Amendment Report

Application for Licence Amendment

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

Licence Number	L9208/2019/1
Licence Holder	Piper Preston Pty Ltd
ACN	142 862 409
File Number	DER2019/000338
Premises	Lake Way Sulphate of Potash (SOP) Goldfields Highway WILUNA WA 6646 Legal description – Parts of Mining Leases M53/796, M53/797, M53/798, M53/123 and M53/910, G53/25 and L53/214
Date of Report	24 May 2021
Decision	Revised licence granted

Carmen Standring

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A/MANAGER, RESOURCE INDUSTRIES REGULATORY SERVICES

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

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1. Decision summary

Licence L9208/2019/1 is held by Piper Preston Pty Ltd (Licence holder) for the Lake Way Sulphate of Potash (SOP) Project (the Premises), located across mining tenements M53/796, M53/797, M53/798, M53/123, M53/910, G53/25 and L53/214 at Wiluna.

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 operation of the Premises. As a result of this assessment, Revised Licence L9208/2019/1 has been granted.

The Revised Licence issued as a result of this amendment consolidates and supersedes the existing Licence previously granted in relation to the Premises. The Revised Licence has been granted in a new format with existing conditions being transferred, but not reassessed, to the new format.

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 23 December 2020, the Licence Holder submitted an application to the department to amend Licence L9208/2019/1 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The following amendments are being sought:

- Addition of Category 85 - Sewage facility
- Increasing throughput from 50,000 tpa to 260,000 tpa
- Extension of existing ponds on Lake Way, entailing an expansion of the existing pond arrangement
- Authorisation of halite salt stockpile areas
- Authorisation of discharge of brine to Williamson Pit
- Change to the prescribed premises boundary

Table 1 below outlines the proposed changes to the existing Licence categories

Table 1: Proposed throughput capacity changes

Category	Current throughput capacity	Proposed design capacity	Description of proposed amendment
14	50,000 tonnes per annual period	260,000 tonnes per annual period	The SOP demonstration plant has approval to process 50,000 tonnes per year. The licence holder is proposing to increase the production capacity up to 260,000 tonnes per year as a result of converting the demonstration project into a long-term larger scale operation. The Environmental Protection Authority (EPA) has

			assessed the proposal and has granted that the project may implemented (Ministerial Statement 1165)
85	N/A	90 m^3/day	The Licence Holder has constructed a sewage treatment plant at the Premises, which has a design capacity of 90 m^3/day

2.2.1 Proposed activities

Category 85 - Sewage facility

In March 2020, Works Approval W6282/2019/1 was amended to authorise construction of an off-lake sewage treatment plant to facilitate a 300-bed mine camp. An activated sludge bioreactor-type packaged sewage treatment plant, with a maximum treatment capacity of 90m^3/day, has been constructed onsite to treat influent to an acceptable standard for irrigating to a designated spray field.

The treatment process includes influent screening, balance tank mixing, anoxic and aerobic treatment for nitrification and denitrification, clarification, effluent sterilisation (chlorine tablets) and bag filtration (100 micron). The sewage treatment facility is equipped with automated hydrostatic level transducers and overflow alarms.

The irrigation spray field is located south of the mine camp and covers an area of around 1.5 ha (100m x 150m). The setback of the spray field is 3km from the Lake Way playa above the 1:100 flood zone. The designed irrigation rate is 4mm/day at a maximum daily discharge 60 kL per day. The spray field comprises native vegetation that forms a part of the area authorised for clearing, however the vegetation has not been physically cleared.

Sludge from the sludge tank will be periodically removed and disposed at an authorised off-site disposal facility. The design specifications for the treated effluent water quality for this system is detailed in the below table.

Table 2: Treated effluent specifications

Parameter	Unit	Value
Biochemical oxygen demand	mg/L	<20.0
Total suspended solids		<10.0
Total nitrogen		<30.0
Total phosphorus		<12.0
Chlorine residual		0.2 – 2.0
pH	-	6.5 – 8.5
E. coli	cfu/100 mL	<10

Construction of Additional Ponds on Lake Way

The Lake Way SOP demonstration project currently has several temporary holding ponds on the lake playa and covers a footprint of 690 ha and is authorised to operate under licence L9208/2019/1. By way of this amendment application, the applicant is seeking approval to extend the existing pond system to increase the production rate from 50,000 tonnes per annum (tpa) to 260,000tpa to operate the full-scale commercial brine processing project. Extension of these ponds will require an additional 365 ha, which brings up the total pond area to 1,055 ha on the Lake Way playa. Brine extracted from the trenches and the paleochannel bores will be pumped continually to the evaporation ponds where it will be concentrated by evaporation to allow the recovery of potassium bearing minerals required to produce SOP.

Two primary construction methods, which have been used to construct the existing ponds, will be used to construct the proposed additional pond area. These are:

- Plastic sheet pile method; and
- Earthworks

The large ponds will be constructed using the plastic sheet pile methods and the earthworks method will be utilized to construct the smaller ponds.

