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Decision Report

Application for Works Approval

Part V Division 3 of the Environmental Protection Act 1986

Works Approval Number	W6680/2022/1
Applicant	Shire of East Pilbara
File number	2013/002341-1
Premises	Newman Wastewater Treatment Plant Great Northern Highway
	Legal description - Lot 568 on Deposited Plan 418655 As defined by the Premises Map in Schedule 1 (delete if not applicable
Date of report	9 May 2024
Decision	Works approval granted

Grace Heydon A/MANAGER WASTE INDUSTRIES REGULATORY SERVICES

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

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1. **Decision summary**

This decision report documents the assessment of potential risks to the environment and public health from emissions and discharges during the construction and operation the premises. As a result of this assessment, works approval W6680/2022/1 has been granted.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this decision report, the Department of Water and Environmental Regulation (the department; DWER) has considered and given due regard to its regulatory framework and relevant policy documents which are available at https://dwer.wa.gov.au/regulatory-documents.

2.2 Background

On 7 April 2022, the applicant submitted an application for a works approval to the department under section 54 of the *Environmental Protection Act 1986* (EP Act).

The application is to undertake construction works relating to major upgrade works to the WWTP and associated infrastructure at the premises. The premises is approximately 2 km north of Newman.

The premises relates to the category and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations) which are defined in works approval W6680/2022/1. The infrastructure and equipment relating to the premises category and any associated activities which the department has considered in line with *Guideline: Risk Assessments* (DWER 2020) are outlined in works approval W6680/2022/1.

The current WWTP was constructed by BHP in 1981 to treat raw wastewater and produce 'Class A' recycled water for irrigation throughout Newman. This recycled water is used for low exposure risk irrigation on fully grassed areas and/or garden beds at night and is licenced by the Department of Health (DoH).

The ownership of the water reuse network was transferred to the Shire of East Pilbara (SoEP) in 1986 and in 1990 the ownership of the WWTP was transferred to the Water Corporation. In 1996, the SoEP reacquired the WWTP to allow the town to retain operation of its existing recycled water irrigation system for Newman.

No upgrades to improve the water quality or functionality have been undertaken for the WWTP since the WWTP commenced operation, nor increases in redundancy in the system (i.e backup of key components) as a response to population growth. As a result, the WWTP has been assessed by the applicant to be in poor condition, which may lead to risks to the surrounding environment from failure of the asset and/or inefficient operation of the WWTP. Currently, any excess treated wastewater (TWW) overflows into a neighbouring emergency discharge area which has now turned into an artificial wetland due to ongoing discharge. A 2020 licence amendment issued by the Department included a condition to cease discharge of treated wastewater to the emergency discharge area by 2027.

The WWTP provided sewage treatment services to the local Newman residents and transient workers. It is important to note that the population of Newman is expected to double and the WWTP must have the capacity to meet this increase in demand in the future.

Given the current WWTP assessed poor condition and lack of redundancy for maintenance, the WWTP requires a significant upgrade to ensure the continued efficient, protection of the surrounding receiving environment, and the maintained safe supply of recycled water to Newman for community amenity.

2.3 Application summary

The premises is located approximately 2.5 km north of Newman Town Centre and 50 m west of the Great Northern Highway. The current premises is situated on Crown Reserve (45776) on Lot 144 of Plan 192902. The SoEP has been given approval from the Department of Planning, Land and Heritage (DPLH) to enlarge the site of the existing premises. The amalgamated lot is Lot 568 and covers an area of 5.02 ha.

The proposed upgrade works includes the clearing of up to 1.5 ha of native vegetation within the development envelope, with the majority of this clearing occurring in the northern half of the development envelope. This clearing is covered under Regulation 5, Item 1 and Item 12 exemptions and no clearing permit is required for the proposed works.

The proposed upgrade works involves but not limited to:

- Inlet works;
- Installation of a new bioselector;
- A new two-pass oxidation ditch (OD) to achieve low ammonia nitrogen and total nitrogen concentrations in the mixed liquor leaving the OD. This will produce acceptable treated wastewater quality by controlling the dissolved oxygen concentration level downstream of the duty aerator, and thus cycling the circulating mixed liquor in the OD between aerobic and anoxic conditions;
- Installing a new secondary clarifier to accept mixed liquor from the OD to flocculate and settle suspended solids. Settled solids are removed from the floor of the clarifiers and are drawn off by the Return Activated Sludge (RAS) pumps. The RAS pumps transfer the sludge to the bioselector. Surface scum is scraped from the liquid surface of the two secondary clarifiers into their skimming boxes which are then gravity fed into an existing central scum pit where the scum is pumped into the sludge drying beds;
- Refurbishing the existing clarifier and retrofit as a gravity thickener;
- Installing a new secondary effluent pit (SEP) to accommodate inflows from each clarifier, the treated wastewater storage pond return flows and emergency clarifier bypass flows. The existing SEP is not expected to be large enough to accommodate the new inflows and pumps and will be decommissioned and disposed of;
- Refurbish and relocate existing Treated Wastewater (TWW) storage tank;
- Installing two new TWW storage tanks to supply the towns recycled water via the TWW transfer pump station;
- Constructing new TWW storage pond to provide secondary storage capacity for when the TWW storage tanks are full or supply exceeds demand for reuse. One new and one existing pond will both be HDPE lined to protect from possible infiltration to groundwater. The TWW from these ponds can be returned to the SEP for tertiary filtration,, chlorination and transfer to the irrigation system. Total wastewater storage on site is approximately 10,800 kL.;
- Constructing 20 new sludge drying beds (SDB) with a total drying surface of 5,200 m². Each drying bed will have a freeboard of 300 mm. It is estimated that the plant will produce a maximum of 1.4 tonnes of sludge cake per day. The process will involve spreading sludge as a thin 300 mm layer over a porus bed of sand and gravel in a water-tight concrete bund. The water is allowed to drain through the sand bed and into a network of embedded drainage pipes to allow it to drain to the Return Liquor Pump well. Further dewatering is provided by

evaporation. The thin dried layer is then harvested from each SDB after each cells drying cycle. Periodic top-up of the sand/gravel will be required due to losses with the dried sludge removal;

