Government of Western Australia
Department of Environment Regulation

Decision Document

Environmental Protection Act 1986, Part V

Proponent: Shire of East Pilbara

Licence: L7059/1997/13

Registered office: Corner Kalgan & Newman Drives,
NEWMAN WA 6753

Premises address: Newman Refuse Site
Reserve 44274, Lot 129,
NEWMAN, WA, 6753
Being Lot 129 on Plan 218264 as depicted in Schedule 1.

Issue date: Friday 25 June 2010

Commencement date: Monday, 28 June 2010

Expiry date: Monday, 27 June 2031

Decision

Based on the assessment detailed in this document, a decision has been made to issue an amended Licence. It is considered that in reaching this decision, all relevant considerations have been taken into account.

Decision Document prepared by: Chris Slavin
Licensing Officer

Decision Document authorised by: Steve Checker
Manager Licensing

Contents

1 Purpose of this Document

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

2 Administrative summary

Administrative details		
Application type	Works Approval ☐ New Licence ☐ Licence amendment ☒ Works Approval amendment ☐	
Activities that cause the premises to become prescribed premises	**Category number(s)**	**Assessed design capacity**
	61	32,000 tonnes per annual period
	62	12,000 tonnes per annual period
	64	50,0000 tonnes per annual period
Application verified Application fee paid	Date: N/A Date: N/A	
Works Approval has been complied with Compliance Certificate received	Yes☐ No☐ N/A☒ Yes☐ No☐ N/A☒	
Commercial-in-confidence claim	Yes☐ No☒	
Commercial-in-confidence claim outcome	N/A	
Is the proposal a Major Resource Project?	Yes☐ No☒	
Was the proposal referred to the Environmental Protection Authority (EPA) under Part IV of the *Environmental Protection Act 1986*?	Yes☐ No☒	Referral decision No: Managed under Part V ☐ Assessed under Part IV ☐
Is the proposal subject to Ministerial Conditions?	Yes☐ No☒	Ministerial statement No: EPA Report No:
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the *Environmental Protection Act 1986*)?	Yes☐ No☒ Department of Water consulted Yes ☐ No ☒	
Is the Premises within an Environmental Protection Policy (EPP) Area Yes☐ No☒ If Yes include details of which EPP(s) here.		
Is the Premises subject to any EPP requirements? Yes☐ No☒ If Yes, include details here, eg Site is subject to SO_2 requirements of Kwinana EPP.		

3 Executive summary of proposal and assessment

The Shire of East Pilbara (the Shire) operate the unlined (Class II) Newman Landfill (the Landfill) located on Crown Reserve 44274, Newman. Newman is approximately 1186km north-east of Perth. The landfill is approximately 1.3km south of the Town of Newman (the nearest residential receptor). The Shire has operated the landfill since 1979 and contracts East Pilbara Recycling for the day to day management of the site. The landfill services the town population and surrounding mining camps; most of the waste received is construction and demolition (C&D) waste, municipal kerbside collected waste, and commercial & industrial wastes.

The site accepts:

- Inert Wastes Type 1;
- Inert Wastes Type 2;
- Putrescible Waste (including green waste);
- Special Wastes Type 1 (requires disposal by appointment to the Landfill)
- Special Wastes Type 2.
- Contaminated solid waste (requires meeting Class II landfill definitions and classification criteria)
- Liquid hazardous waste
- Liquid putrescible and organic wastes

Landfilling in undertaken in both trenches and above ground. Green waste is cured and burned under the direction of a Bushfire Control Officer. Some materials such as metals are stockpiled and removed on a campaign basis. Greater recycling will be undertaken in future with the proposed installation of a MRF on site.

A Liquid Waste Facility (LWF) also exists at the Landfill. The LWF accepts sewage, septage waste and grease trap waste from mining camps in the local area. Wastewater is treated in two anaerobic ponds, a facultative pond and a final aerobic pond, which has two aerators and lime dosed to assist in ammonia digestion which also assists with odour reduction. Treated Wastewater (TWW) is discharged via a pipeline to an unlined area of the landfill which is then left to evaporate and infiltrate.

