Decision Report

Application for Works Approval

Division 3, Part V *Environmental Protection Act 1986*

Works Approval Number	W6366/2020/1
Works Approval Holder	Savannah Nickel Mines Pty Ltd
ACN	103 729 282
File Number	DER2020/000092
Premises	Savannah Project Mining Tenements M80/179, M80/180 and M80/181 WARMUN WA 6740
Date of Report	12 June 2020
Status of Report	Final

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1. Definitions of terms and acronyms

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

Table 1: Definitions

Term	Definition
ACN	Australian Company Number
Category/ Categories/ Cat.	Categories of Prescribed Premises as set out in Schedule 1 of the EP Regulations
CEO	means Chief Executive Officer. CEO for the purposes of notification means: Director General Department Administering the *Environmental Protection Act 1986* Locked Bag 10 JOONDALUP DC WA 6919 info@dwer.wa.gov.au
Decision Report	refers to this document.
Delegated Officer	an officer under section 20 of the EP Act.
Department	means the department established under section 35 of the *Public Sector Management Act 1994* and designated as responsible for the administration of Part V, Division 3 of the EP Act.
DWER	means the Department of Water and Environmental Regulation
EPA	Environmental Protection Authority
EP Act	*Environmental Protection Act 1986* (WA)
EP Regulations	*Environmental Protection Regulations 1987* (WA)
Minister	the Minister responsible for the EP Act and associated regulations
Noise Regulations	*Environmental Protection (Noise) Regulations 1997* (WA)
Occupier	has the same meaning given to that term under the EP Act.
Prescribed Premises	has the same meaning given to that term under the EP Act.
Premises	refers to the premises to which this Decision Report applies, as specified at the front of this Decision Report
Risk Event	As described in *Guidance Statement: Risk Assessment*
tpa	Tonnes per annum
TSF	Tailings Storage Facility
UDR	*Environmental Protection (Unauthorised Discharges) Regulations 2004* (WA)
Works Approval Holder	Savannah Nickel Mines Pty Ltd

2. Purpose and scope of assessment

Savannah Nickel Mines Pty Ltd (Savannah) has submitted an application for a works approval for the installation of a mobile crushing and screening plant (mobile plant), construction of power generating equipment, and the commissioning and time limited operations of existing power generating equipment at the Savannah Project (Premises).

Following the completion of the works and the submission of compliance documentation, Savannah will need to apply for an amendment to their Licence for the operation of the new infrastructure.

The Decision Report presents an assessment of potential environmental and public health risks from the emissions and discharges associated with the construction and operation of the mobile plant and power generating equipment, and the commissioning and time limited operation of the power generating equipment.

2.1 Application details

Savannah submitted a works approval application to DWER on 19 February 2020 for approval to install a Prescribed Premises category 12 screening plant, and to construct new and operate existing category 52 power generating equipment.

Table 2 lists the documents submitted during the assessment process.

Table 2: Documents and information submitted during the assessment process

Document/information description	Date received
Works Approval application form	19 February 2020
Supporting documentation: Works Approval, *Prescribed Premsies Categories 12 and 52 Crushing and Screening of Material and Power Generation*, Savannah Project, 19 February 2020	

3. Background

Savannah currently hold EP Act Licence L7967/2003/6 (Licence) for categories 5, 54 and 64 at the Premises. The Licence was last amended on 21 December 2018 to reinstate the approved premises production and design capacities and include amended conditions for the TSF.

Table 3 lists the existing prescribed premises categories on the Licence.

Table 3: Prescribed Premises Categories in the Existing Licence

Classification of Premises	Description	***Approved Premises production or design capacity or throughput***
Category 5	Processing or beneficiation of metallic or non-metallic ore	950,000 tpa
Category 54	Sewage facility	200 cubic metres or more per day
Category 64	Class II putrescible landfill site	10,000 tpa

4. Overview of Premises

Operations at the Premises consist of an underground mine, paste plant, processing plant with tailings and water storage facilities, supporting mine site infrastructure and an accommodation village. These operations were suspended in April 2020 with the Applicant placing the Premises into Care and Maintenance.