- Lining the current Emergency Storage Pond (ESP) with a HDPE liner to protect and limit infiltration to groundwater. The ESP captures any emergency overflows, this may be unscreened sewage bypassed from the inlet works, partially screened sewage from the inlet screen overflow, or screened and degritted raw sewage bypassing the bioreactor. The ESP will return the stored wastewater to the inlet works for full treatment through the plant. The ESP pumps are provided the ability to turn over/ recirculate wastewater and assist to bring the unscreened/gritted wastewater into suspension for return to the inlet works. ;
- Installing a prefabricated chlorination plant based on the use of gaseous chlorine similar to the current installation. The chlorine system will dose the TWW on discharge to the reuse scheme at an assumed does rate of 2 mg/L, adjustable by the operator. In accordance with AS 2927:2019, the chlorination system will be installed with a 30 m buffer zone to the nearest public access;
- Associated pumps/pumping stations;
- Associated pipework;
- Decommissioning of various unnecessary infrastructure; and
- Associated administrative buildings, roads and car parks.

Upgrade works to the WWTP will result in the potential for the WWTP to process a greater volume of wastewater and subsequently discharge a greater volume of treated wastewater. However, any operational changes to the WWTP's inputs or outputs will not be assessed nor approved under this works approval application. Should the applicant wish to seek approval for a greater operational throughput and/or authorise greater discharge volumes, they will need to submit an application for amendment to the premises operational Licence.

2.4 Contaminated Sites Act

The emergency discharge point for the premises is currently listed under the *Contaminated Sites Act 2003* as possibly contaminated – investigation required. This classification was allocated to the site on 29 July 2020. Any continued discharge to this area may affect this classification and as such the Department notes that the current licence (L6870/1993/12) conditions the cessation of discharge to the emergency discharge area by 31 December 2027.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk Assessments* (DWER 2020).

To establish a risk event there must be an emission, a receptor which may be exposed to that emission through an identified actual or likely pathway, and a potential adverse effect to the receptor from exposure to that emission.

3.1 Source-pathways and receptors

3.1.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises construction and operation which have been considered in this decision report are detailed in Table 1 below.

Table 1 also details the control measures the applicant has proposed to assist in controlling these emissions, where necessary.

Emission	Sources	Potential pathways	Proposed controls		
Construction					
Odour	Inlet works, Bioselector and oxidation ditch bioreactor, Thickener, and Sledge drying beds	Air / windborne pathway	No specific controls – odour emissions not expected to change during construction or operation of upgraded WWTP. Significant distance to sensitive receptors.		
Dust	Vehicle movements,	Air / windborne	Daily visual dust monitoring.		
	excavation, earthworks etc.	pathway	Water carts or similar will be utilised if excessive dust is identified.		
			Significant distance to sensitive receptors.		
Noise	Vehicle movements,	Air / windborne	Restricted work hours, daylight hours only.		
	earthwork, general construction works.	patriway	Significant distance to sensitive receptors.		
Asbestos fibers	Demolition works	Air / windborne pathway	Where possibly asbestos-containing material (ACM) is visibly encountered, the asbestos will be removed in accordance with Worksafe WA, the Code of Practice for the Safe Removal of Asbestos (NOHSC 2005), and Department of Health Guidelines for the Assessment, Management and Remediation of Asbestos Contaminated Sites in Western Australia. ACM will be excavated and segregated from the remaining material to be managed appropriately and disposed of to an appropriate licenced landfill.		
Hydrocarbons	Hydrocarbon spills	Direct discharge contaminating the soil	 Hydrocarbons will be managed via standard construction and operation procedures including: Stored in bunded areas/secondary containment; Appropriate labelling of storage areas; Provision of spill response equipment; and Refueling procedure will be developed by the Shire to prevent accidental spills. 		
Wastewater/ treated wastewater	Direct discharge by spillage during upgrade works	Overland flow	Containment bunding will be placed around the perimeter of the plant. Routine inspections and preventative		

