



Application for Works Approval Amendment

Part V Division 3 of the *Environmental Protection Act 1986*

Works Approval Number	W6800/2023/1
Works Approval Holder	Square Kilometre Array Observatory
File Number	DER2018/001042-8~91
Premises	SKAO Construction Camp Legal description - Part of Lot 18 on Deposited Plan 220344 As defined by the coordinates in Schedule 2 of the Works Approval
Date of Report	03 April 2024
Decision	Revised works approval granted

**A/SENIOR ENVIRONMENTAL OFFICER
REGULATORY SERVICES**

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

Works Approval: W6800/2023/1

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1. Decision summary

Works approval W6800/2023/1 is held by Square Kilometre Array Observatory (Works Approval Holder) for the SKAO Construction Camp (the premises), located at on Part of Lot 18, Deposited Plan 220344.

This Amendment Report documents the assessment of potential risks to the environment and public health from proposed changes to the emissions and discharges during the construction and operation of the premises. As a result of this assessment, Revised Works Approval W6800/2023/1 has been granted.

The revised works approval issued as a result of this amendment consolidates and supersedes the existing works approval previously granted in relation to the premises.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Amendment Report, the department 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 Amendment summary

On 12 February 2024, the Works Approval Holder submitted an application to the department to amend works approval W6800/2023/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are proposed:

Increase design capacity

The existing works approval Wastewater Treatment Plant (WWTP) design capacity is 36 m³ per day. 36 m³ per day was calculated by the applicant to be the average in a peak occupancy year, however the WWTP is designed for a maximum of 50 m³ per day.

An amendment is sought to increase the production capacity of the premises from 36 m³ to a combined 70 m³ (50 m³ treated effluent and 20 m³ Reverse Osmosis (RO) brine). Table 1 below outlines the increase to reflect the maximum design capacity of the WWTP and allows for fluctuation and/or increase in occupancy rates at the camp.

Table 1: Proposed design capacity changes

Category	Current design capacity	Proposed design capacity	Description of proposed amendment
85	36 m ³ per day	70 m ³ per day	Increase the design capacity of the WWTP to 50 m ³ combined with 20 m ³ of RO brine.

Increase sprayfield area

The irrigation sprayfield is proposed to increase from 2.5 ha to 4.7 ha. A recalculation of the sprayfield by the applicant found the sprayfield to be larger than originally proposed in the existing works approval. The entire fenced area for the spray field is 4.7 ha, however the actual spray area is 4.2 ha allowing for the 5 m buffer inside the fence line.

The irrigation sprayfield has been sized and location of the irrigation sprayers determined with respect to local wind data. The outcome of the proposed layout is the minimisation of spray drift during windy conditions and to reduce the risk of sprayed treated wastewater leaving the irrigation sprayfield.

Remove earthen bund requirement

Remove conditions in the existing works approval for the requirement of an earthen bund to surround the perimeter of the WWTP.

3.0 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.

2.3 Source-pathways and receptors

2.3.1 Emissions and controls

The key emissions and associated actual or likely pathway during premises operation which have been considered in this Amendment Report are detailed in Table 2 below. Table 2 also details the proposed control measures the Works Approval Holder has proposed to assist in controlling these emissions, where necessary.

Table 2: Works Approval Holder controls

Emission	Sources	Potential pathways	Proposed controls
Construction			
Dust	Irrigation sprayfield construction	Air/windborne pathway causing impacts to health and amenity.	None proposed. The irrigation sprayfield was miscalculated to be 2.5 ha in the existing works approval. Correct sprayfield size is 4.2 ha and poses no additional risk to the environment.
Operation (including time-limited-operations)			
Odour	Incorrect wastewater chemical treatment balance; Storage of wastewater/solids	Air/windborne pathway causing impacts to health and amenity.	Wastewater is treated prior to irrigation. Regular inspection of equipment by a certified technician. The WWTP will be commissioned in accordance with manufacturers specifications. Computerised monitoring system of the WWTP with an alarm that will raise an alert if malfunctioning. The WWTP is appropriately designed and operated to mitigate the risk of odour emissions.

