application of the product and avoid potential offences under the *Environmental Protection (Unauthorised Discharges) Regulations 2004*.

The Licence Holder has advised that dust and noise associated with the recycled lime product process will be managed as follows:

"Dust:

- (a) *Water Trucks are always filled and available on the site to control dust.*
- (b) *Fixed sprinklers which run on bore are additional - helps in dust management.*

Noise:

Noise will be kept to a minimum and will be less than the crusher & screener which are used in the same area.

This area is a void area in the pit going downhill which creates an excellent sound barrier."

Changes to conditions

The Delegated Officer considers that ongoing testing of the product, as defined by the Licence Holder, to be appropriate.

Table 1.2.1 of the existing Licence has been amended to include hazardous waste for the acceptance of recycled lime product.

Table 1.2.2 of the existing Licence has been amended to define the storage and processing requirements of the recycled lime product, and includes the provision of product characterisation and application specifications to customers.

No other changes are proposed as the existing licence already requires the monitoring of the relevant parameters for ambient groundwater within condition 3.8.1, and management of dust emissions within condition 2.6.1 of the Licence.

Other changes initiated by DWER

Following a compliance inspection conducted in May 2017, it is apparent that the Licence Holder occasionally receives loads of timber, or loads of construction and demolition waste which contain timber. Timber is removed from mixed waste loads through the screening process and sold to a third party for reuse. This is not technically in compliance with the Existing Licence which restricts acceptance of putrescible wastes to recycled glass and green waste

Changes to conditions

The Delegated Officer considers the risks to the environment of accepting and storing untreated timbers are identical to green waste, and as such Condition 1.2.1 has been amended to include untreated timber, as defined in the LWCWD.

Condition 1.2.3 of the Existing Licence has also been amended to include timber under the same processing requirements that are set for green waste, to ensure the level of risk to the environment does not change from that which was originally assessed for green waste.

Licence Holder's comments

The Licence Holder was provided with the draft Amendment Notice on 27 August 2017 via email, with a revised draft resubmitted to the Licence Holder on 8 November 2017.

Comments received from the Licence Holder, via email on 14 September 2017, have been considered by the Delegated Officer as shown in Appendix 2.

Amendment

1. Definitions of the Licence are amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

'CEO' means ~~Chief Executive Officer of the Department of Environment Regulation of the Department Administering the Environmental Protection Act 1986;~~
Chief Executive Officer of the Department Administering the Environmental Protection Act 1986;

'CEO' for the purpose of correspondence means;

Chief Executive Officer
Department Administering the Environmental Protection Act 1986
Locked Bag 33
CLOISTERS SQUARE WA 6850
Email: ~~info@der.wa.gov.au~~ info-der@dwer.wa.gov.au

'non-biodegradable plastics' means ~~strapping, pipes, buckets, cable reels and pallets~~
plastics which have arrived within loads of construction and demolition waste, providing they are clean of any chemical or putrescible residues, and have a half-life of greater than 2 years (for example polypropylene, high-density polypropylene and nylon);

2. Condition 1.2.1 of the Licence is amended by the insertion of the red text shown in underline below:

1.2.1 The Licensee shall only accept waste onto the Premises if:

- (a) it is of a type listed in Table 1.2.1; and
- (b) the quantity accepted is below any quantity limit listed in Table 1.2.1; and
- (c) it meets any specification listed in Table 1.2.1.

Table 1.2.1: Waste acceptance		
Waste type	Quantity limit tonnes/ annual period	Specification¹
Inert Waste Type 1	215,000	(i) Inert Waste Type 1 containing paper, plastics, glass, metal and timber is permitted to be accepted ² ; (ii) Inert Waste Type 1 containing visible asbestos or ACM shall not be accepted; and (iii) Biosolids shall not be accepted.
Inert Waste Type 2	35,000	Used tyres, rubber waste and non-biodegradable plastics only.
Hazardous waste	5,000	Recycled lime product only.
Clean fill	25,000	None specified.
Special Waste Type 1	5,000	Cement bonded asbestos. No fibrous asbestos shall be accepted.
Putrescible waste	20,000	Green waste, <u>timber³</u> and recycled glass ⁴ only.

Note 1: Additional requirements for the acceptance of controlled waste (including asbestos and tyres) are set out in the Environmental Protection (Controlled Waste) Regulations 2004.

Note 2: See Table 1.2.2 for further requirements relating to the management of these contaminants.

Note 3: Treated timbers such as copper chrome arsenate, high temperature creosote, pigment emulsified creosote and light organic solvent preservative treated timber are excluded.

Note 4: Recycled glass is classified as putrescible waste due to the propensity for it to be contaminated with putrescible materials such as paper, cardboard, plastics and other residual substances.