The Shire have also constructed a Materials Recycling Facility (MFR). The MRF is a prefabricated mechanical model where waste materials for separation are firstly deposited in concrete bays 2m high where the sides of the containment structure act as push walls for the loader to deliver waste to the MRF feed conveyor which is followed by screening and placement on a manual picking conveyor with recyclables being deposited below the conveyor in designated recycle bins. Once enough recovered recyclables have collected in the recycle receival bays below the materials will be collected by front end loader and placed on the feed conveyor located in the baler shed which feeds the baler. The bales are then stored in an adjacent recyclables shed prior to removal from the landfill site.

Topography of the site is generally flat, surrounded by rocky hills on the east and west. Geological survey mapping indicates that the area forms part of the Hamersley Basin with medium to course grained metal-dolerite intruded into the Fortescue Group. The underlying geology as being part of the Jeerinah Formation: interbedded mudstone, siltstone and chert with minor-felsic tuff, dolomite and sandstone. The soil landscape zone for this area is described as having stony soils with red shallow loams and some red/brown non-cracking clays. Local soils at the landfill are described as Pindan.

The MRF will operate separately from the landfill and initially will process the yellow bin recycle pick up from Newman residents. Future plans include additional separated recyclables to be accepted from mine sites and reprocessed and baled. The initial yellow bin supply is around 10 tonnes per week. Once all Newman residents are serviced by the recycle pick up this throughput will rise to 30 tonnes per week. Once this throughput has been achieved then other recyclable feed stock will be

sourced from the waste carriers up to a maximum around 40 tonnes per day. The MRF can operate at 4 tonnes per hour with a maximum output capacity of 12,000 tonnes per annual period. The Shire have outlined that the maximum capacity of the MRF is unlikely to be reached at the present time.

There are no water courses in the area and any drainage would flow south. The landfill is surrounded by a Public Drinking Water Area to the north (P1 and P3) and east (P1). Depth to groundwater, as measured from monitoring bores on the Premises, varies between 11.5 to 6.1m below ground level (mbgl) (February 2015 results). Newman experiences an arid climate with a mean annual rainfall of 323 mm and a mean annual pan evaporation rate of approximately 3733mm.

The main emissions from the landfill is potential odour from landfilling putrescible waste, processing of wastewater at the LWF and potentially landfill leachate coming into contact with stormwater and affecting local groundwater. There are no point source emissions to air, groundwater or surface water.

This licence amendment relates to consideration of findings from the May 2015 compliance audit, review of 2015 annual reporting, and updating the licence to the latest template format. A risk assessment has been undertaken with the licence conversion for discharges to land, odour and fugitive emissions.

4 Decision table

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

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
Premises operation	L1.2.1 - L1.2.15	Emission Description *Emission: S*tormwater contaminated with leachate from landfilling operations and stormwater contaminated with effluent from treatment ponds. *Impact:* Contamination of surrounding land and surface water drainage systems. Potential impacts on ecology of surface water from addition nutrients and heavy metals. Groundwater at the landfill is between 6 -11.5 metres below ground level (mbgl). *Controls:* The Shire directs stormwater away from active landfilling operations and the LWF by the use of drainage swales. The drainage swales are diverted to the centre of the Landfill and allowed to evaporate. Risk Assessment *Consequence*: Minor *Likelihood:* Unlikely *Risk Rating:* Moderate Regulatory Controls L1.2.1 has been added to the Licence, which replaces condition 11 of the previous Licence, to ensure all stormwater is prevented from being contaminated by activities onsite and that contaminated or potentially contaminated stormwater is retained onsite, or treated as necessary prior to being discharged from the Premises. Residual Risk	General provisions of the *Environmental Protection Act 1986* Environmental Protection (Controlled waste) Regulations 2004 Application supporting documentation *Environmental Protection (Unauthorised Discharges) 2004*