Plastic sheet pile methodology

PVC plastic sheet piles will be driven through lake sediments to achieve a minimum pond wall height or refusal (whichever comes first). Sheet piling will be to a depth of 2m around the full perimeter of the ponds (Figure 1). The pond perimeter wall will vary based on the individual pond. The sheet pile height will vary for each pond's brine depth and precipitation rate.

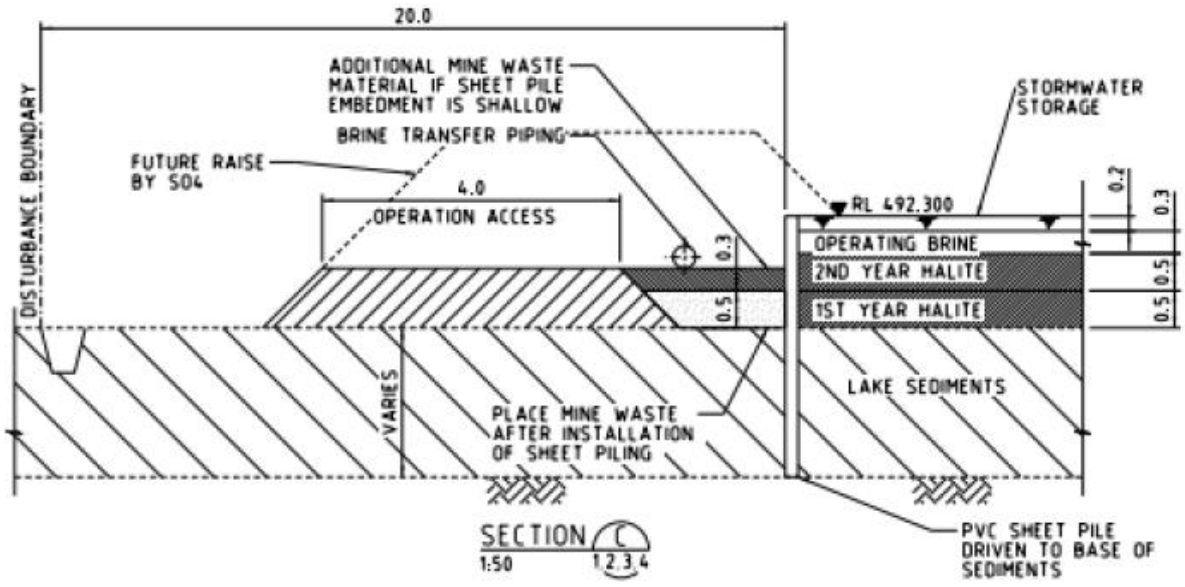

Figure 1: Plastic sheet pile construction technology (external walls)

Earthworks methodology

Pond walls are constructed from overburden waste rock and clay sourced from Williamson Pit waste rock dump. The slopes of the bunds will be at 1V:2H and lined with a HDPE liner which will extend into a trench at the internal toe of the bunds. The bunds will be cut into the underlying clays below the lake.

The applicant has not proposed controls to manage the impacts from the dust and noise emissions during the construction phase of the additional pond area. Proposed control to mitigate impacts during the operation of the ponds are summarised in Section 3.1.1.

Halite Stockpile Areas on the Lake Way

Halite waste is generated as a result of the evaporation of water in the temporary holding ponds. Initially, during the demonstration project operations, it was proposed that this waste product will be stored in a pond on the Lake Way. However, the applicant made a change to this approach during the full-scale plant approvals and therefore proposes to stockpile waste salt adjacent to the ponds on the lake playa (proposed location shown in Figure 2). The waste salt potentially has some economic value as a by-product. Thus, the applicant anticipates retaining these salt stockpiles on the lake playa until an appropriate market is identified. The waste salts will be stockpiled up to 15m high with 1.5m bund placed around the stockpile.

The EPA has considered the impact to the biota on the lake surface from the runoff of these salts and determined that given the salinity of the water on the Lake Way (150,000 to 200,000 mg/L TDS), the organisms are likely to adapt the high salinity environment. EPA has also considered any potential impacts from the dissolution of the waste salts and determined that given that the Part V licence conditions will control the operation and maintenance of bunding around the excess salt disposal area, it is unlikely that runoff from the waste salt disposal area would impact surface or groundwater quality of the Lake Way and therefore will not significantly affect the sustainability of the existing biota across the playa.

Discharge of brine to Williamson pit

The Williamson pit is located on the surface of the Lake Way and the applicant is currently authorised to abstract groundwater as an additional source of brine for SOP production (GWL205291). The Williamson pit previously operated as a gold mine by a third party. The applicant has recently acquired the mining tenements to utilize the Williamson pit for temporary storage of hypersaline water during times when the available water quantities are in excess of pond storage capacities. The stored water will be pumped back into the temporary holding ponds during the hot summer months, when the evaporation rates are high and additional water is required to maintain the process continuity.

2.2.2 Exclusions to this assessment

The SOP processing plant authorised for construction under W6282/2019/1 has not been considered within the risk assessment detailed in this assessment report. The construction compliance and environmental commissioning reports are yet to be submitted by the applicant to demonstrate that the works have been completed in accordance with the conditions of the works approval W6282/2019/1. Once commissioning and reporting requirements under W6282/2019/1 have been satisfied, the applicant will be required to apply for a further amendment to licence L9208/2019/1 to allow ongoing operation of the SOP processing plant.