The Premises is located approximately 40 kilometres (km) south of Warmun and 120 km north of Halls Creek. The process plant is currently designed to treat 950,000 tonnes of ore per year.

The scope of works and the operational aspects of the proposed mobile plant and the diesel powered generating equipment are described below.

4.1 Operational aspects

Installation of mobile crushing and screening plant

Savannah proposes to install a mobile plant at the Premises for the purposes of crushing and screening of up to 500,000 tonnes per annum (tpa) of waste rock. The crushing and screening of 500,000 tpa of waste rock exceeds the minimum production or design capacity of 50,000 tpa when a Category 12 works approval for construction and a licence for operation are required.

The crushed rock will be used to support the Main Roads of Western Australia (MRWA) road maintenance and construction works and for use onsite at the Premises for internal roadways.

The mobile plant will be located on the upper surface of the existing Savannah Waste Rock Dump (SWRD) as shown in figure 2, and will be moved across the surface as needed. Waste rock from the SWRD will be loaded into the mobile plant by an excavator where it will then pass through a three stage Terex 1180 Jaw Crusher or a Maxtrack 1300 Cone designed crushing and screening plant to produce various sized products. Any oversized screened rock will be replaced back into the SWRD. The screened product will be stock piled and loaded into trucks as required.

Savannah has made the following commitments to reduce the likelihood of environmental impacts from the construction and operation of the mobile plant:

- Construction and commissioning activities will not be undertaken during periods of strong winds;
- Surface mobile equipment and light and heavy vehicles will keep to designated roads;
- Vehicle speed limits will be applied to reduce dust generation from vehicle movements;
- The generation of fugitive dust emissions will be minimised using a combination of water sprays, misters and water carts;
- Regular inspections to evaluate the effectiveness of point source dust control measures;
- Crushing and screening activities will not be undertaken during periods of strong winds;
- Mobile equipment and heavy and light vehicles will carry spills kits and will be inspected and maintained on a regular basis; and
- When maintenance is occurring onsite (outside of designated workshops), hydrocarbon spillages and leakages will be captured and managed through the use of drip trays and hydrocarbon absorbent materials.

Power generation infrastructure

The Premises consists of existing diesel powered generating equipment located at two separate areas of the Premises as set out below:

Located adjacent to the processing plant and fuel farm:

- Nine 1.1 megawatt diesel generators (each consisting of a MTU Friedrichshafen model unit de-rated to 900 kilowatts); and

- Three 1.2 megawatt diesel generators (each consisting of a KTA50 Cummins model unit de-rated to 1.1 megawatts).

Located adjacent to primary vent fan/chiller area:

- Four 1.2 megawatt diesel powered generators (each consisting of a Cummins KTA50 diesel generator).

The power station at the primary vent fan/chiller area also consists of three 68,000 litres double skinned fuel tanks, refuelling connections located within a concrete bunded area to capture any spills, high and low voltage transformers, high voltage switches, bund leakage warning systems, cable trays and fuel piping.

Savannah also proposes to construct an additional four 1.2 megawatt diesel powered generators at the primary vent fan/chiller area.

The total potential combined electrical power generation at the Premises therefore has a maximum capacity of up to 25 megawatts (MW). This combined maximum capacity at the Premises exceeds the minimum design capacity of 10 MW when a Category 52 works approval for commissioning and a licence for operation are required.

Savannah has made the following commitments to reduce the likelihood of environmental impacts from construction, commissioning and time limited operations of the power generating infrastructure:

- Generators and diesel engines will be maintained and serviced on a regular basis according to manufacturer's specifications to minimise emissions ;
- Low sulfur diesel will be used in equipment and generators;
- Emissions will be detailed in the National Pollution Inventory (NPI) report and National Greenhouse and Energy Report (NGER) which are submitted annually;
- Maintenance activities will not be undertaken during periods of strong winds;
- Compliance with the *Environmental Protection (Noise) Regulations 1997;*
- Storage of hydrocarbons will be undertaken in accordance with existing approvals; and
- Soil contaminated by hydrocarbons will be treated in-situ, at the bioremediation pad or transported offsite to a controlled waste licensed facility for treatment.