 Table 1: Proposed applicant controls

Emission	Sources	Potential pathways	Proposed controls		
spills			maintenance are expected to further mitigate the risk of sewage spills.		
Windblown waste	Construction waste	Air/ windborne pathway	Sufficient recycling and general waste collection areas.		
			Lids to be closed on waste bins at night.		
			Demolition and general wastes will be regularly removed from site for recycling, reuse or disposal by licenced contractors.		
Potentially	General	Overland flow	WWTP will be bunded.		
contaminated stormwater	construction activities		No water released offsite and all water run-off will be captured from contaminated areas.		
Operation (inc	luding commissioning	g)			
Odour	Operation of upgraded WWTP	Air / windborne pathway	No specific controls – odour emissions not expected to change during construction or operation of upgraded WWTP.		
			Significant distance to sensitive receptors.		
Wastewater discharge	Discharge of treated wastewater to the	Overland flow	Containment bunding will be placed around the perimeter of the plant.		
	town reuse scheme		Routine inspections and preventative maintenance are expected to further mitigate the risk of sewage spills.		
			TWW must meet DoH specifications for town reuse scheme.		
	Discharge of treated wastewater to the emergency	Overland flow	TWW quality and quantity is not expected to change during the construction of the upgraded WWTP.		
	discharge area		Discharge to emergency discharge area will cease by 2027 as per the licence.		
	Wastewater/ treated wastewater	Overland flow	Containment bunding will be placed around the perimeter of the plant.		
	spills/overtopping events		Routine inspections and preventative maintenance are expected to further mitigate the risk of sewage spills.		
Treatment	Chlorine gas	Air/ windborne	30m buffer zone to nearest public access.		
chemical discharge	storage	pathway	Construction of a transportable 3 room building with reinforced concrete base providing full gas containment in the event of a leak.		
			Chlorine leak detection system.		
			A gas room containing 2 x 920kg drums. The gas drums will be fitted with vacuum		

Emission	Sources	Potential pathways	Proposed controls
			regulators, emergency shut-off devices and valving with an activated carbon cannister on the bleed line from the regulator.
	Chemical spills	Direct discharge	Chemicals will be stored in designated bunded hazardous material storage areas with the following controls:
			 Meet the volume and storage requirements for each substance;
			 Display relevant dangerous goods classification;
			 Physically isolate incompatible materials;
			 Compliance with relevant regulations and Australian Standards; and
			-Display Material Safety Data Sheets for each substance stored.
Stormwater	Potentially contaminated	Overland flow	Sludge drying bed will have freeboard of 300mm.
	stormwater		Return Liquor Pumps have the capacity to return the collected rain from an extreme rainfall event to the start of the system for treatment.
			TWW storage ponds will have a freeboard of 500mm.
			WWTP will be bunded to capture any water runoff from the contaminated areas.
Emissions from containment infrastructure	Sludge	Inappropriate storage, removal or disposal	Biosolids (sludge) will be removed and disposed of in accordance with the Western Australian Guidelines for Biosolids Management (Dec 2012) to an approved offsite waste disposal facility.
			The sludge drying bed of the upgraded facility design allows for one bed to be filled each weekday. 20 beds allow for 15 duty and 5 standby beds.
			The standby beds provide the redundancy to have one week of wet weather per drying cycle.
	Wastewater	Infiltration or overland flow	Emergency Storage Pond (ESP) designed to capture emergency overflows.
		via containment	ESP will be lined with a HDPE liner.
		infrastructure leakage	Containment bunding will be installed around the WWTP.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessment* (DWER 2020), the Delegated Officer has excluded the applicant's employees, visitors, and contractors from its assessment. Protection of these parties often involves different exposure risks and prevention strategies, and is provided for under other state legislation.

Table 2, Figure 1 and Figure 2 below provides a summary of potential human and environmental receptors that may be impacted as a result of activities upon or emission and discharges from the prescribed premises (*Guideline: Environmental Siting* (DWER 2020)).

Table 2: S	Sensitive human a	and environmental	receptors and	distance from	prescribed
activity			-		

Human receptors	Distance from prescribed activity
P1 PDWSA - Newman Water Reserve	Within the P1 Public Drinking Water Source Area.
	Emergency discharge area is approximately 11.5km west south-west from existing-use bore field (E-Line and K-Line bores – located approximately 11.7km east north-east of Newman).
	Emergency discharge area is approximately 2.6km south of future-use bore field (Homestead Creek).
Residential premises – Town of Newman	~1,538m south of Premises Boundary and ~1,779m south east of the emergency discharge area.
Indigenous Location – Parnpajinya Aboriginal Association Incorporated	~1,302m south east of the Premises Boundary, and ~1,132.9m south of the emergency discharge area.
Environmental receptors	Distance from prescribed activity
TEC buffer zone – Ethel Gorge aquifer stygobiont community – Endangered	Within the buffer zone.
RIWI groundwater zone – Pilbara	Within the RIWI Pilbara Groundwater Area.
Groundwater Area	Salinity value of 500-1000.
	Depth to groundwater varies from 11.5 mbgl to 6.1 mbgl.
RIWI surface water zone –Pilbara Surface Water Area	Within the RIWI Pilbara Surface Water Area.
Threatened Fauna:	~740m north east of the emergency discharge area,
Bird – P4	and ~1280m north east of the Premises Boundary.
Minor unnamed waterway	Flows through northern side of wetland area.
Homestead Creek – Non Perennial, Minor waterway	Flows ~1,326.8m east north-east of emergency discharge area, and ~2,067m north east of the Premises Boundary.



Figure 1: Distance to sensitive receptors - Human



Figure 2: Distance to sensitive receptors – Environment

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for each identified emission source and takes into account potential source-pathway and receptor linkages as identified in Section 3.1. Where linkages are in-complete they have not been considered further in the risk assessment.

Where the applicant has proposed mitigation measures/controls (as detailed in Section 3.1), these have been considered when determining the final risk rating. Where the delegated officer considers the applicant's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the works approval as regulatory controls.

Additional regulatory controls may be imposed where the applicant's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 3.

Works approval W6680/2022/1 that accompanies this decision report authorises construction only. The conditions in the issued works approval, as outlined in Table 3 have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required to authorise emissions associated with the ongoing operation of the premises. A risk assessment for the operational phase has been included in this decision report, however licence conditions will not be finalised until the department assesses the licence application.