3. Condition 1.2.3 of the Licence is amended by the insertion of the red text shown in underline below:

1.2.3 The Licensee shall ensure that wastes accepted onto the Premises are only subjected to the process(es) set out in Table 1.2.2 and in accordance with any process limits described in that Table.

Table 1.2.2: Waste processing		
Waste type	Process(es)	Process limits^{1,2}
Clean Fill	Receipt, handling, processing and/or disposal of waste by landfilling	(i) Disposal of waste by landfilling shall only take place within the active inert landfill area;
Inert Waste Type 1		(ii) Disposal of waste by landfilling shall ensure that a minimum two metres separation is maintained between the base of the material being landfilled and the highest seasonal groundwater level; (iii) All putrescible wastes (paper, plastics ³ , glass, metal and timber, etc.) received with Inert Waste Type 1 must be recovered and segregated for recycling, or stored in a quarantined storage area or container and removed to an appropriately authorised facility as soon as practicable. (iv) Burial of no more than 50,000 tonnes of Inert Waste Type 1 shall be undertaken in any annual period; (v) Crushing of no more than 60,000 tonnes of Inert Waste Type 1 shall be undertaken in any annual period. (vi) <u>By 1 May 2018, all glass products are to be stored within a bunded, concrete hardstand (of 1 x 10⁻⁹ m/s permeability or less) area capable of containing all leachates and/ or contaminated stormwater.</u>
Inert Waste Type 2		(i) No more than 100 tyres can be stored on the premises at any time; (ii) Disposal of tyres and rubber by landfilling shall only occur in the designated tyre monofil area; (iii) Disposal of non-biodegradable plastics by landfilling shall occur in the active inert landfill area. (iv) <u>Disposal of non-biodegradable plastics by landfilling shall occur in separate batches of no more than 40m³, separated on all sides by at least 100 mm of Clean Fill or Inert Waste Type 1⁴</u> (v) Disposal of waste by landfilling shall ensure that a minimum two metres separation is maintained between the base of the material being landfilled and the highest seasonal groundwater level.
<u>Hazardous waste</u>		(i) <u>All recycled lime product received is to be stored within a bunded, concrete hardstand (1 x 10⁻⁹ m/s permeability or less) area capable of containing all leachates and/ or contaminated stormwater.</u> (ii) <u>Processing of ≤ 4,160 tonnes and storage of ≤ 5,000 tonnes of recycled lime product per annual period.</u> (iii) <u>Purchasers of any processed recycled lime product sold for offsite use are to be supplied with representative contaminant and pH analysis (on a per-batch basis) along with manufacturers' specifications for application of the recycled lime product to land.</u>
Special Waste Type 1		(iv) Disposal by landfilling shall only occur in the designated asbestos disposal area. (v) No works shall be carried out on the landfill that could lead to a release of asbestos fibres.

Putrescible waste	Receipt, handling, storage and processing	<p>(i) Putrescible waste (with the exception of green waste) must be stored on a <u>concrete bunded</u>, hardstand area designed to prevent the discharge of any leachate to the environment.</p> <p>(ii) Mulching of green waste is permitted.</p> <p>(iii) No more than 1000m³ of green waste (unprocessed or mulched) <u>and timber</u> is stored or stockpiled on the Premises at any time.</p> <p>(iv) Crushing and/or screening of no more than 5,000 tonnes of recycled glass shall be undertaken in any annual period.</p> <p>(v) Disposal of green waste, <u>timber</u> and recycled glass by burning or landfilling is prohibited.</p>
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Note 1: Requirements for landfilling tyres are set out in Part 6 of the Environmental Protection Regulations 1987.

Note 2: Additional requirements for the acceptance and landfilling of controlled waste (including asbestos and tyres) are set out in the Environmental Protection (Controlled Waste) Regulations 2004.

Note 3: With the exception to non-biodegradable plastics (Inert Waste Type 2) which are permitted to be landfilled.

Note 4: Free of non-biodegradable plastics and/or any other contaminants, and with a maximum particle diameter of 30 mm.

4. Condition 1.2.5 of the Licence is amended by the insertion of the red text shown in underline below:

1.2.5 The Licensee shall ensure that cover is applied and maintained on landfilled wastes in accordance with Table 1.2.3 and that sufficient stockpiles of cover are maintained on site at all times.