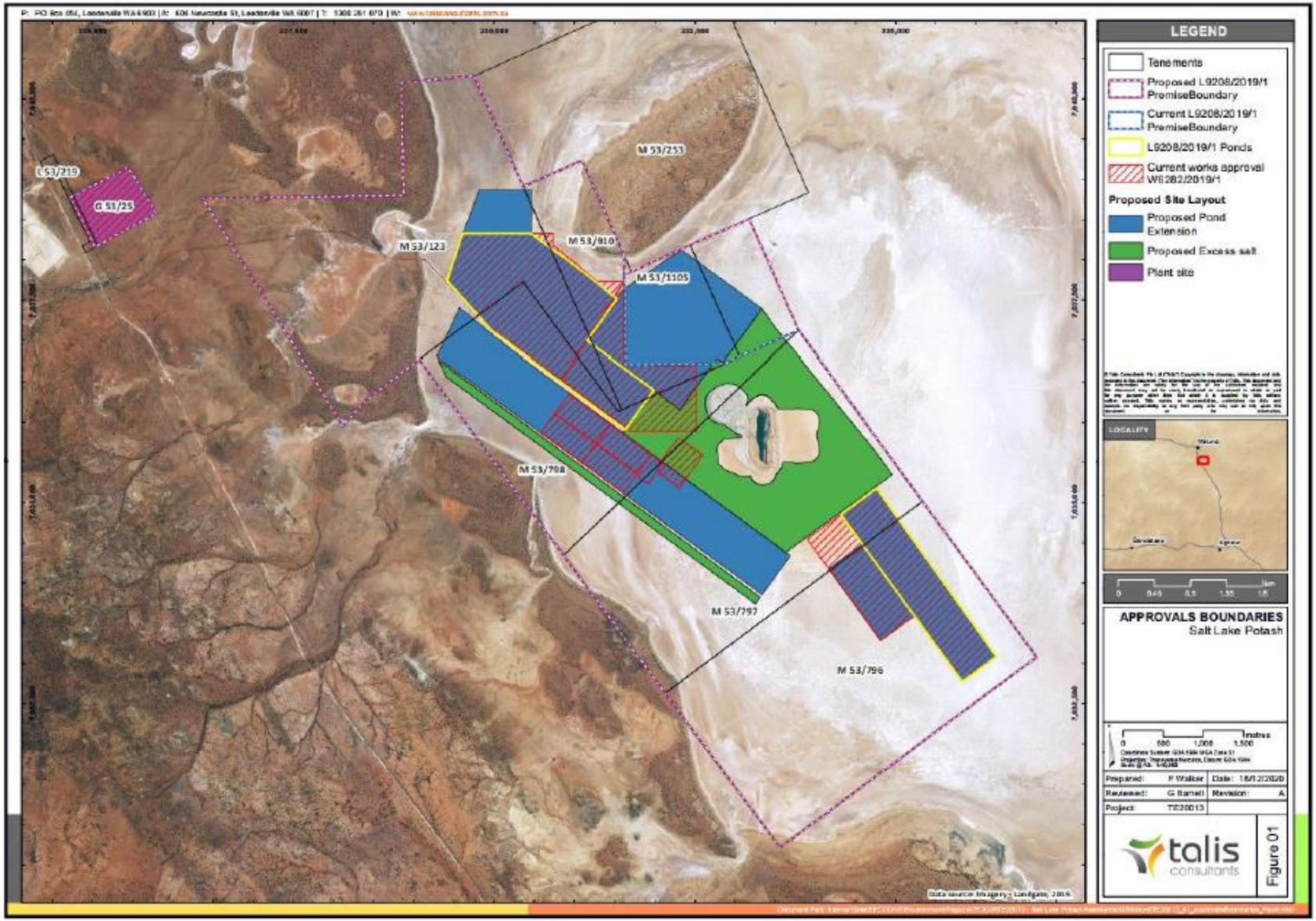

Figure 2: Proposed change to Lake Way infrastructure layout and prescribed premises boundary

Licence: L9208/2019/1

2.3 Part IV of the EP Act

The licence holder referred the Lake Way SOP project expansion proposal to the Environmental Protection Authority (EPA) in September 2019 for a full scale, 260,000 tpa, commercial brine processing operation. EPA assessed the impact of the proposal against four key environmental factors including Inland waters, Flora and Vegetation, Terrestrial Fauna, and Social Surrounding individually, and also as a holistic approach to identify impacts to the environment as a whole.

In considering the potential direct and indirect impacts of the proposal, the EPA determined (EPA report number 1699) that the impacts are manageable and the full-scale project may be implemented subject to the conditions stipulated in Ministerial Statement (MS) 1165, as well as matters dealt with by other statutory processes. Also, EPA determined that the applicant must not exceed the following limits when implementing the proposal:

(1) disturbance of more than 2,750 ha within the 25,449 ha development envelope,

(2) clearing of more than 138 ha of native vegetation;

(3) groundwater abstraction of more than 30 gigalitres per annum from paleochannel bores and lakebed trenches;

(4) disposal of more than 5.1 million tonnes per annum of excess salts into the excess salt disposal area; and

(5) project life of more than 20 years

2.4 Consolidation of Licence

As part of this amendment package the department has consolidated the licence by incorporating changes made under the Amendment Notices as summarised in Table 3.