Table 3: Risk assessment of potential emissions and discharges from the premises during construction, commissioning and operation

Risk events					Risk rating ¹	Applicant		luctification for	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of works approval	additional regulatory controls	
Construction									
Demolition of existing WWTP facility	Odour		Residences 1.5 km south of the premises; and Parnpajinya Aboriginal Association Incorporated 1.3 km south east of the premises		C = Slight L = Unlikely Low Risk	N/A	N/A	The Delegated	
General construction activities including machinery and vehicle movements.	Dust				C = Slight L = Unlikely Low Risk	Y	N/A	Officer considers the distance to sensitive receptors sufficient in mitigating the risk posed by odour, dust and noise during construction.	
	Noise	Air / windborne pathway causing impacts to health and amenity			C = Slight L = Unlikely Low Risk	Y	N/A		
Decommissioning old buildings and structures	Asbestos fibers			Incorporated 1.3 km south east of the premises	Refer to Section 3.1	C =Major L = Unlikely Medium Risk	Y	Condition 3	The Delegated Officer considers the applicant controls adequate to lower the risk of asbestos fibers to medium risk and has included asbestos management conditions onto the works approval.
Hydrocarbon spills	Hydrocarbons	Direct discharge causing soil contamination	P1 PDWSA - Newman Water Reserve; RIWI groundwater zone; and RIWI surface		C =Slight L = Possible Low Risk	Y	Condition 2, Table 2, row 23	The Delegated Officer considers the applicants controls adequate to maintain the risk of hydrocarbon spills as low.	

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Risk events				Risk rating ¹				
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	additional regulatory controls
			water zone					
Wastewater or TWW spills or pipe ruptures	Wastewater or TWW spills	Overland flow or infiltration	P1 PDWSA - Newman Water Reserve; TEC; RIWI groundwater zone; RIWI surface water zone; Threatened fauna		C =Slight L = Possible Low Risk	Y	Condition 2, Table 2, Row 21 and 22	The Delegated Officer considers the applicants controls adequate to mitigate the risk of spills during construction and operation.
General construction activities	Windblown waste	Air/ windborne pathway causing impacts to health and amenity	Residences 1.5 km south of the premises; Parnpajinya Aboriginal Association Incorporated 1.3 km south east of the premises; and Threatened fauna		C =Slight L = Possible Low Risk	Y	Condition 2, Table 2, Row 24	The Delegated Officer considers the applicants controls for windblown waste adequate.
	Potentially contaminated stormwater	Overland flow	RIWI surface water zone; P1 PDWSA - Newman Water Reserve; and Threatened fauna		C =Slight L =Unlikely Low Risk	Y	Condition 2, Table 2, Row 21 and 22	The Delegated Officer considers the applicants controls for potentially contaminated stormwater adequate in lowing the risk profile of the premises.

Risk events	Risk events					Annelissant		
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of works approval	additional regulatory controls
Commissioning								
Commissioning of WWTP	Odour		Residences 1.5 km south of the		C = Slight L = Unlikely Low Risk	N/A	N/A	The Delegated
	Dust	Air / windborne pathway causing impacts to health and amenity	Parnpajinya Aboriginal Association	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	Officer considers the distance to sensitive receptors sufficient in mitigating the risk posed by odour, dust and noise during construction.
	Noise		1.3 km south east of the premises		C = Slight L = Unlikely Low Risk	Y	N/A	
	Leachate	Infiltration	P1 PDWSA - Newman Water Reserve; TEC; and RIWI groundwater zone		C =Moderate L = Unlikely Medium Risk	Y	Condition 1, Table 1, Row 2, 3 and 4. Condition 2, Table 2, Row 11, 17, and 19.	The Delegated Officer considers the risk of leachate from the sludge ponds to be medium and will condition the applicants' controls into the works approval.
	Hydrocarbons	Direct discharge causing soil contamination	P1 PDWSA - Newman Water Reserve; RIWI groundwater zone; and RIWI surface water zone		C =Slight L = Possible Low Risk	Y	Condition 2, Table 2, Row 23	The Delegated Officer considers the applicants controls adequate to lower the risk of hydrocarbon spills to low.
	Wastewater or TWW spills	Overland flow or infiltration	P1 PDWSA - Newman		C =Slight	Y	Condition 2, Table 2, Row 21, 22 and 23	The Delegated Officer considers the

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Risk events				Risk rating ¹				
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	icient? Conditions ² of works approval	additional regulatory controls
			Water Reserve; TEC;		L = Possible Low Risk		Condition 9, Table 3, Row 1 (d)	applicants controls adequate to mitigate the risk of spills during operation.
	TWW discharge to emergency discharge area	Direct discharge	RIWI groundwater zone; RIWI surface water zone; Threatened fauna		C =Moderate L = Likely High Risk	N/A	<u>Condition 9, Table 3 – Row</u> <u>1 (e)</u>	Refer to Section 4.1
	Windblown waste	Air/ windborne pathway causing impacts to health and amenity	Residences 1.5 km south of the premises; Parnpajinya Aboriginal Association Incorporated 1.3 km south east of the premises; and Threatened fauna		C =Slight L = Possible Low Risk	Y	Condition 2, Table 2, Row 24	The Delegated Officer considers the applicants controls for windblown waste adequate.
	Potentially contaminated stormwater	Overland flow	RIWI surface water zone; P1 PDWSA - Newman Water Reserve; and Threatened fauna		C =Slight L =Unlikely Low Risk	Y	Condition 2, Table 2, Row 21 and 22	The Delegated Officer considers the applicants controls for potentially contaminated stormwater are adequate.
Operation (including time-limi	ted-operations o	perations)						