Table 1.2.3: Cover requirements

Waste Type	Material	Depth	Timescales
Special Waste Type 1	Inert waste Type 1 ¹ or Clean fill	300 mm	As soon as practicable after deposit and prior to compaction.
		1 000 mm	By the end of the working day in which the asbestos waste was deposited.
Inert Waste Type 2 (tyres and rubber)	In accordance with Part 6 of the Environmental Protection Regulations 1987		
Inert Waste Type 1 ¹	No cover required		
<u>Inert Waste Type 2 (non-biodegradable plastics); or Inert Waste Type 1 mixed with Inert Waste Type 2 (non-biodegradable plastics)</u>	Inert waste Type 1 ¹ <u>with a maximum particle diameter of 30mm;</u> or Clean fill	150 mm	As soon as practicable after deposit and prior to compaction.
		<u>300 mm</u>	<u>Final cover</u>

Note 1: Free of non-biodegradable plastics and/or any other contaminants.

5. Condition 2.2.1 of the Licence is amended by the deletion of the text shown in strikethrough below and the insertion of the red text shown in underline below:

2.2.1 The Licensee shall undertake the monitoring in ~~Table 2.2.1~~ according to the specifications in that table.

Table 2.2.1: Monitoring of inputs and outputs

Input/ Output	Parameter	Units	Averaging period	Frequency
Waste inputs	Clean Fill, Inert Waste Type 1, Inert Waste Type 2, Putrescible Waste, Special Waste Type 1	m ³ and estimated conversion to tonnes for	Monthly totals	Each load arriving at the Premises

<u>Waste inputs¹</u>	<u>Clean Fill, Inert Waste Type 1, Inert Waste Type 2</u>	each waste type		<u>All waste landfilled at the Premises</u>
Waste outputs	Waste type as defined in the Landfill Definitions			Each load leaving or rejected from the Premises

Note 1: Including wastes moved from onsite storage and screening activities to the active landfill area.

6. Condition 1.2.5 of the Licence is amended by the insertion of the red text shown in underline below:

2.4.1 The Licensee shall undertake the monitoring in Table 2.4.1 according to the specifications in that table.

Table 2.4.1: Monitoring of ambient groundwater quality				
Monitoring point reference and location	Parameter	Units	Averaging period	Frequency
GQ1 (B1)	Standing water level ¹	m AHD	Spot sample	Six monthly
GQ2 (B2)	pH ¹	pH unit		
GQ3 (B3S)	Electrical conductivity ¹	µS/cm		
GQ4 (B3D)	Redox potential ¹	Eh		
GQ5 (B4S)	Chemical oxygen demand	mg/L		
GQ6 (B4D)	Nitrate-nitrogen			
GQ7	Ammonia-nitrogen			
GQ8	Total nitrogen			
GQ9	Total phosphorus			
GQ10	Total dissolved solids			
GQ11	Total organic carbon			
	Dissolved oxygen ¹			
	Major cations and anions: calcium, magnesium, potassium, sodium, chloride, bicarbonate and sulphate			
	Heavy Metals: Aluminium, Arsenic, Cadmium, Chromium, Copper, Iron (total) Lead, Manganese, Mercury, Nickel, Selenium and Zinc			
	Organics: <u>Phthalates</u> , Phenols, Polyaromatic hydrocarbons (PAH), Organochlorine pesticides, Organophosphate pesticides (Demeton-S-Methyl, Diazinon, Dimethoate, Fenamiphos, Fenthion, Malathion and Parathion), Polychlorinated biphenyls (PCB), Atrazine, BTEX (benzene, toluene, ethylbenzene, xylens), Total Petroleum Hydrocarbons and Trichloroethylene/ Perchloroethylene		Annual	

Note 1: In-field non-NATA accredited analysis permitted.

Appendix 1: Key documents

	Document title	In text ref	Availability
1	<i>Letter: Amendment for processed glass hardstand</i>	10/04/2017	DWER records (A1475599)
2	<i>Email: Licensee feedback on proposed licence amendment – processed glass storage</i>	13/09/2017	DWER records (A1522352)
3	<i>Email: Cross Resource Management – Processed Glass Stockpile Leachate, from Jack Elwin (DWER Compliance and Enforcement), with 6 attachments:</i>	14/09/2017	DWER records (A155362)
	<ul style="list-style-type: none"> • 5 photographs • 200255-[R00]: ENVIROLAB analysis 		
4	<i>Email: Lime recycling – licence amendment & general timber query</i>	10/08/2017	DWER Records (A1504525)
5	<i>Email: Licence amendment – Recycling Lime L7060/1997/13, received 8/09/2017 from Beena Verma (Peel resource Recovery) with five attachments:</i>	08/09/2017	CEO2560/17 DWER records (A1519528)
	<ul style="list-style-type: none"> • Application form • SGS – Analytical Report 		
	<ul style="list-style-type: none"> • Corrosive to metals 7 Day Test for solid sample report FINAL 		
	<ul style="list-style-type: none"> • Recycling lime – FINAL 		
	<ul style="list-style-type: none"> • Stanley Rd map 		
6	<i>Email: Response to query from DWER regarding chemical composition of SSDP lime and process, received 11/08/2017 from Beena Verma (Peel Resource Recovery)</i>	Grant Griffith 11/08/2017	DWER Records (A1504522)
7	<i>Landfill Waste Classifications and Waste Definitions 1996 (as amended)</i>	LWCWD	accessed at www.wasteauthority.wa.gov.au
8	<i>Guideline: Assessment and management of contaminated sites (Department of Environment Regulation, December 2014)</i>	DER 2014	accessed at www.dwer.wa.gov.au
9	<i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality (Australian and New Zealand Environment and Conservation Council, and Agriculture and Resource Management Council of Australia and New Zealand; October 2000)</i>	ANZECC Guidelines	accessed at https://environment.gov.au/
10	<i>Contaminated Sites Ground and Surface Water Chemical Screening Guidelines (Department of Health 2014)</i>	DoH 2014	Accessed at http://ww2.health.wa.gov.au/Articles/AE/Contaminated-Land
11	<i>CERTIFICATE OF ANALYSIS 193339</i>	Envirolab	DWER records (A1412953)