4.2 Infrastructure

The infrastructure, as it relates to Category 12 and 52 activities, is detailed in Table 4 and with reference to the Site Plan (attached in the Works Approval).

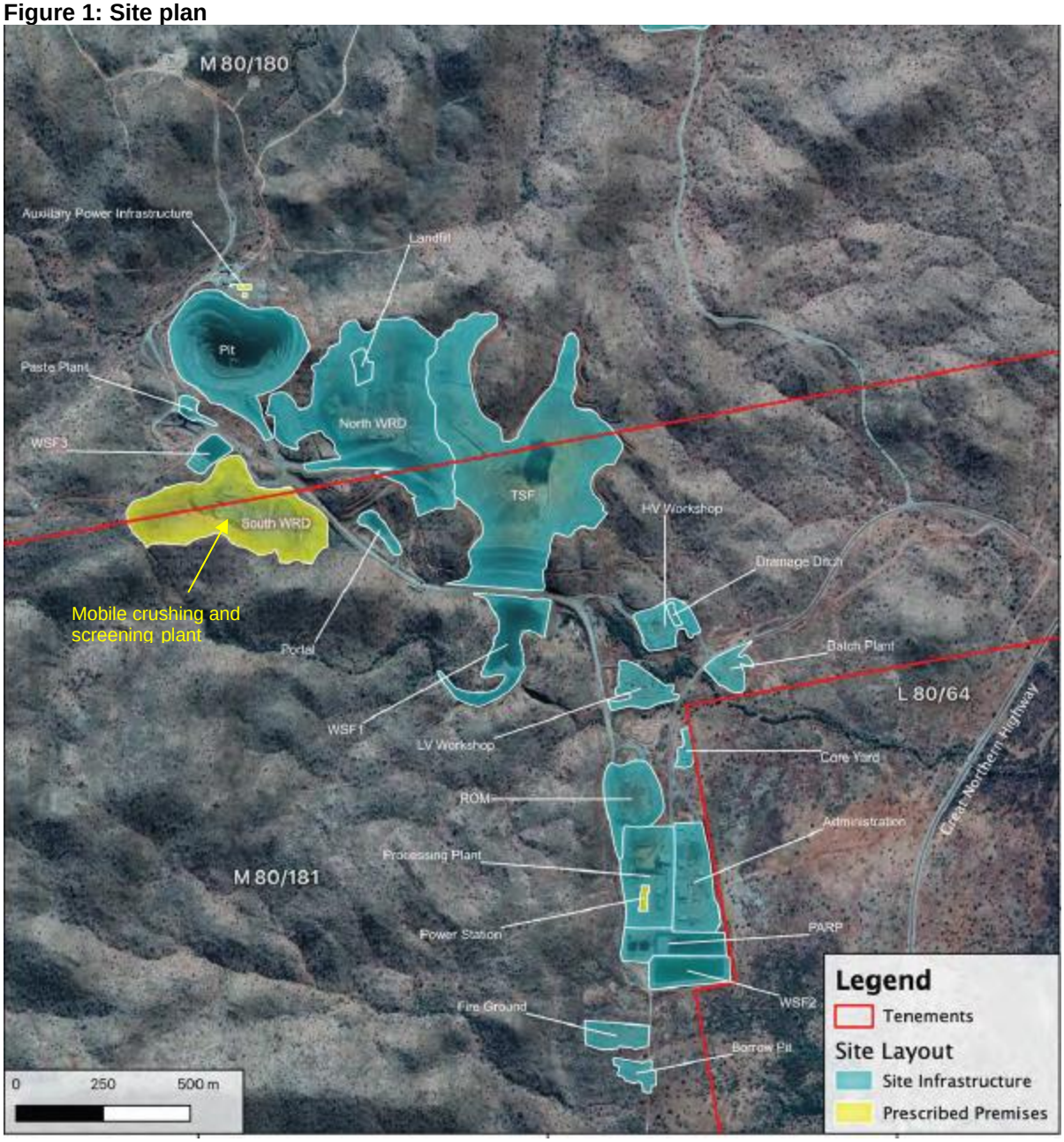
Table 4 lists infrastructure associated with each prescribed premises category.