Table 3: Licences consolidated in this amendment

Instrument	Issued	Summary of approval
L9208/2019/1	29 September 2019	Licence granted
L9208/2019/1	17 November 2020	Amendment to authorise operation of two new evaporation ponds
L9208/2019/1	25 January 2021	Amendment to transfer the licence to Piper Preston Pty Ltd
L9208/2019/1	19 May 2021	Amendment to; • authorise Category 85 Sewage treatment facility • construction and operation of additional evaporation ponds on Lake Way • increasing the throughput from 50,000tpa to 260,000tpa • establishment of halite salt stockpile area on Lake Way • discharge of brine to Williamson Pit

The obligations of the Licence Holder have not changed in consolidating the licence. The department has not undertaken any additional risk assessment of the Premises related to previous Amendment Notices.

In consolidating the licence, the CEO has:

- revised licence condition's numbers, and removed any redundant conditions and realigned condition numbers for numerical consistency; and
- corrected clerical mistakes and unintentional errors.

The full consolidation of licence conditions as they relate to this Revised Licence are detailed in Section 5.1. Previously issued Amendment Notices will remain on the department's website for future reference and will act as a record of the department's decision making.

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 *Guidance Statement: Risk Assessments* (DER 2017).

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 operation which have been considered in this Amendment Report are detailed in Table 4 below. Table 4 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 4: Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Category 14: Solar salt manufacturing			
Increasing SOP manufacturing from 50,000tpa to 260,000tpa			
Extension of Pond system on Lake Way - Construction			
Dust	Excavation and earthworks Construction of additional ponds and access tracks Vehicle movement on unsealed roads	Air / wind dispersion causing impacts to surface water quality and native vegetation in the proximity	None specified
Noise	Excavation and earthworks Construction of additional ponds and access tracks Vehicle movements including reversing beepers	Air / wind dispersion causing impact to foraging fauna including migratory birds	

Emission	Sources	Potential pathways	Proposed controls
Extension of Pond system on Lake Way - Operation			
Hypersaline water	Stored hypersaline water in the temporary holding ponds	Seepage through base or wall of the ponds	• All embarkments are engineered to a specified level of compaction • A minimum storm surge capacity of 0.2m in all ponds (based on the 1 in 100 annual exceedance probability event of 72 hours duration) • Daily inspection of embarkments, embarkment crests, embarkment toes and perimeter drainage
		Overtopping of ponds or embarkment failure	
	Harvesting activities	Direct discharge to the environment due to pipeline leak / rupture	• Daily inspection of pipelines and discharge points
Pond water containing Naturally occurring radioactive materials (NORM) (radium and actinium isotopes)	Groundwater that is being pumped / transported into the ponds Precipitation during process / concentrated in ponds.	Direct – contact through skin or ingestion by wildlife (water birds).	• Monitoring presence or absence of water birds at the temporary ponds
Pond water containing Selenium (an element of environmental concern in salt lakes)	Groundwater that is being pumped/transported into the ponds.	Direct ingestion of invertebrates living within the pond water. Selenium can bio magnify within the food web	
Establishing a Halite Stockpile Area on Lake Way			
Dust	Liftoff from the stockpiles	Air / wind dispersion	None specified.
Halite contaminated water	Halite stockpiles on Lake Way	Dissolution of waste Halite into the surface water of Lake Way	• 1.5m bunding at the base of the stockpiles
Category 85: Sewage Facility			
Contaminated influent	Overtopping of infrastructure	Direct discharge Seepage to	• Automation of sewage facility including hydrostatic level

Emission	Sources	Potential pathways	Proposed controls
	Rupture or failure of pipework	groundwater	transducers and overflow alarms • Enclosed process plant facility where any overtopping of the tanks or failure of pipework (treated or untreated) will be contained within the drainage management system in the plant area • Discharge limits to spray fields (60 kL/day) • Setback of spray fields from the Lake (3 km) and located above 1:100 flood zone
Treated Effluent (including irrigation spray field)	Rupture or failure of pipework Overtopping of infrastructure Pooling/ infiltration/ surface runoff of treated sewage		
Nutrient rich effluent	Treatment quality exceedance		
Other			
Discharging Hypersaline water into Williamson pit			
Hypersaline water	Paleochannel production bores and trenches on lakebed	Direct discharge to the Williamson Pit	Applicant does not propose any control as discharging hypersaline water into the pit unlikely to alter the quality of the water in the pit
	Overtopping of the Williamson pit	Direct discharge to the lake playa	

3.1.2 Receptors

In accordance with the *Guidance Statement: Risk Assessment* (DER 2017), the Delegated Officer has excluded employees, visitors, and contractors of the Licence 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 5 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 *(Guidance Statement: Environmental Siting* (DER 2016)).