Emission	Sources	Potential pathways	Proposed controls
Wastewaters and contaminated stormwater	<p>Spills/leaks of raw sewage, treated effluent, sludge and chemicals.</p> <p>Discharge of wastewater to land prior to treatment.</p> <p>Incorrect discharge rate to land.</p> <p>Discharge during high rainfall events.</p>	Overland runoff, direct discharge and migration via soil to groundwater.	<p>The irrigation sprayfield sized appropriately and will operate above-ground sprayer discharge points to cover a wide footprint to prevent ponding.</p> <p>Computerised monitoring system with an alarm that will raise an alert if malfunctioning.</p> <p>5 m spray drift buffer from the edge of sprinkler radius to the fence.</p> <p>Chemicals including sodium hypochlorite are stored in accordance with Australian Standard AS3780-2008 Storage and Handling of Corrosive Substances.</p> <p>Solid waste generated in the WWTP and OWS will be removed by a licensed contractor under the Environmental Protection (Controlled Waste) Regulations 2004 and disposed to a suitable licensed facility.</p>

2.3.2 Receptors

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

Table 3 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 3: Sensitive human and environmental receptors and distance from prescribed activity

Human receptors	Distance from prescribed activity
Native Title Holders of the Wajarri Yamatiji Part A	The premises is located within the south-west Wajarri Yamatiji Part A Native Title Determination area
Commercial premises - Boolardy Airport	3.8 km south-west of premises boundary
Environmental receptors	Distance from prescribed activity
Gascoyne groundwater area	Located within the proclaimed surface water area
Roderick River	2.6 km north-west of premises boundary