Table 4: Category 12 and 52 infrastructure

	Infrastructure	**Site Plan Reference**
	Prescribed Activity Category 12	
Mobile plant for the crushing and screening of up to 500,000 tpa of waste rock		
1	Three stage mobile plant will consist of the following: • Primary jaw crusher; •Scalping screen (Terex 883 + Heavy Duty Screener); •Secondary cone crusher; •Tertiary cone crusher; •Product screen; and •Telestack TC420 conveyor	Figure 1 site plan

	Infrastructure	Site Plan Reference
	Prescribed Activity Category 52	
Diesel powered generating equipment with a total combined capacity of up to 25 MW		
1	Located adjacent to the processing plant and fuel farm: Nine 1.1 megawatt diesel generators (each consisting of a MTU Friedrichshafen model unit de-rated to 900 kilowatts); and Three 1.2 megawatt diesel generators (each consisting of a KTA50 Cummins model unit de-rated to 1.1 megawatts	Figure 1 site plan
2	Located adjacent to the primary vent fan/chiller area: Eight 1.2 MW diesel generators (each consisting of a Cummins KTA50 diesel generator); and	
3	Three 68,000 litre double skinned diesel fuel tanks. Refuelling connections located within concrete bunded area to capture any spills.	

Figure 1: Site plan



5. Legislative context

Table 5 summarises approvals relevant to the assessment.

Table 5: Relevant approvals and tenure

Legislation	Number	Approval
Mining Act 1978	Addendum to NOI 4099	Provision of Crushed Waste Rock for Use in Road Construction and Site Maintenance – Addendum to NOI 4099 (Version 2), July 2019. Approved 23 July 2019
	Mining proposal 72411	Mining Proposal Addendum for Expansion of Power Generation Infrastructure, 26 November 2019.

Legislation	Number	Approval
		Approved 13 January 2020

5.1 Part IV of the EP Act

The proposal was not referred to DWER – Environmental Protection Division as it was not deemed to be a 'significant proposal' by Savannah.

5.2 Contaminated sites

Mining tenements M80/179, M80/180 and M80/181 are not listed on DWER's contaminated sites database.

5.3 Part V of the EP Act

5.3.1 Applicable regulations, standards and guidelines

The overarching legislative framework of this assessment is the EP Act and EP Regulations.

The applicable regulations include:

- *Environmental Protection (Noise) Regulations 1997*; and
- *Environmental Protection (Unauthorised Discharges) Regulations 2004*.

The guidance statements which inform this assessment are:

- *Guidance Statement: Setting Conditions (October 2015)*
- *Guidance Statement: Decision Making (June 2019)*
- *Guidance Statement: Risk Assessments (February 2017)*
- *Guidance Statement: Environmental Siting (November 2016)*

5.3.2 Works approval and licence history

Table 6 summarises the works approval and licence history for the premises.

Table 6: Works approval and licence history

Instrument	Issued	Nature and extent of works approval, licence or amendment
L7967/2003/6	31/0/2014	Licence issued
Amendment Notice 1	24/04/2018	Amendment Notice 1: administrative amendment to change the annual period.
Amendment Notice 2	21/12/2018	Amendment Notice 2: reinstate the previously approved premises production design capacities onto the Licence and incorporate TSF management conditions as part of the TSF lift approved via Works Approval W5208/2012/1.
W6366/2020	12/06/2020	Works Approval for the installation of a mobile crushing and screening plant , construction of power generating infrastructure and the commissioning and time limited operation of existing power generating equipment at the Premises.

6. Consultation

A scoping meeting was held with DWER officers on the 25 September 2019. A follow up

consultation with DWER (pers. Comm, Alana Kidd, 10 January 2020) concluded that the combination of the power generating infrastructure at the Premises had resulted in the potential for power generation to exceed the Category 52 threshold and therefore requires approval as a Prescribed Premises.

The Application was advertised on 6 April 2020 seeking public comment. Comments were due by the 27 April 2020. No comments were received.