Table 5: Sensitive human and environmental receptors and distance from prescribed activities

Human receptors	Distance from prescribed activity
Goldfields Hwy (road users)	Less than 350 m west of the proposed plant site
Blackham Resources mine camp	Around 13 km north (300 room accommodation)
Nganganawilli community	Around 15 km north
Millbillillie pastoral station	Around 16.5 km northwest
Millgool outcamp	Around 16 km southwest
Lake Way pastoral station	Around 31.5 km southeast

Environmental receptors	Distance from prescribed activity
Lake Way	Premises is located both on and off the lake playa. • On-playa infrastructure – brine extraction trenches, evaporation ponds and associated pipework. Off-playa infrastructure – proposed brine processing plant, workers accommodation village, sewage plant and associated infrastructure
Tecticornia dominated vegetation (includes diverse and novel taxa including conservation significant species) (no surveys have been completed to identify the individual *Tecticornia* species) *Tecticornia* species are on the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act) list of threatened flora (status listed as vulnerable)	At Lake Way Not considered in this assessment. Potential impacts to receptor were considered in the EPA's determination not to assess the demonstration plant project. The EPA report noted that there is potential that the proposal will cause indirect impacts of up to 138 hectares of *Tecticornia* vegetation. Conservation significant *Tecticornia* protected by Ministerial Statement 1051 for the Wiluna Uranium Project that is adjacent to the premises are unlikely to be impacted by the proposal. No Ministerial conditions in relation to the application are in place
Surface geology	Soil type is SV5: Saline soils associated with salt lakes
Groundwater	The shallow near surface aquifer (0 to 1.1 m) comprises a high porosity, moderate transmissivity sandy clay. The deeper aquifer (1.1 to 10 m) consists of several horizons of clay and sandy clay.

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guidance Statement: Risk Assessments* (DER 2017) for those emission sources which are proposed to change 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 Licence Holder 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 Licence Holder's proposed controls to be critical to maintaining an acceptable level of risk, these will be incorporated into the licence as regulatory controls.

Additional regulatory controls may be imposed where the Licence Holder's controls are not deemed sufficient. Where this is the case the need for additional controls will be documented and justified in Table 6.

The Revised Licence L9208/2019/1 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises i.e. Solar salt manufacturing activities.

The conditions in the Revised Licence have been determined in accordance with *Guidance Statement: Setting Conditions* (DER 2015).

Table 6. Risk assessment of potential emissions and discharges from the Premises during construction and operation

Risk Event					**Risk rating[1]** **C = consequence** **L = likelihood**	**Licence Holder's controls sufficient?**	**Conditions[2] licence**	**Justification for additional regulatory controls**
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Construction								
Construction of additional ponds on Lake Way	Noise and dust associated with construction works	Air/windborne pathway causing impacts to vegetation health	Native vegetation	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	Y	Condition 2 – infrastructure and equipment (construction) condition Condition 3 – infrastructure and equipment (operation) condition	Construction of additional pond areas involves extension of Pond 2 and Pond 3 as depicted in the premises map in the Schedule1 of the issued licence. The Delegated Officer notes the construction of additional ponds is in line with the disturbance area approved under MS 1165. As a result, pond design and construction requirements have been included for the additional ponds.
Operation								
Category 14: Solar salt manufacturing Operation of ponds, salt handling (up to 260,000tpa) and stockpiles	Hypersaline water	Runoff from harvest salt feed prep/ halite waste stockpiles Discharge through leaks, pipeline rupture or failure causing health impacts. Seepage through base or walls of ponds causing elevated salinity. Bund wall failure and/or overflow of hypersaline water causing health impacts.	Ecosystems adjacent to the ponds and groundwater	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1 – Production limits Condition 6 and 7 – infrastructure and equipment (operation) condition	Existing conditions relating to maintaining freeboards and conducting inspections for the existing ponds have been updated to include additional ponds. The licence holder's controls have been deemed sufficient to manage this risk event and as a result they have been conditioned within the licence as per the *DWER Guideline: Risk Assessments (2017).*
Groundwater that is being pumped / transported into the ponds Precipitation during process / concentrated in ponds.	Naturally occurring radioactive materials (NORM) (radium and actinium isotopes)	Direct – contact through skin or ingestion	Wildlife (water birds).	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	N	Condition 13 **Condition 15**	High levels of Radium (Ra) and Actinium (Ac) isotopes have been reported in the saline groundwater beneath and adjacent to salt lakes in South Western Yilgarn region. The concentrations of the salts from this groundwater may result in the accumulation of these radioactive materials within the ponds and also has the risk of ingestion these NORMs through algae and/or invertebrates mainly by water birds. The licence holder is conducting monitoring the presence or absence of water birds at the existing ponds as a risk management control which has been conditioned in the existing licence to inform future risk