Risk events				Risk rating ¹			has different on the s			
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	Applicant controls sufficient?	Conditions ² of works approval	additional regulatory controls		
Operating upgraded WWTP	Discharge of TWW	Direct discharge	P1 PDWSA -	Refer to Section 3.1	C =Moderate L = Likely High Risk	N/A	<u>Condition 18, Table 7, Row</u> <u>1 (e)</u>	Refer to Section 4.1		
	Discharge of untreated wastewater in emergency situations	Direct discharge	Newman Water Reserve; TEC; RIWI groundwater zone; RIWI surface water zone; Threatened fauna		C =Moderate L = Possible Medium Risk	N	<u>Condition 18, Table 7, Row</u> <u>1 (e)</u>	The Delegated Officer has considered feedback from the regions Water Source Protection branch and conditioned that no further discharge may occur to the emergency discharge area above what Is currently allowed by licence L6870/1993/12.		
	Chlorine gas	Air/ windborne pathway causing impacts to health	Residences 1.5 km south of the premises; Parnpajinya Aboriginal Association Incorporated 1.3 km south east of the premises				C =Minor L = Rare Low Risk	Y	Condition 2, Table 2, Row 20	The Delegated Officer considers the applicants controls regarding the chlorine gas sufficient and will condition them into the works approval.
	Potentially contaminated stormwater	Overland flow	RIWI surface water zone; P1 PDWSA - Newman Water Reserve; and Threatened				C =Slight L =Unlikely Low Risk	Y	Condition 2, Table 2, Row 21 and 22	The Delegated Officer considers the applicants controls for potentially contaminated stormwater are adequate.

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Risk events				Risk rating ¹	Applicant		luctification for	
Sources / activities	Potential emission	Potential pathways and impact	Receptors	Applicant controls	C = consequence L = likelihood	controls sufficient?	Conditions ² of works approval	additional regulatory controls
			fauna					
Sludge storage	Leachate	Infiltration	Groundwater and groundwater dependant ecosystems		C =Moderate L = Unlikely Medium Risk	Y	Condition 2, Table 2, Row 17 Condition 18, Table 7, Row 1 (d)	The Delegated Officer considers the risk of leachate from the sludge ponds to be medium and will condition the applicants' controls into the works approval.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the Guideline: Risk Assessments (DWER 2020).

Note 2: Proposed applicant controls are depicted by standard text. Bold and underline text depicts additional regulatory controls imposed by department.

4. Detailed Risk Assessment

4.1 Discharge of TWW to emergency discharge area

Through previous assessments of the operation of the WWTP, it has been determined that the ongoing discharge of treated wastewater into a priority 1 PDWSA with a water supply borefield proposed in the vicinity is not sustainable in the long term. Therefore, current conditions within the sites operational Licence require the cessation of discharges of TWW to the emergency discharge area 2027.

Through the above risk assessment, the Delegated Officer considers that the risk to sensitive receptors from continued discharging of TWW to the emergency discharge area is high, which aligns with the risk rating obtained through previous assessments for the operation of the WWTP. In line with DWER's *Guideline: Risk Assessments,* a high-risk event may be acceptable subject to multiple regulatory controls, including both outcome-based and management conditions.

The Delegated Officer notes that the proposed works to the WWTP, along with the installation of new equipment, have been designed to improve the quality of the TWW compared to the output of the existing plant. The discharge specifications of the upgraded WWTP will be confirmed through the commissioning period and demonstrated through the time limited operational period defined by conditions in the Works Approval.

As such, the Delegated Officer considers that there is no additional risk to sensitive receptors presented by the discharge of TWW and finds the proposed upgrades to both the WWTP and the TWW discharge quality acceptable, noting that the requirement for the Works Approval Holder to ultimately cease discharging TWW to the emergency discharge area remains in effect through conditions on the sites operational Licence.

The Delegated Officer also notes that any increase in throughput and subsequently discharge volumes to the emergency discharge area has not been assessed as a part of this Works Approval application and hence any increase in throughput or discharge volume to that currently specified on the sites operational Licence is not permitted. Should any increases be sought through an amendment application to the sites Licence once the works authorised under this Works Approval are completed, this will be considered under a new risk assessment associated with the amendment application.

5. Consultation

Table 4 provides a summary of the consultation undertaken by the department.

Consultation method	Comments received	Department response
Application advertised on the department's website on 02/09/2022	None received	N/A
Advice sought from the Departments Water Source Protection Branch (WSP) on 29/07/2022 along with multiple internal meetings.	Response received 16/02/2023 indicated WSP supported the upgrade of the WWTP with conditions and implementation of best management practices including:	 Responses as below: a) Condition 13 noted; condition 22 appears to be met with appropriate bunding and stormwater management on site; condition 24 appears to be met with appropriate hydrocarbon and chemical