DECISION TABLE			
Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Consequence: Minor *Likelihood:* Rare *Risk Rating:* Low <u>Emission Description</u> *Emission:* Operation of the landfill could impact surrounding soils surface water and groundwater from leaching of contaminants due to the decomposition of wastes accepted for disposal. There are also risks associated with fires, pests and vermin, unacceptable odours and windblown waste should waste types not be managed appropriately once accepted at the WMF. Hazardous wastes such as asbestos and biomedical waste will be accepted at the Landfill *Impact:* Contamination of surrounding land, surface water and groundwater drainage systems. Potential impacts on ecology of surface water from the addition of nutrients and heavy metals. Groundwater is located between 6 -11.5 (mbgl). While the landfill is outside the PDWA, groundwater is extracted at BHP's Mt Whaleback mine for potable water to service the Town of Newman from upstream of the landfill. *Controls:* These waste types require a range of management techniques to ensure risks to the public and the environment are adequately mitigated and will include management of the landfill to best practice standards. Contaminated solid waste accepted for disposal must comply with the "*Landfill Waste Classification and Waste Definitions 1996 (As amended)"* guideline. <u>Risk Assessment</u> *Consequence*: Minor *Likelihood:* Possible *Risk Rating:* Moderate <u>Regulatory Controls</u>	

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Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		L1.2.2 has been added to the Licence, which replaces condition 1 of the previous Licence to ensure only specified waste is accepted at the Landfill. Special Waste Type 2 wastes have been better defined to exclude radioactive wastes (which need Department of Health approval). L1.2.3 has been added to the Licence to ensure that non confirming waste is stored appropriately and removed to an appropriately authorised facility as soon as practicable. L1.2.4 outlines the waste processing requirements, which replaces condition 2 (iv) and (vii), 3 (4 (i), (ii), (iii), and (vii), 10 (b), 12 and 13 (a) of the previous Licence to ensure only accepted waste is processed to reduce potential health impacts such as objectionable odour generation to persons not onsite and environmental impacts such as leachate. Requirements have also been included limiting the storage of tyres and disposal of tyres. Conditions of the previous licence that duplicated other legislative requirements have largely been removed. This includes the conveyance, supervision of burial and completion of registers for Special Waste Type 1 and 2; burning requirement of green waste, and landfilling of tyres. Construction and Demolition waste is not be processed at the MRF, due to potential asbestos fibres released into the atmosphere. L1.2.5 has been added to the Licence to ensure the tipping face of the landfill is kept to a manageable size to ensure its integrity for rehabilitation and ability to store waste in an acceptable manner. L1.2.6 has been added to the Licence, which replaces condition 2 (iii), 3 (iv), 4 (iv), (v), (vi) and (viii) of the previous Licence to ensure each waste type is appropriately covered to the depth required and within the timeframes specified to reduce potential health impacts such as release of asbestos fibres, odour generation, litter, vermin and feral control. L1.2.7 has been added to the Licence, which replaces condition 13 (b) and (c) of the	

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		previous Licence to ensure that wastewater is contained in infrastructure suitable to hold and treat wastewater, so to not cause unacceptable discharges or emissions to land. L1.2.8 has been added to the Licence to ensure all treatment ponds are maintained to reduce the risk of a discharge to the environment and the integrity of the ponds are maintained. L1.2.9 has been added to the Licence, which replaces condition 5 of the previous Licence to ensure appropriate security measures are in place at the Landfill to prevent unauthorised access to the Landfill. L1.2.10 has been added to the Licence to ensure measures are in place to prevent vermin and pests from entering at the Landfill. This condition now is standard for all putrescible landfills. Annual reporting previously required reporting on measures undertaken to control pests and vermin. L1.2.11 has been added to the Licence, which replaces condition 6 (a) of the previous Licence to ensure windblown waste does not leave the premises boundary. L1.2.12 has been added to the Licence, which replaces condition 6 (b) and (c) of the previous Licence to ensure all windblown waste is returned to the tipping face on a regular basis to prevent unnecessary littering. L1.2.13 and L1.2.14 have been added to the Licence, which replaces condition 10 (d) and 10 (c) respectively of the previous Licence to ensure unauthorised fires are managed so that they are extinguished and appropriate procedures are in place. L1.2.15 has been added to the Licence, which replaces condition 7 of the previous Licence to ensure there is signage at the entrance of the Landfill that clearly outlines hours of operation and the types of waste accepted, including alternative options and penalties for	