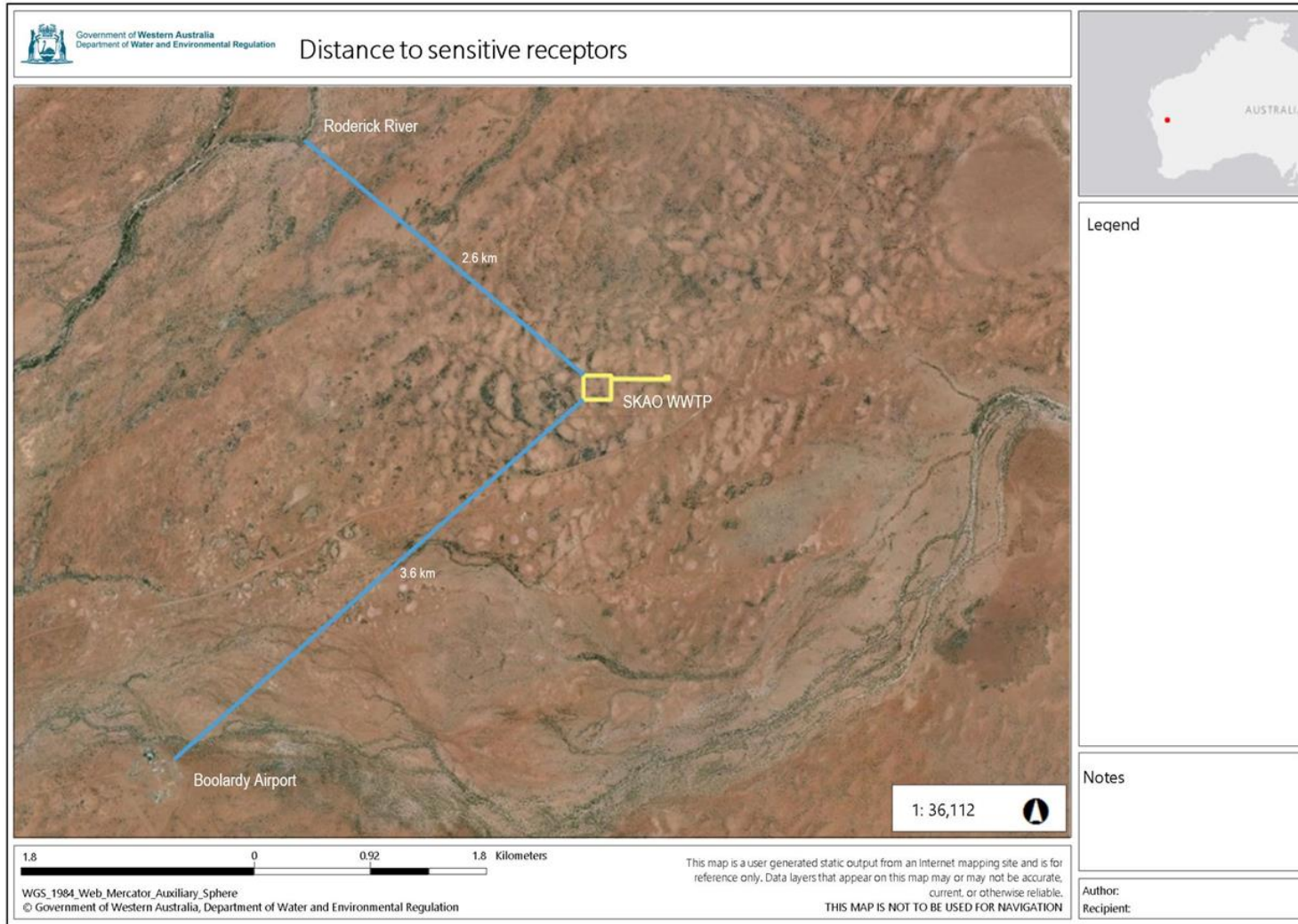


Figure 1: Distance to sensitive receptors

2.4 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk Assessments* (DWER 2020) for those emission sources which are proposed to change and takes into account potential source-pathway and receptor linkages as identified in Section 2.3. Where linkages are incomplete they have not been considered further in the risk assessment.

Where the Works Approval Holder has proposed mitigation measures/controls (as detailed in Section 2.3), these have been considered when determining the final risk rating. Where the Delegated Officer considers the Works Approval Holder'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 Works Approval Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 4.

The revised works approval W6800/2023/1 that accompanies this Amendment Report authorises construction and time-limited operations. The conditions in the revised works approval have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

A licence is required following the time-limited operational phase authorised under the works approval to authorise emissions associated with the ongoing operation of the premises. A risk assessment for the operational phase has been included in this Amendment Report, however licence conditions will not be finalised until the department assesses the licence application.

Table 4. Risk assessment of potential emissions and discharges from the premises construction and operation

Risk Event					Risk rating ¹	Works Approval Holder's controls sufficient?	Conditions ² of works approval	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Works Approval Holder's controls	C = consequence L = likelihood			
Construction								
Construction of irrigation sprayfield	Dust	Air/windborne pathway causing impacts to health and amenity	Visitors to the Eastern Guruma Native Title determination area	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	N/A	N/A
Operation (including time-limited-operations operations)								
Commissioning and time limited operation of the WWTP and irrigation sprayfield	Odour	Air/windborne pathway causing impacts to health and amenity	Native Title Holders of Wajarri Yamatiji	Refer to Section 3.1	C = Slight L = Unlikely Low Risk	Y	Conditions 1, 5, 13 and 20	N/A
	Discharge of partially treated wastewater (commissioning phase)	Overland runoff / migration into surface water ways potentially causing ecosystem disturbance or impacting surface water quality; Localised contamination of soils; Infiltration to groundwater	Surface water ecosystems: Roderick River (2.6 km north-west) Native Title Holders of Wajarri Yamatiji	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 5 and 13-17	N/A
	Discharge of treated wastewater	Overland runoff / migration into surface water ways potentially causing ecosystem disturbance or impacting surface water quality; Localised contamination of soils; Infiltration to groundwater	Surface water ecosystems: Roderick River (2.6 km north-west) Native Title Holders of Wajarri Yamatiji	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 5 and 13-17	N/A
	Spills/ unintended releases of untreated wastewater, solid waste or treatment chemicals	Overland runoff / migration into surface water ways potentially causing ecosystem disturbance or impacting surface water quality; Localised contamination of soils; Infiltration to groundwater	Surface water ecosystems: Roderick River (2.6 km north-west) Native Title Holders of Wajarri Yamatiji	Refer to Section 3.1	C = Moderate L = Unlikely Medium Risk	Y	Conditions 1, 5 and 13-17	N/A

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

Note 2: Proposed Works Approval Holder's controls are depicted by standard text. **Bold and underline text** depicts additional regulatory controls imposed by department.

3. Consultation

Table 5 provides a summary of the consultation undertaken by the department.

Table 5: Consultation

Consultation method	Comments received	Department response
Works Approval Holder was provided with draft amendment on 21 March 2024	The Works Approval Holder chose to waive the comment period and request the works approval to be issued as soon as possible.	Noted

4. Conclusion

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

Removal of the requirement to have an earthen bund surrounding the perimeter of the WWTP has been granted as the risk to sensitive receptors was determined to be medium risk, and other proposed controls including situating the WWTP on a raised earthen pad, primarily within a sea container are considered sufficient controls.

4.1 Summary of amendments

Table 6 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the revised works approval as part of the amendment process.