Table 4: Consultation

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	 Conditions 13, 22, 24, and 28 outlined in WQPN25; Discharge to the wetland to cease 	storage; condition 28 met as applicant has applied for this works approval and is a
	by 31 December 2027 as per licence;	licenced premises. b) This condition is still in force
) Options for discharges from the WWTP and expansion of reuse scheme to be outside the	and the applicant has indicated they are developing plans to ensure this occurs.
	PDWSA or in a closed cycle industrial use (WSP does not support the proposed increase	 c) Out of the scope of this works approval – included here for applicants reference
	 volume discharge to the P3 area); The use and application of biosolids is not supported in the 	 d) The applicant intends to dispose of sludge wastes to a licenced contractor
	states PDWSA's. biosolids must be disposed of at an approved waste disposal facility;	 e) This has been conditioned on the works approval during commissioning and time limited
	 Continue water quality monitoring program at discharge points. The results should be reported to 	operations (conditions 12, 13, 21 and 22)
	DWER on an agreed basis and shared with Water Corporation	 f) Noted for consideration for the licence amendment. c) Destance ation are encoded at the second seco
f	and the occupier of the discharge area;	 g) Best practice recommendations listed here for applicants reference.
	as result of emergency, accident or malfunction of the WWTP under Section 72 Environmental Protection Act 1986;	i) The clearing of native vegetation for this works approval is covered under under Regulation 5, Item 1 and
Ş	 Recommended best practice advice for the WWTP and associated infrastructure: 	Item 12 exemptions and no clearing permit is required for the proposed works.
	 WQPN 10: Contaminant spills – emergency response plan 	ii) Noted here for applicants reference
	 WQPN 65: Toxic and hazardous substances 	iii) Noted here for applicants reference
	 WQPN 83: Infrastructure corridors near sensitive water resources 	
	 WQPN 26: Liners for containing pollutants using synthetic membranes 	
	 WQPN 27: Liners for containing pollutants using engineered soils 	
	 WQPN 39: Ponds for stabilising organic matter 	
	 WQPN 56: Tanks for fuel and chemical storage near sensitive water resources 	
	 Western Australian guidelines for biosolids management 	

	 WQPN 22: Irrigation with nutrient-rich wastewater 	
	 WQPN 33: Nutrient and irrigation management plans 	
	 Stormwater management manual for Western Australia 	
	 Guidelines for the non-potable use of recycled water in Western Australia (Department of Health). 	
	 Applicant should seek advice on native clearing from the DWER Native Vegetation Regulation branch. 	
	Land use compatibility in PDWSAs	
	 A municipal WWTP is an incompatible land use in P1 under the department's policies and WQPN 25, however this WWTP is an approved, non- conforming land use as it was constructed in 1981, prior to constitution of the PDWSA in 1983. 	
	iii) Expansions of non-conforming land uses are normally not supported within PDWSAs.	
Comment requested from stakeholder on 24/02/2023	 Response received 10/03/2023 indicating that stakeholder (current occupancy of discharge area) does not support the application as presented. The following concerns were indicated: a) Request for the reference to "(stakeholder name) wetland" be removed and instead recognised as an emergency discharge point and impacted area; b) Request removal of the wetland as a sensitive receptor in the application document as the area was not constructed as a wetland and is considered a disposal area utilised by the WWTP for no environmental benefit; c) Application form incorrectly states that wastewater is received from a mine site. This mine is connected to the town sewage district – requests this reference he area 	 Below is the Departments response: a) DWER cannot remove aspects from the application as it has already been submitted and published online, but the Works Approval and Decision Report will refer to area as the Emergency Discharge Point going forward; b) DWER cannot remove aspects from an application however, this decision report does not consider the wetland a sensitive receptor for this application. c) DWER cannot remove aspects from an application however has not included reference to the WWTP receiving wastewater from the mine site in its decision report. d) DWER cannot remove aspects from an application however
	 d) The application incorrectly refers to a letter of support from the 	

	stakeholder. The letter in question was submitted for a	e)	DWER has not included the the Offices as sensitive receptors;
	separate licence amendment	f)	DWER has noted this comment;
	included out of context;	g)	DWER has included the
e)	Application indicates the stakeholder's offices are located 0.45km west of the premises		Parnpajinya Aboriginal Community as a sensitive receptor in its risk assessment;
f)	There are none of the stakeholder's offices in this location. There is a gatehouse to another minesite to the east of the emergency discharge location; Application states that during	h)	DWER has noted this comment, and notes the Applicant has no record of where the connecting pipework is due to the historic nature of the site. The Delegated Officer does not consider this to alter the risk profile of the site:
	works, I WW will match the current quality of wastewater being discharged, without chlorination. Taken to mean that during works, inadequately TWW will be released onto the stakeholder's tenure:	i)	The TWW will not be chlorinated prior to discharge to the emergency discharge area due to the limited timeframe this is allowed;
g)	Application failed to recognise the Parnpajinya Aboriginal	j)	DWER has considered odour risks as part of its risk assessment for the application.
	Community (Town Based Reserve) as a sensitive receptor;	k)	The total storage volume on site is 10.81 MI. The sufficiency of
h)	Figure 2 of application supporting document does not indicate the location of any pipework leading to the discharge point or the sampling point location;		this storage is considered in the broader context of the Shire Reuse Scheme and its associated water balance. The Applicant has recently proposed
i)	It is unclear in any schematics or process flow diagrams that the TWW will be chlorinated prior to discharge;		Reuse Study and the Department will require this documentation as part of the construction compliance
))	Query if a screening risk assessment been undertaken to account for the increased acceptance and support the bioselector and oxidation ditch covers not being included;	I)	documentation; The Applicant has indicated that there are a few plans for the increased utilisation of the SoEP Recycled Water Reuse Scheme with options including
k)	TWW storage and the Emergency Storage Ponds are considered insufficient to support the increased capacity during abnormal plant operations, rain	m)	irrigating near the airport outside of the P1 area, the increased reuse scheme is still in the planning stage; DWER has noted this comment:
	restricting irrigation days, 1:20 ARI events, etc.	n)	The contaminated sites
)	The application document appears to outline the consultation with the stakeholder to be positive and supportive. The		classification has been refrenced during the departments assessment of the application;
	stakenoider's position is that the protection of the P1 PDWSA should be the primary driver for the plants upgrade and considers	0)	Consultation with the Departments Water Source Protection branch included the