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		illegal behaviour. Residual Risk *Consequence:* Minor *Likelihood:* Unlikely *Risk Rating:* Moderate	
Emissions to land including monitoring	L2.1.1 L3.2.1	Emission Description *Emission:* Discharge of treated waste water (TWW) from aerobic pond via pipeline to an unlined trench / channel within the Premises for evaporation/infiltration. No information is available on the volumes or quality of the TWW. The identification of the discharge was identified during the May 2015 compliance inspection. *Impact:* Contamination of surrounding land, surface water and groundwater from excessive nutrients; this TWW will potentially impact landfill leachate generation and quality. Groundwater is located between 6-11.5 mbgl. While the landfill is outside the PDWA, groundwater is extracted at BHP's Mt Whaleback mine for potable water to service the Town of Newman from upstream of the landfill. Existing ambient groundwater monitoring bore testing has identified some elevations in nitrates suggesting some leachate migration in the vicinity of the discharge area. *Controls:* The Shire will ensure that only TWW is discharged to the unlined area of the Landfill. TWW will only be discharged if freeboard on the ponds become compromised. All treatment ponds are clay lined to achieve a permeability of less than 10^{-9} m/s. The Shire also undertake ambient groundwater monitoring, even though it has not previously been required as a Licence condition. Risk Assessment *Consequence*: Minor *Likelihood:* Possible *Risk Rating:* Moderate	Proponent commitments

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		Regulatory Controls L 2.1.1 has been added to the Licence to identify the discharge point of TWW into the infiltration / evaporation channel within the Premises. L 3.2.1 has been added to the Licence to ensure TWW is monitored on a quarterly basis L 3.3.1 has been added to the Licence to ensure the Shire monitors cumulative volumes of TWW discharged from the Aerobic Pond. Additional controls have been incorporated under 'Improvements' and 'Ambient Quality Monitoring' as detailed in the relevant sections below. Residual Risk *Consequence*: Minor *Likelihood:* Unlikely *Risk Rating:* Moderate	
Fugitive emissions	L2.6.1	Emission description *Emission*: Fugitive dust may be generated by the vehicles and plant equipment on site as the roads are unsealed and the operation requires the regular covering of waste. *Impact*: Impacts are expected to be insignificant given the remoteness of the operation. The landfill is located 1.2 km south of the Newman town site with no identified sensitive areas in the vicinity of the landfill *Controls:* The Licensee controls dust by regularly wetting down trafficable areas. Risk Assessment	*S.49 of the Environmental Protection Act 1986*

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Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Consequence: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low Regulatory Controls Fugitive dust emissions are sufficiently regulated under section 49 of *the Environmental Protection Act 1986*. The Licensee has a statutory responsibility to comply with the Act during the operation of the premises. Risk Assessment *Consequence*: Insignificant *Likelihood:* Rare *Risk Rating:* Low	
Odour	L2.7.1	Emission description *Emission:* Odour generated from handling and landfilling putrescible waste at the Landfill. Odour generated at LWF from processing raw wastewater. *Impact:* Offensive odours emitted offsite. Nuisance for person's offsite. Limited impacts expected as the nearest sensitive receptor is a local residence is greater than 1.5 km away. *Controls*: The Shire will ensure a daily cover of putrescible waste, which will reduce odour emissions. Two aerators are also placed in the Aerobic pond to reduce ammonia, which in turn also reduces odour. Risk Assessment *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	S.49 of the *Environmental Protection Act 1986*