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
								assessments. In addition to this, the works approval W6282/2019/1 requires monitoring of Ra and Ac isotopes six monthly to ensure that NORMs are not accumulating in the evaporation ponds. This monitoring is required until the expiry of W6282/2019/1, which is October 2026. Condition 15 has been added to reflect this monitoring requirement in the licence and condition 20 has been updated to require the results be reported annually along with other monitoring for the site. This will allow an assessment of the results of the existing isotope monitoring as the project expands with increased throughputs. Once a sufficient dataset has been obtained, should results demonstrate negligible risk to receptors the licence holder may apply for an amendment to reduce the frequency of this monitoring.
Groundwater that is being pumped/transported into the ponds.	Pond water containing Selenium (an element of environmental concern in salt lakes)	Direct ingestion of invertebrates living within the pond water Selenium can bio magnify within the food web	Fauna including conservation significant water bird species	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 13	Selenium (Se) has the ability to bio magnify in food webs and to affect the health of bird populations (Brix *et al*,2004). Selenium is considered to be an element of environmental concern within the salt lakes. The main possible pathway for selenium to impact receptors (Water birds) is through ingestion of algae and/or invertebrates that might inhabit the ponds. The licence holder is currently monitoring presence or absence of water birds accessing the ponds as a risk management control which has already been conditioned in the existing licence. The Delegated officer has determined that these existing conditions are sufficient to manage this risk event and additional regulatory controls have not proposed.
Establishing Halite stockpiles (Waste salt) on the Lake Way playa	Dust	Liftoff from the stockpiles through Air / wind dispersion	Native vegetation	Refer to Section 3.1.1	C = Slight L = Unlikely **Low Risk**	N/A	None specified in the amended licence.	Waste salt discharge will have a moisture content in the range of 8-12% and will generally have a low probability to generate dust. The Delegated Officer therefore does not reasonably foresee off-site receptors being impacted from salt dust from waste salt stockpiles.
	Halite contaminated water	Dissolution of waste Halite Seepage causing groundwater contamination	Surface water of Lake Way Groundwater	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 2 – infrastructure and equipment (construction) condition Condition 6 – infrastructure and equipment (operation) condition	The Delegated officer has determined that the existing conditions in the licence and the proposed applicant controls are sufficient to manage the risk event and additional regulatory controls are not required.
Category 85: Sewage facility Overtopping of infrastructure Rupture or failure of pipework	Contaminated influent	Direct discharge, causing soil contamination, impacts to the health and condition of native vegetation Seepage causing groundwater contamination	Soil and native vegetation associated with drainage lines to Lake Way in proximity to the sewage treatment plant and irrigation spray field Groundwater	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 1 – Production limits Condition 6 – infrastructure and equipment (operation) condition	The Delegated officer has determined that the existing operational conditions in the works approval W6282/2019/1 and the proposed applicant controls are sufficient to manage the risk event and additional regulatory controls are not required. Applicant controls have been conditioned in accordance with *DWER Guideline: Risk Assessments (2017).*

Risk Event					Risk rating[1] C = consequence L = likelihood	Licence Holder's controls sufficient?	Conditions[2] licence	Justification for additional regulatory controls
Source/Activities	**Potential emission**	**Potential pathways and impact**	**Receptors**	**Licence Holder's controls**				
Discharge of treated sewage – applied to irrigation spray field using reticulated sprinklers Overtopping of infrastructure Rupture or failure of pipelines	Treated Effluent	Discharge to land causing soil contamination, impacts to the health and condition of native vegetation Pooling/ surface runoff of treated sewage	Soil and native vegetation associated with drainage lines to Lake Way in proximity to the sewage treatment plant and irrigation spray field.	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 6 – infrastructure and equipment (operation) condition	
		Seepage causing groundwater contamination	Groundwater	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 6 – infrastructure and equipment (operation) condition Condition 8,9, and 10 – treated wastewater irrigation condition	
Treatment quality exceedance	Nutrient rich effluent	Discharge to land causing soil contamination, impacts to the health and condition of native vegetation Seepage causing groundwater contamination	Soil and native vegetation associated with drainage lines to Lake Way in proximity to the sewage treatment plant and irrigation spray field Groundwater	Refer to Section 3.1.1	C = Minor L = Unlikely **Medium Risk**	Y	Condition 6 – infrastructure and equipment (operation) condition Condition 8,9, and 10 – treated wastewater irrigation condition Condition 12 – treated wastewater discharge monitoring condition	
Other: Discharge of brine to Williamson pit from paleochannel production bores and trenches on lakebed	Hypersaline water	Direct discharge	Groundwater	Refer to Section 3.1.1	C = Slight L = Possible **Low Risk**	N/A	None specified in the amended licence.	Groundwater within the Williamson pit is hypersaline, applicant has reported TDS around 200,000mg/L. Groundwater quality is not expected to change significantly as a result of discharging saline water from the bores and trenches in Lake Way. Additional regulatory controls are not required.
Stored abstracted water in the Williamson pit		Overtopping of the pit	Surface water in Lake Way		C = Slight L = Possible **Low Risk**	N	**<u>Condition 6 – infrastructure and equipment (operation) condition</u>**	The applicant has not proposed any control to manage these risk events. The Delegated Officer determined that the risk of overtopping of the Williamson pit can be managed by setting of conditions for maintaining a 1.5m freeboard in Williamson pit.

Note 1: Consequence ratings, likelihood ratings and risk descriptions are detailed in the *Guidance Statement: Risk Assessments* (DER 2017).