	that an industry standard options	consideration of environmental
	completed for this application and a whole of scheme solution is required. The stakeholder is committed to working with SoEP, Water Corporation and Regulators and has funded Water Corporation to complete a detailed options assessment, expected to take 18 months to deliver;	 p) DWER notes this comment and has conducted a risk assessment in relation to the commissioning of the premises, any further operational concerns will need to be addressed through the licence amendment; q) This works approval does not support any increase in
	m) Table 15 of the application supporting document has not listed any consultation with the stakeholder despite multiple formal consultations where the stakeholder outlined their issues with this project:	 r) Applicant has submitted a Request for Quote (RFQ) which proposes a full water balance for the Reuse Scheme. This information will be required to
	 n) Concerns that the application has not indicated the site being listed as "Possibly Contaminated, Investigation Required" under the Contaminated Sites Act 	 be submitted as part of the construction compliance report documentation; by DWER has included monitoring suits in line with
	 contaminated Sites Act. o) Requests a review of the risk to the ESA/TEC from surface water movement; 	recommendations from the regions Water Source Protection Branch.
	 p) Concerns there is insufficient information presented relating to the staging of the project during commissioning to identify and assess the risk of fugitive or planned discharges; 	
	 q) The stakeholder does not support an application that seeks to continue and potentially increase the ongoing discharge of TWW to its tenure; 	
	 r) Concerns about the lack of detail on how redundancy has been built into the system. Requesting that a full water balance is provided with adequate consultation into future industry requirements; 	
	s) Considers additional contaminants of potential concern should be included for monitoring in accordance with DWER Assessment and Management of Contaminated Sites Guidelines for WWTP activities.	
Applicant was provided with draft documents on	The Applicant responded on 16/06/2023, and again on 28/06/2023.	Refer to Appendix 1

18/05/2023	Refer to Appendix 1	

6. Conclusion

Based on the assessment in this decision report, the delegated officer has determined that a works approval will be granted, subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements. This works approval **does not** authorise any increase in discharge quantities to the Emergency Discharge Area, any increase in threshold must be managed on site or distributed through the Newman Recycled Water Reuse Scheme.

References

- 1. Department of Environment Regulation (DER) 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
- 2. Department of Water and Environmental Regulation (DWER) 2020, *Guideline: Environmental Siting*, Perth, Western Australia.
- 3. DWER 2020, Guideline: Risk Assessments, Perth, Western Australia.

Appendix 1: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of applicant's comment	Department's response
Cover page	On 16 June, 27 July 2023, 08 January and 18 April 2024, in response to the draft package and further correspondence, the Applicant indicated they were still awaiting confirmation from DPLH regarding the new lot number for the premises.	The Department cannot grant a Works Approval with this lot number until this is confirmed and evidence provided.
	On 7 May 2024 in response to the Departments position on granting a works approval without appropriate Certificate of Title, the applicant subsequently provided the approved Certificate of Title.	Now that the applicant has provided the Certificate of Title for the land, the Works Approval may be granted.
2, Table 2, Row 20.	On 16 June 2023, in response to the draft package the applicant indicated that bunding of the WWTP was not included in the design, that internal roads are proposed to have no drainage collection and transmission system and that rainfall will runoff into adjacent areas.	According to the applicant's response to 'request for further information' dated 16/09/2022, The proposed WWTP will be bunded which will minimise the risk of contaminated water discharging offsite during construction and operation. No water will be released offsite and all water run-off will be captured from contaminated area. It is based off this information the Delegated Officer had based the original risk assessment.
	On 3 July 2023, an email was received from the Applicant confirming the WWTP will now be bunded during both construction and operations and inserted into the design.	The Delegated Officer has considered the most recent email confirmation regarding the bunding of the WWTP as the final confirmation and has assessed the risk of the premises based on the inclusion of bunding as an applicant control. The inclusion of WWTP bunding has been retained on the Works Approval to ensure it is included in the process.
9, Table 3; and	On 26 July 2023 in response to the draft package, the Applicant	Noted. Reference to chlorination prior to emergency

Condition	Summary of applicant's comment	Department's response
18, Table 7	indicated that chlorination of the emergency discharge is not intended	discharge has been removed from the works approval.
Table 2	On 16 June 2023, in response to the draft package the Applicant indicated that some elements have been omitted from the original application document including propulsion mixers under Oxidation Ditch and WAS pumps in the infrastructure requirements.	Noted. Additional info added.
Table 2	On 16 June 2023, in response to the draft package the Applicant indicated that the wording throughout the Works Approval is very specific with infrastructure down to quoting pipe size. The Applicant doesn't believe this needs to be so specific as the contractor may suggest alternative solutions.	Noted. Specific pipe sizes removed. Table 2 also states 'or equivalent' after most infrastructure allowing for changes to be made.
11, Table 5	On 16 June 2023, in response to the draft package the Applicant states the limits on discharge quality are closer to the "target treated wastewater quality" parameters rather than the "recommended licence limits" they put forward in the design. The Applicant feels these more stringent targets may not be achievable and are requesting relaxation of these limits.	The Delegated Officer has amended the water quality parameters to closer reflect the expected values, however notes that the subsequent licence may have stricter controls given the location of the WWTP within the public drinking water source area.
11, Table 5	On 16 June 2023, in response to the draft package the Applicant indicated that no chlorination criteria was included in the tables for the Newman Recycled Water Reuse Scheme discharge point and the Applicant considers this may fall under DoH Water Quality licence for low risk reuse as it is outside of the defined premises boundary.	No action required.
Decision Report	On 27 June 2023, in response to the draft package the Applicant indicated they have no documentation that confirms the connecting pipework between the WWTP and the Emergency Discharge Area.	Noted and Decision Report updated
	On 27 June 2023, in response to the draft package the Applicant confirmed that the discharge to the Emergency Discharge Area is unchlorinated. Given the requirements for Emergency Discharge	Noted and updated Works Approval and Decision Report.