7. Location and siting

7.1 Siting context

The Premises is located in an area which is remote and sparsely populated. The Premises is approximately 40 km south of Warmun and 120 km north of Halls Creek in the East Kimberley Region of Western Australia.

7.2 Residential and sensitive receptors

The distances to residential and sensitive receptors are detailed in Table 7.

Table 7: Receptors and distance from activity boundary

Sensitive Land Uses	Distance from Prescribed Activity
Wurrenranginy (Frog Hollow) Aboriginal Community	10 km north of the Premises

7.3 Specified ecosystems

Specified ecosystems are areas of high conservation value and special significance that may be impacted as a result of activities at or Emissions and Discharges from the Premises. The distances to specified ecosystems are shown in Table 8.

The table has also been modified to align with the *Guidance Statement: Environmental Siting.*

Table 8: Environmental values

Specified ecosystems	Distance from the Premises
Threatened Ecological Communities and Priority Ecological Communities	No threatened flora. One priority flora (*Sorghum plumosum var. teretifolium* (P1)) recorded and noted to occur extensively across the wider area. Normally associated with ephemeral, sandy and stoney based drainage lines and on slopes above the drainage lines. Nearest drainage line (Mine Creek) is located approximately 500 m away.

7.4 Groundwater and water sources

The distances to groundwater and water sources are shown in Table 9.

Table 9: Groundwater and water sources

Groundwater and water sources	Distance from Premises	Environmental value
Minor watercourses/drainage channels	Approximately 500 m from the SWRD where the mobile plant will be located, and 1.5 km from the	Ungazetted creek which acts as a local drainage channel during

	additional diesel powered generators.	heavy rainfall events.
Major watercourses/waterbodies	No nearby major water courses	Not applicable
Groundwater	Approximately 30 mbgl at the waste rock dumps.	Not applicable

7.5 Meteorology

The climate at the Premises is typically characterised by humid summers (wet season) and dry winters. The wet season brings frequent storms which occasionally bring intense rainfall that leads to flooding. Most of the rainfall occurs in the wet season and is associated with stream flow events across the Premises.

8. Risk assessment

8.1 Determination of emission, pathway and receptor

In undertaking its risk assessment, DWER will identify all potential emissions pathways and potential receptors to establish whether there is a Risk Event which requires detailed risk assessment.

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. Where there is no actual or likely pathway and/or no receptor, the emission will be screened out and will not be considered as a Risk Event. In addition, where an emission has an actual or likely pathway and a receptor which may be adversely impacted, but that emission is regulated through other mechanisms such as Part IV of the EP Act, that emission will not be risk assessed further and will be screened out through the Tables.

The identification of the sources, pathways and receptors to determine Risk Events are set out in Tables 10 and 11 below.

Table 10. Identification of emissions, pathway and receptors during construction

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Mobilisation and positioning of mobile crushing and screening plant	Vehicle and equipment movements on unsealed access roads	Noise	No nearby residences or other sensitive receptors	Air / wind dispersion	Amenity impacts	No	No receptor present
		Dust	No nearby residences or other sensitive receptors No nearby threatened or priority flora Surrounding native vegetation	Air / wind dispersion	Amenity impacts Smothering of vegetation	No	The minor construction works (equipment placement) is not expected to generate significant dust emissions. Mobile plant will be located on the highly disturbed SWRD. Water truck will be used as required. Limited surrounding vegetation due to mining activities. General provisions of the EP Act with respect to the causing of pollution and/or environmental harm will apply.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Construction of diesel powered generating equipment	Vehicle movements on unsealed access roads and construction activities.	Noise	No nearby residences or other sensitive receptors	Air / wind dispersion	Amenity impacts	No	No receptor present
		Dust	No nearby residences or other sensitive receptors No nearby threatened or priority flora Surrounding native vegetation	Air / wind dispersion	Smothering of nearby native vegetation	No	The new power generating equipment will be constructed within a previously cleared area which has existing surrounding infrastructure. The area surrounding is highly disturbed or cleared as a result of mining activities. Water truck will be used as required. Vehicle speed limits will be limited to reduce dust emissions. Works will not be undertaken during periods of strong winds. General provisions of the EP Act with respect to the causing of pollution and/or environmental harm will apply.