	(Envirolab, issued 27/03/2017, submitted by the Licence)	2017	
12	<i>Estimation of the environmental contamination by phthalic acid esters leaching from household wastes</i> (Bauer, M. J. and Herrmann, R., Science of the Total Environment, vol. 208, Issues 1-2, December 1997)	Bauer & Herrmann 1997	Accessed at http://www.sciencedirect.com/
13	<i>A critical analysis of the biological impacts of plasticizers on wildlife</i> (Oehlmann et al., Philosophical Transactions of the Royal Society B, Volume 364, issue 1526, 27 July 2009)	Oehlmann et al. 2009	Accessed at http://rstb.royalsocietypublishing.org/
14	<i>National Biomonitoring Program; Chemical Factsheets</i> (Centers for Disease Control and Prevention, Updated December 2016)	CDC 2016	Accessed at https://www.cdc.gov/exposurereport/index.html
15	<i>Persistent free radicals, heavy metals and PAHs generated in particulate soot emissions and residue ash from controlled combustion of common types of plastic</i> (Valavanidis et al., Journal of Hazardous Materials, vol 156., issues 1-3, 15 August 2008)	Valavanidis et al. 2008	Accessed at http://www.sciencedirect.com/science/article/pii/S0304389407017694
16	<i>Characteristics of organic matter in PM2.5 from an e-waste dismantling area in Taizhou, China</i>	Gu et al. 2010	Accessed at http://www.sciencedirect.com/science/article/pii/S0045653510005412

Appendix 2: Summary of Licence Holder comments

Condition	Summary of Licence Holder comment	DWER response
<p>Condition 3: Definition of non-biodegradable plastics</p>	<p>Inconsistencies with conditions of Licence for separate premises.</p> <p>Cover depth of 500 mm is onerous and is greater than depth of trench.</p> <p>7mm particle size is at variance with current 30mm screens onsite which produces 0-30mm (particle size) sand. We have to source smaller screen size which is a significant cost.</p>	<p>The Delegated Officer does not consider the comment to be relevant to the current amendment. The current amendment application is assessed in accordance with DWER's Regulatory Framework. Older licenses which may have been assessed under earlier protocols will be reviewed as part of DWER's ongoing licence review program and will be risk assessed in accordance with DWER's most recent regulatory framework and conditions may be updated accordingly.</p> <p>Approved. The conditions of the Licence will be amended to reflect a standard cover requirement of 300mm which is consistent with cover requirements for flammable/hazardous material other prescribed premises within the State.</p> <p>Approved. Relevant conditions/ section changed within the Licence. Intent was to minimise void space for fire prevention – 30mm maximum particle size will be adequate for this purpose given proponent proposes to use recycled sand.</p>

<p>Comments received from applicant on 21 November 2017</p>	<p>All changes accepted for proposed amendment, with one comment regarding glass management at the premises:</p> <p><i>“We request you to provide a little bit of time frame say end of April to finish construction of pad.</i></p> <p><i>As we are not taking anymore the main point is the existing crushed Glass stockpile.</i></p> <p><i>No leachate will be produced during the summer months anyway.</i></p> <p><i>This way it gives us time to get rid of existing glass and building a pad as per licence condition.”</i></p>	<p>The Delegated Officer has approved the inclusion of the proposed timeframe within the proposed amendment, as shown in Table 1.2.2, ‘Inert waste type 1’ process limit requirement (vi).</p> <p>The requirement stipulated has been determined to take effect as of 1 May 2018.</p> <p>DWER Internal records (A1565983)</p>
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