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Works Approval / Licence section	**Condition number W = Works Approval L= Licence**	**Justification (including risk description & decision methodology where relevant)**	**Reference documents**
		Regulatory Controls Fugitive odour emissions are sufficiently regulated under section 49 of the Environmental Protection Act 1986. The Licensee has a statutory responsibility to comply with the Act during the operation of the premises. Risk Assessment *Consequence*: Insignificant *Likelihood:* Unlikely *Risk Rating:* Low	
Noise	N/A	There will be no significant noise emissions during the operation of the Landfill. The Shire is required to comply with the *Environmental Protection (Noise) Regulations 1997*. No specified conditions relating to noise are required to be added to the Licence.	*Environmental Protection (Noise) Regulations 1997*
Monitoring general	L3.1.1 – L3.1.5	L3.1.1 is has been added to the Licence for wastewater and groundwater sampling in accordance with AS/NZS standards and analysis by a NATA accredited laboratory. L3.1.2 has been added to the Licence so there is adequate time between sampling events. L3.1.3 has been added to the Licence as a requirement to record process parameters relevant to non-continuous monitoring. L3.1.4 and L3.1.5 have been added to the Licence to ensure monitoring equipment to be correctly calibrated.	N/A
Monitoring of inputs and outputs	L3.3.1	L3.3.1 has been added to the Licence to ensure all waste coming into the Landfill is recorded and all waste leaving or is rejected from the Landfill is also recorded. This condition also requires the Shire to record all waste being discharged from the LWF to the unlined area of the Landfill.	N/A
Ambient	L3.4.1	See risk assessment under 'Emissions to Land' above.	

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quality monitoring		L3.4.1 has been added to the Licence to ensure the Shire monitors groundwater on a biannual basis. There are six groundwater monitoring bores at the Landfill. Previous Licences did not require groundwater monitoring. The Shire have conducted groundwater monitoring in the past.	N/A
Improvements	L4.1.1	See risk assessment under 'Emissions to Land' above. Improvement condition IR1 has been included requiring the installation and testing of the TWW being discharged. Subsequently, IR2 has been added to the Licence to ensure DER is notified when the installation is completed. Improvement condition IR3 has been added to the Licence to ensure the Shire can provide further information relating to the pond liner integrity and permeability of the treatment ponds at the LWF. The Shire will also need to identify any environmental issues with the current systems in place at the LWF and to outline what measures will be put in place to prevent partially treated wastewater leaking to groundwater.	N/A
Information	L5.1.5 L5.2.2 – L5.2.3 L5.3.1	L5.1.3 has been added to the Licence, which replaces condition 8 (c) of the previous Licence to ensure the Shire submits the Annual Audit Compliance Report (AACR) each year outlining compliance with the Licence during the reporting period. L5.1.5 has been added to the Licence, which replaces part of conditions 2 and 3 of the previous Licence to ensure the Shire maintains a register of landfilled asbestos and biomedical waste. The register also contains an updated map of the burial locations. L5.2.1 has been added to the Licence, which replaces condition 8 (b) of the previous Licence to ensure the Shire submits an Annual Environmental Report (AER) each year. L5.2.2 has been added to the Licence to ensure the Annual Environmental Report contains an assessment of the information within the report against previous monitoring results such	N/A

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		as groundwater monitoring. L5.2.3 has been added to the Licence, which requires the Shire to be able to provide DER documentation of accepting waste which meets the requirements of a Class II landfill and copies of original monitoring reports submitted to the Shire from third parties within 14 days of notification. L5.3.1 has been added to the Licence to ensure the Shire notifies DER of: • An unauthorised fire (condition 10 (e) of the previous Licence); • Breach of a limit in the Licence; • Failure or malfunction of pollution control equipment which may or is causing pollution; • Calibration report; • Taking process equipment offline that may result in an emission; and • Removal of sewage sludge from the LWF.	
Licence Duration	N/A	The duration of the licence was extended by amendment on 29/4/2016. No further amendment of this date proposed as part of this Licence amendment.	N/A

5 Advertisement and consultation table

Date	Event	Comments received/Notes	How comments were taken into consideration
27/05/2016	Proponent sent a copy of draft instrument	1. Shire outlined that the maximum capacity of the MRF is 12,000 tonnes per year	1. Licence and Decision Document updated with correct assessed capacity as requested.

6 Risk Assessment

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

Table 1: Emissions Risk Matrix

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