Table 11: Identification of emissions, pathway and receptors during operation

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Mobile crushing and screening plant	Crushing and screening of ore, stockpiling and truck loadouts	Dust	No nearby residences or other sensitive receptors No nearby threatened or priority flora Surrounding native vegetation	Air / wind dispersion	Smothering of nearby native vegetation	No	The mobile plant will only be located on the upper surface of the existing SWRD and will be moved across the surface as needed. The native vegetation surrounding the SWRD is either cleared or highly degraded as a result of mining activities. Operations will not be undertaken during periods of strong winds.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
							Fugitive dust emissions will be minimised through the use of water sprays and misters on crushing equipment, and use of a water truck for roads and stockpiles as required. General provisions of the EP Act with respect to the causing of pollution and/or environmental harm will apply.
		Noise	No nearby residences or other sensitive receptors	Air / wind dispersion	Amenity impacts	No	No receptor present
		Discharge of hydrocarbons due to equipment failure and spillage	Surrounding soils	Overland flow	Contamination of local soils and drainage lines with hydrocarbons	No	Savannah has committed to undertaking routine inspections and regular maintenance in accordance with manufactures specifications. The use of drip trays and hydrocarbon absorbent materials (spill kit) when maintenance occurs in the field. Onsite spill kit available for equipment failure. SWRD well above natural ground level with any accidentally discharge of hydrocarbons expected to remain on the upper surface of the SWRD. Any soil contaminated by hydrocarbons will be removed and sent to the bioremediation pad or offsite to a controlled waste licensed facility for treatment. General provisions of the EP Act with respect to the causing of pollution and/or environmental harm will apply.

Risk Events						Continue to detailed risk assessment	Reasoning
Sources/Activities		Potential emissions	Potential receptors	Potential pathway	Potential adverse impacts		
Diesel powered generating equipment	Electrical power generation from the combustion of diesel fuel	Air emissions (nitrogen oxides, sulfur dioxide, carbon monoxide and particulates)	No nearby residences or other sensitive receptors	Air / wind dispersion	Health impacts Amenity impacts	No	No receptor present
		Noise					No receptor present
		Discharge of hydrocarbons due to equipment failure and spillage	Surrounding soils and vegetation	Overland flow	Contamination of local soils with hydrocarbons Impacts on the health of vegetation	No	Savannah has committed to undertaking routine inspections and regular maintenance in accordance with manufactures specifications. Diesel fuel is stored in double skinned fuel tanks. Refuelling connections will be located within a concrete bunded area to capture any spills. Bunded area will be fitted with leakage warning system. Onsite spill kit available for equipment failure. Any soil contaminated by hydrocarbons will be removed and sent to the bioremediation pad or offsite to a controlled waste licensed facility for treatment. Diesel powered generating equipment located within a cleared area with limited nearby native vegetation. General provisions of the EP Act with respect to the causing of pollution and/or environmental harm will apply.

9. Regulatory controls

The conditions of the Works Approval will be set to give effect to the determined regulatory controls.

Following the completion of the works and the submission of an Environmental Compliance Report, Savannah will need to apply for an amendment to their Licence for the operation of the new infrastructure.

9.1 Works Approval controls

9.1.1 Infrastructure and equipment

Standard works approval condition which sets out the design and construction requirements for the mobile plant and diesel powered generating equipment.

9.1.2 Compliance reporting

Standard works approval conditions requiring the undertaking of audits and the submission of compliance documents following the completion of the works.

9.1.3 Environmental commissioning phase

Standard works approval conditions allowing commissioning of the crushing and screening plant and power generating equipment for a period of three months, and notification and reporting requirements following the completion of the environmental commissioning phase.

9.1.4 Time limited operational phase

Standard works approval condition allowing for the operation of the crushing and screening plant and power generating equipment for a period of six months following the completion of Environmental Commissioning and submission of the Environmental Compliance Reports.

9.1.5 Records and reporting

Standard works approval records and reporting conditions have been applied.