Note 2: Proposed Licence Holder's controls are depicted by standard text. **<u>Bold and underline text</u>** depicts additional regulatory controls imposed by department.

4. Consultation

Table 7 provides a summary of the consultation undertaken by the department.

Table 7: Consultation

Consultation method	Comments received	Department response
Advertised on the DWER website (25/02/2021)	None received	N/A
Local Government Authority advised of proposal –Shire of Wiluna (25/02/2021)	None received	N/A
Other Stakeholders – Brent Smoothy (25/02/2021)	None received	N/A
Licence Holder was provided with draft amendment on (12/05/2021)	Comments Received on 18 May 2021	Refer Appendix 1

5. Conclusion

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

5.1 Summary of amendments

Table 8 provides a summary of the proposed amendments and will act as record of implemented changes. All proposed changes have been incorporated into the Revised Licence as part of the amendment process.

Table 8: Summary of licence amendments

Condition no.	Proposed amendments
Cover Page	Licence expiry date has extended to another 5 years and the new expiry date will be 26 September 2026
Cover Page - Premises Details	Prescribed premises boundary has changed due to addition of extra evaporation pond area and sewage treatment facility. Therefore, M53/253, M53/1105, L53/216 & G53/25 has included to the prescribed premises boundary.
Cover Page - Prescribed Premises category table	Addition of a new prescribed premises Category 85: Sewage facility premises.
Condition 1 – Production limit	Annual production limit for Category 14 has increased up to 260,000 tpa to align with the EPA assessment and the Ministerial Statement 1165. New condition added to restrict the daily production limit for Category 85 to 90m^3/day.
Condition 2 – Infrastructure and	Added new condition to include construction requirements for extension of Pond 2, Pond 3, and waste salts stockpiles.

equipment (Construction)	
Condition 3	Added a new condition to restrict the extension of ponds to 365 ha
Condition 4 and 5	Added new conditions to include the environmental compliance reporting requirements for pond extension work
Condition 6 – Infrastructure and equipment (Operation)	Updated the infrastructure and equipment operation requirement condition to include Pond 1, extended Pond 2 and extended Pond 3, waste salt stockpiles on lake playa, sewage treatment facility including spray fields
Condition 7 - Monitoring of site infrastructure and operations	Updated the condition to include the extended pond 2 and extended pond 3, and discharging hypersaline water into the Williamson pit
Condition 8 – Treated wastewater irrigation condition	Added a new condition to restrict the discharge location and the volume of treated effluent to 60kL per day
Condition 9 - Treated wastewater irrigation condition	Added a new condition to include treated effluent discharge requirements
Condition 10 - Treated wastewater irrigation condition	Added a new condition to include treated effluent irrigation emission limits
Condition 11 – Waste input monitoring condition	Added a new condition to include the requirement of monitoring the input volumes of wastewater
Condition 12 - Treated wastewater discharge	Added a new condition to include the requirement of monitoring the treated effluent limit to ensure that the treatment facility is operating to the required standard and to avoid discharging nutrient rich effluent
Condition 13 – Water bird monitoring condition	Updated the condition to include “annual period” as the timeframe of the monitoring
Condition 14 - 20	Condition numbers have update to align with the condition numbering in the amended licence

References

1. Email titled “Application - Licence Amendment - L9208 - Salt Lake Potash Pty Ltd S04 - Solar Salt Manufacturing - Addition of Wastewater Treatment Plant WWTP - Main Documentation” dated 23/12/2020 authored by Andrew Mack, available at DWER records (DWERDT396456)
2. Email titled “L9208 - Piper Preston Pty Ltd - Licence Amendment and Transfer - Response by Talis Consultants Regarding Request for Further Information RFI” dated 02/02/2021 authored by Andrew Mack, available at DWER records (DWERDT407941)
3. Email titled “Response to Information clarification - AMENDMENT TO LICENCE (L9208/2019/1)” dated 07/05/2021 authored by Andrew Mack, available at DWER records (A2004598)
4. DWER, June 2019 Guideline: Decision Making. Department of Water and Environmental Regulation
5. Department of Environment Regulation (DER) 2016, *Guidance Statement: Environmental Siting*, Perth, Western Australia.
6. DER 2017, *Guidance Statement: Risk Assessments*, Perth, Western Australia.
7. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.