Table 6: Summary of works approval amendments

Condition no.	Proposed amendments
1, Table 1, 1e)	Increase WWTP to 50 m ³ of sewerage per day.
1, Table 1, 1h)	Increase storage capacity of raw sewerage flow balance tanks to 50 m ³ per day.
1, Table 1, 3a)	Increase minimum size of irrigation sprayfield to 4.2 ha.
5, Table 2 - Irrigation sprayfield, a) 13, Table 5 – Irrigation sprayfield, a)	Increase discharge of blended effluent rate to no more than 70 m ³ per day.
5, Table 2 – WWTP and pipeline, a) 13, Table 5 – WWTP and pipeline, b)	Condition removed for requirement of earthen bunding around the WWTP perimeter.
13, Table 5 – RO brine pipeline, b)	Reduce discharge amount of RO brine to no more than 20 m ³ per day.
Schedule 1: Maps, Figure 4	Updated map with irrigation sprayfield layout

References

1. Standards Australia 2008, *AS 3780 2008 The storage and handling of corrosive substances*, Standards Australia, Sydney, NSW.
2. Department of Environmental Regulation (DER), July 2015. *Guidance Statement: Regulatory principles*. Perth, Western Australia. Accessed at: www.wa.gov.au
3. Department of Environment Regulation (DER), October 2015. *Guidance Statement: Setting Conditions*, Perth, Western Australia. Accessed at: www.wa.gov.au
4. DWER, June 2019. *Guideline: Decision Making*. Perth, Western Australia. Accessed at www.wa.gov.au
5. DWER, June 2019. *Guideline: Industry Regulation Guide to Licensing*. Perth, Western Australia. Accessed at www.wa.gov.au
6. DWER December 2020, *Guideline: Environmental Siting*, Perth, Western Australia. Accessed at: www.wa.gov.au
7. DWER December 2020, *Guideline: Risk Assessments*, Perth, Western Australia. Accessed at: www.wa.gov.au

Appendix 1: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input type="checkbox"/>	Current licence number:		
Amendment to works approval	<input checked="" type="checkbox"/>	Current works approval number:	W6800/2023/1	
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	12 th February 2024			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Square Kilometre Array Observatory (SKAO)			
Premises name	SKAO Construction Camp			
Premises location	Lot 18 DP 220344 Located in the Shire of Murchison and within the ex-Boolardy station (Lease Number: N049598).			
Local Government Authority	Shire of Murchison			
Application documents				
HPCM file reference number:	DWERDT743229			
Key application documents (additional to application form):	Supporting Document - Works Approval Application by Aurecon			
Scope of application/assessment				
Summary of proposed activities or changes to existing operations.	<p>Amend Works Approval W6800 to:</p> <ul style="list-style-type: none"> • Increase from throughput from 36 m³ to 70 m³ (50 m³ treated wastewater and 20 m³ brine) • Increase irrigation sprayfield area from 2.5 ha to 4.2 ha • Remove requirement for an earthen bunding to be maintained around the WWTP perimeter 			

Category number/s (activities that cause the premises to become prescribed premises)		
Table 1: Prescribed premises categories		
Prescribed premises category and description	Proposed production or design capacity	Proposed changes to the production or design capacity (amendments only)
Category 85: Sewage facility: premises (a) on which sewage is treated (excluding septic tanks); or (b) from which treated sewage is discharged onto land or into waters.	36 m ³ /day	70 m ³ /day
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 <input checked="" type="checkbox"/> No <input type="checkbox"/>	Decision made to not assess the proposal under Part IV of the EP Act Managed under Part V <input checked="" type="checkbox"/> Assessed under Part IV <input type="checkbox"/>
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Reference No: 2017/7874 The assessment (EPBC 2017/7874) was determined by the DCCEEW to be not a controlled action in March 2017
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input checked="" type="checkbox"/> General lease <input type="checkbox"/> Expiry: Mining lease / tenement <input type="checkbox"/> Expiry: Other evidence <input type="checkbox"/> Expiry:
Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Approval: Expiry date: If N/A explain why? As per scheme, project is for scientific research and therefore DA not required.
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	CPS No: 9547
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Application reference No: Licence/permit No: <ul style="list-style-type: none"> •CAW208723(1) •CAW208983(1) •GWL208982(2)

<p>Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Name: Gascoyne Groundwater Area Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office:</p>
<p>Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to <u>WQPN 25</u>)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/></p>
<p>Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx</i>)</p>	<p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>	<p>Hydrocarbon production as part of Oil Water Separator. Disposed offsite using Controlled Waste Contractor.</p>
<p>Is the Premises within an Environmental Protection Policy (EPP) Area?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>If Yes include details of which EPP(s) here.</p>
<p>Is the Premises subject to any EPP requirements?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>If Yes, include details here, e.g. Site is subject to SO₂ requirements of Kwinana EPP.</p>
<p>Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i>?</p>	<p>Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p>	<p>Classification: N/A Date of classification: N/A</p>