Condition	Summary of applicant's comment	Department's response
	to cease post 2027, and the likelihood of a significant emergency occurring between now and then, this was considered an unworthy addition.	
	On 27 June 2023, in response to the draft package the Applicant confirmed the total storage volume on site is 10.81 ML. They claim the sufficiency of this storage will depend on the broader context of the town reuse scheme operation and its associated water balance. The Applicant has a recent RFQ that will progress the Reuse Study and include a water balance. This RFQ.	Noted. The Applicant will be required to provide the outcome of the RFQ as part of their compliance documentation submission required in Condition 24.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)							
Application type							
Works approval	\boxtimes						
		Relevant works approval number:	Licence			Relevant works approval number:	
		Has the works appro complied with?	val been	Yes	s 🗆 No		
Licence		Has time limited ope the works approval d acceptable operation	rations under lemonstrated ls?	Ye	s 🗆 No	□ N/A □	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes	s 🗆 No		
		Date Report received:					
Renewal		Current licence number:	Renewal				
Amendment to works approval		Current works approval number:	Amendment to works approval		proval		
		Current licence number:	Amendment to licence				
Amendment to licence		Relevant works approval number:			N/A	Relevant works approval number:	
Registration		Current works approval number:	Registration			Current works approval number:	
Date application received		07/04/2022					
Applicant and Premises details		-					
Applicant name/s (full legal name	e/s)	Shire of East Pilbara					
Premises name		Newman Wastewater Treatment Plant					
Premises location		Lot 568 on Deposited Plan (TBA) – amalgamated lots					
Local Government Authority	Shire of East Pilbara						
Application documents							
HPCM file reference number:		DER2018/001042-7~33					
Key application documents (addi to application form):	tional	Supporting document					

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)							
Scope of application/assessment							
		Works approval					
Summary of proposed activities or changes to existing operations.		The project aims to upgrade the existing WWTP to enable Newman's raw sewage to be processed in accordance with Department of Health (DoH) and Department of Water and Environmental Regulations (DWER) licence conditions, and to mitigate the risk of discharging raw sewage into the neighbouring BHP owned wetlands.					
		Given the current WWTP poor condition and lack of redundancy for maintenance, it requires a significant upgrade to ensure the continued efficient operation of the WWTP, protection of the surrounding receiving environment, and the maintained, safe supply of recycled water to Newman for community amenity.					
		The current licence gives approval for the processing of up to 2,000 m3/day of effluent. The upgrade will result in an annual average daily flow of 3,000 m3/day, with surge capacity up to 3,600 m3/day for periods with higher numbers of transient workers in Newman.					
Category number/s (activities that c	ause	the premises to become p	prescribed premises)				
Table 1: Prescribed premises categories							
Prescribed premises category and description	Proposed production or design capacity						
Category 54: Sewage facility: Premises –	3,000 m3/day average with up to 3,600 m3/day during peak		р К				
(a) on which sewage is treated (excluding septic tanks); or	pen	503					
(b) from which treated sewage is discharged onto land or into waters							
Legislative context and other approvals							
Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?		Yes □ No ⊠					
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?		Yes □ No ⊠					
Has the proposal been referred and/or assessed under the EPBC Act?		Yes □ No ⊠					

SECTION 1: APPLICATION SUMMARY (as	s updated from validation	checklist)
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes 🛛 No 🗆	Other evidence ⊠ Amalgamating lot numbers and expanding Reserve. See comments
Has the applicant obtained all relevant planning approvals?	Yes ⊠ No □ N/A □	
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes 🗆 No 🖂	Exemption from requiring a clearing permit it likely to apply as per Reg 5, item 1 and Item 12 of the clearing regs.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes 🗆 No 🛛	Not required
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes 🗆 No 🖂	Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes 🗆 No 🗆	Name:PilbaraSurfaceWaterAreaandPilbaraGroundwaterAreaType:ProclaimedGroundwaterArea/SurfaceWaterAreaHasRegulatoryServices (Water)beenconsulted?YesNoN/ARegional office:North
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ⊠ No □	Name: Newman Water Reserve Priority: P1 Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes No N/A .
Is the Premises subject to any other Acts or subsidiary regulations (e.g. Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx)	Yes ⊠ No □	Environmental Protection (Controlled Waste) Regulations 2004, Environmental Protection (Unauthorised Discharge) Regulations 2004;

SECTION 1: APPLICATION SUMMARY (as updated from validation checklist)					
		Environmental Protection (Noise) Regulations 1987;			
		Environmental Protection (Clearing of Native Vegetation) Regulations 2004			
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes □ No ⊠				
Is the Premises subject to any EPP requirements?	Yes □ No ⊠				
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes ⊠ No □	Classification: contaminated – remediation required (C–RR)			
		Date of classification: 10/12/2020			
		Mount Whaleback Iron Ore Mine Operation, Newman – Former Power Station			