9.2 Licence controls

The works approval allows Savannah to undertake works, subject to conditions, in addition to allowing emissions from the Premises as installation and construction is completed and the premises commences commissioning and operating, also subject to conditions.

Commissioning is limited to a period of 3 months, and operation limited to a period of 6 months pending the assessment of a licence amendment application.

It is expected that Savannah will apply for an amendment to their Licence following submission of compliance documents. The determined controls for an amendment to the licence will generally consist of the following:

- Addition of new prescribed premises categories 12 and 52 including production and design limits;
- New point source emissions to air; and
- Updated map of emission points.

Final determination of licence controls will consider information submitted by Savannah in the licence amendment application and in response to works approval requirements.

10. Determination of Works Approval conditions

The conditions in the issued Works Approval in Attachment 1 have been determined in accordance with the *Guidance Statement: Setting Conditions*.

The *Guidance Statement: Licence Duration* has been applied and the issued Works Approval expires in 3 years from date of issue.

Table 12 provides a summary of the conditions to be applied to this works approval.

Table 12: Summary of conditions to be applied

Condition Ref	Grounds
Condition 1 - Infrastructure and equipment	These conditions are valid and contain appropriate controls and commitments made by the works approval holder.
Conditions 2, 3 and 4 - Compliance reporting	These conditions are valid and are necessary administrative and reporting requirements to ensure compliance.
Conditions 5, 6, 7 and 8 - Environmental commissioning phase	These conditions are valid, enable flexibility in commissioning with appropriate controls and contain necessary administrative and reporting requirements to ensure compliance.
Condition 9 - Time limited operational phase	These conditions are valid, risk-based and enable flexibility in operations.
Conditions 10, 11 and 12 - Records and reporting	These conditions are valid and are necessary administrative and reporting requirements to ensure compliance.

DWER notes that it may review the appropriateness and adequacy of controls at any time and that, following a review, DWER may initiate amendments to the works approval under the EP Act.

11. Applicant's comments

Savannah was provided with the draft Decision Report and draft Works Approval on 19 May 2020. Savannah provided comments on 29 May and 11 June 2020 which are summarised, along with DWER's response, in Appendix 2.

12. Conclusion

This assessment of the risks of activities on the Premises has been undertaken with due consideration of a number of factors, including the documents and policies specified in this Decision Report (summarised in Appendix 1).

Based on this assessment, it has been determined that the Works Approval will be granted subject to conditions commensurate with the determined controls and necessary for administration and reporting requirements.

Louise Lavery

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Date: 2020.06.12 11:06:28 +08'00'

Louise Lavery
A/Manager, Resource Industries
Delegated Officer
under section 20 of the *Environmental Protection Act 1986*

Appendix 1: Key documents

	Document title	In text ref	Availability
1.	Works Approval application form including supporting documentation	Application	accessed at www.der.wa.gov.au DWER records (DWERDT255546)
2.	Guidance Statement: Decision Making (June 2019)	Guidance Statement: Decision Making	accessed at www.dwer.wa.gov.au
3.	Guidance Statement: Risk Assessments (February 2017)	Guidance Statement: Risk Assessments	
4.	Guidance Statement: Environmental Siting (November 2016)	Guidance Statement: Environmental Siting	
5.	Guidance Statement: Setting Conditions (October 2015)	Guidance Statement: Setting Conditions	

Appendix 2: Summary of applicant's comments on risk assessment and draft conditions

Condition	Summary of Works Approval Holder's comment	DWER response
-	The Applicant advised that most of the power generating equipment, including the fuel storage, is existing infrastructure at the Premises. The Applicant only plans to construct/install four new power generators and commission the existing infrastructure. The applicant advised following discussions with DWER back in January 2020, approval is required for the existing infrastructure so it can be commissioned and operated. The combined capacity at the Premises is approximately 25 MW, and therefore exceeded the design capacity of 10 MW when the Premises is considered a Prescribed Premises category 52.	The Decision Report and Works Approval have been updated to reflect these changes.

Attachment 1: Issued Works Approval W6366/2020/1