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

Condition	Summary of Licence Holder's comment	Department's response
3	We note that our application documentation may not have been clear but that this is clarified through the figure we had previously provided and re-attach for your information. The total 'net' increase of area on the lake playa is 365 hectares. This results from increases in the area for both Ponds 2 and 3 but a decrease in size of Pond 4.	Noted and corrected - Condition 3 updated accordingly.
12	We question the need for monthly WWTP monitoring and suggest that quarterly monitoring would be appropriate and align with other similar operations we have dealt with	Quarterly monitoring acceptable in light of the outcome of risk assessment for associated emissions. Condition 12 has been updated to require quarterly monitoring of the WWTP effluent quality.
15	We note that the draft condition 15 proposes to reintroduce Gross Alpha and Beta monitoring. This has been done historically for radium (attached) and the levels recorded were well below levels of regulatory concern. We suggest that this condition is no longer relevant or required as a result.	The Delegated Officer notes that 6-monthly Gross Alpha and Beta monitoring is an existing requirement (condition 22) of the original works approval W6282/2019/1. This monitoring requirement remains active until October 2026 under the works approval and was transferred across to the licence to ensure results are reported to DWER in future annual monitoring reports. Monitoring of Gross Alpha and Beta isotopes is considered a useful screening tool to ensure that NORMs do not accumulate in the evaporation ponds, noting that high levels of radium and actinium isotopes have been historically reported around salt lakes in the Yilgarn area due to the leaching of granitic bedrock by hypersaline water (Dickson 1985). In light of the expansion of the project and that the production throughput is increasing more than 5 times the current throughput, the screening for radioactivity in process water is considered important to continue for at least the

Condition	Summary of Licence Holder's comment	Department's response
		next year or two, noting the likely increased drawdown from the paleochannel bores. The Delegated Officer notes that this is not a new / additional monitoring requirement but is one that is already required under W6282/2019/1. Once a usefully statistical dataset has been obtained the Licence Holder may apply to amend the licence (and works approval) to remove the Gross Alpha and Beta monitoring should results demonstrate consistently low levels.
Schedule 1: Premises map	The map showing the Prescribed Premises did not display correctly in the draft you provided.	Noted and corrected.

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY					
Application type					
Works approval	☐				
Licence	☐	Relevant works approval number:		None	☐
		Has the works approval been complied with?		Yes ☐ No ☐	
		Has time limited operations under the works approval demonstrated acceptable operations?		Yes ☐ No ☐ N/A ☐	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?		Yes ☐ No ☐	
		Date Report received:			
Renewal	☐	Current licence number:			
Amendment to works approval	☐	Current works approval number:			
Amendment to licence	☒	Current licence number:	L9208/2019/1		
		Relevant works approval number:		N/A	☒
Registration	☐	Current works approval number:		None	☐
Date application received		23/12/2020			
Applicant and Premises details					
Applicant name/s (full legal name/s)		Saltlake Potash			
Premises name		Lake Way Sulphate of Potash (SOP) Demonstration Project			
Premises location		M53/796, M53/797, M53/798, M53/123, M53/910, G53/25, L53/214 This list of tenements does not completely match the premises boundary provided with the application.			
Local Government Authority		Shire of Wiluna			
Application documents					
HPCM file reference number:		DER2019/000338~8			
Key application documents (additional to application form):		Supporting document with appendices: Appendix A: WWTP compliance report Appendix B: WWTP commissioning report Appendix C: Dissipation of waste salts			
Scope of application/assessment					

Summary of proposed activities or changes to existing operations.	• Addition of a Wastewater Treatment Plant (WWTP) (Category 54); • discharge of brine to Williamson Pit (abstraction of brine is currently approved); • Extension of existing ponds on Lake Way, entailing a minor change to the prescribed premises boundary; and • Establishment of halite salt (waste product) stockpile areas. • Increase in throughput from 50,000 tpa to 260,000 tpa to align with the expected EPA assessment (not yet granted).

Category number/s (activities that cause the premises to become prescribed premises)

Table 1: Prescribed premises categories

Prescribed premises category and description	**Assessed production or design capacity**	**Proposed changes to the production or design capacity (amendments only)**
Category 14: Solar salt manufacturing: premises on which salt is produced by solar evaporation.	50,000 tonnes per annual period	260,000 tonnes per annual period
Category 54: 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.	New category	90 cubic metres per 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 ☒ No ☐	Referral decision No: 2228 – not decided yet. Managed under Part V ☐ Assessed under Part IV ☐
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes ☐ No ☒	Ministerial statement No: EPA Report No:
Has the proposal been referred and/or assessed under the EPBC Act?	Yes ☐ No ☒	Reference No:
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes ☐ No ☒	Mining lease / tenement ☒ Expiry: The following are on the licence: M53/796 (20/11/2022), M53/797 (20/11/2022), M53/798 (20/11/2022), M53/123 (02/03/2031), M53/910 (22/05/2023) The following are listed in the form as being part of the application:

		G53/25 (27/08/2041) L53/214 (28/09/2041) Confirmed above using Mineral Titles Online. The above do not exactly match the tenements showing on the Premises boundary map in the supporting document.
Has the applicant obtained all relevant planning approvals?	Yes ☐ No ☐ N/A ☒	Approval: Expiry date: If N/A explain why? Mining tenements
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes ☐ No ☒	CPS No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing CAWS Act clearing licence in relation to this proposal?	Yes ☐ No ☒	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 ☒ No ☐	Application reference No: Licence/permit No: GWL205291(1)
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes ☒ No ☐	Name: East Murchison Type: Proclaimed Groundwater Area Has Regulatory Services (Water) been consulted? Yes ☐ No ☐ N/A ☐ Regional office: Mid-West Gascoyne
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes ☐ No ☒	Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? 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 ☐	*Mining Act 1978*
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 *Contaminated Sites Act 2003*?	Yes ☐ No ☒	Classification: N/A Date of classification: N/A