



Application for Licence Amendment

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

Licence Number	L8334/2009/2
Licence Holder	Quintis Sandalwood Pty Ltd
ACN	060 122 698
File Number	DEC10417/2
Premises	<p>The Sandalwood Factory 6 Down Road, DROME WA 6330</p> <p>Legal description - Lot 6 on Diagram 85134 and part of lot 500 on Diagram 100636 Certificate of Titles: Volume 1976 Folio 490 and Volume 2195 Folio 681 As defined by the coordinates in Schedule 1 of the Revised Licence</p>
Date of Report	1/09/2021
Decision	Revised licence granted

Table of Contents

1. Decision summary	1
2. Scope of assessment	1
2.1 Regulatory framework	1
2.2 Application summary	1
3. Risk assessment	1
3.1 Source-pathways and receptors	2
3.1.1 Emissions and controls	2
3.1.2 Receptors	4
3.2 Risk ratings	5
4. Consultation	7
5. Decision	7
5.1 Summary of amendments	7
References	10

Table 1: Emission, sources, pathways and Licence Holder controls	2
Table 2 Emissions screening results in % of AGVs	2
Table 3: Sensitive human receptors and distance from the Premises	4
Table 4. Risk assessment of potential emissions and discharges from the recycled oil fired boiler during installation and operation	6
Table 5: Consultation	7
Table 6: Summary of licence amendments	7
Table 7: Record of conversion of previous licence conditions to this amendment	8

1. Decision summary

Quintis Sandalwood Pty Ltd (Licence Holder) is the holder of Licence L8334/2009/2 for the Sandalwood Factory located at 6 Down Road, Drome WA 6330 (Premises).

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 installation and operation of a new 400kW recycled oil fired boiler at the Premises. As a result of this assessment, Revised Licence L8334/2009/2 has been granted.

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 Delegated Officer has considered and given due regard to the Department of Water and Environmental Regulation's Regulatory Framework and relevant policy documents which are available at <https://dwer.wa.gov.au/regulatory-documents>.

2.2 Application summary

On 23 February 2021, the Licence Holder submitted an application to the department to amend Licence L8334/2009/2 under section 59 and 59B of the *Environmental Protection Act 1986* (EP Act). The Licence Holder applied for the amendment to allow for the installation and operation of a new diesel fired boiler.

Following the issue of a draft Revised Licence and draft Amendment Report the Licence Holder commented that instead of a diesel fired boiler they need to run the boiler on recycled oil to get the required power from the boiler.

This required the Department to change the risk assessment as emissions from a diesel fired boiler are significantly different than from a recycled oil fired boiler.

The new 400kW recycled oil fired boiler is a containerised boiler with a standard air emission stack that is approximately 7m above ground level. The boiler is capable of producing 638 kg/hr of steam. The application states that this boiler is only intended to be used for when small batches of sandalwood oil are being distilled and the existing wood chip fired boiler would not be efficient to run. The Licence Holder stated that only one boiler will be making the steam for the distillation process at any given time (unless the wood chip fired boiler has a failure and they switch to the existing recycled oil boiler, which is the backup boiler for the wood chip boiler).

The boiler will be placed on existing hard stand within the Premises. The recycled oil for the new boiler will be piped from the existing recycled oil tank. A pipeline will be installed to connect the existing recycled oil tank with the new boiler.

3. Risk assessment

The department assesses the risks of emissions from prescribed premises and identifies the potential source, pathway and impact to receptors in accordance with the *Guideline: Risk assessments* (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 installation and operation of the diesel fueled boiler which have been considered in this Amendment Report are detailed in Table 1 below. Table 1 also details the proposed control measures the Licence Holder has proposed to assist in controlling these emissions, where necessary.

Table 1: Emission, sources, pathways and Licence Holder controls

Emission	Sources	Potential pathways	Proposed controls
Waste gases (combustion gasses)	Burning of recycled oil in the boiler.	Air/windborne pathway	<p>Recycled Oil that meets the Australian Oil Recyclers Association standard for High Grade Fuel Oil will be used.</p> <p>Only 1 boiler at any time will be operated</p> <p>Standard 400kW recycled oil engine with an air emission stack at least 7m above ground level.</p> <p>Boiler design to be compliant with AS 1228:2016</p> <p>Boiler will be regularly serviced and tested by external specialists to ensure it is operating safely and efficiently within the design parameters of the boiler</p>

There is no “construction” works occurring as it is just the placement of the boiler on the site.

The Licence Holder provided estimated emission rates from the new recycled oil boiler based upon the NPI estimation techniques and the concentration of possible pollutants in the recycled oil as per the Australian Oil Recyclers Association standard for High Grade Fuel Oil.

The Delegated Officer has screened these emission rates (in isolation) against the Draft Guideline: Air Emissions and used an effective stack height of 7m (although effective stack height is probably lower due to the height of the sheds next to the boiler). Table 2 shows the results of this.

Table 2 Emissions screening results in % of AGVs

Pollutant	Estimated Emission rate (g/s)	Screening results in % of AGV
CO	0.01078	0.03% - 1-hour Max
		0.03% - 1-hour 99.9 percentile
NOx	0.040895556	17.62% - 1-hour Max
		16.56% - 1-hour 99.9 percentile
		2.45% - Annual
PM10	0.109853333	62.57% - 24-hour
		13.42% - Annual

Pollutant	Estimated Emission rate (g/s)	Screening results in % of AGV
PM2.5	0.061942222	70.56% - 24-hour
		29.73% - Annual
PAH as Benzene equivalents	6.33111E-07	0.00% of 1-hour Max, 1-hour 99.9 percentile an Annual
SO2	0.002857556	0.53% - 1-hour Max
		0.50% - 1-hour 99.9 percentile
		0.36% - 24-hour
		0.18% - Annual
Total VOC	0.002224444	24.07% - 1-hour Max (assessed against Asphalt fumes)
		22.62% - 1-hour 99.9 percentile (assessed against Asphalt fumes)
Cadmium and compounds	0.00002002	108.33% - 1-hour Max
		101.79% - 1-hour 99.9 percentile
Chromium (III) compounds	0.00004312	0.47% - 1-hour Max
		0.44% - 1-hour 99.9 percentile
		2.46% - 24-hour
Lead and compounds	0.001184089	8.65% - Annual
Nickel and compounds	2.36133E-05	16.43% - 1-hour Max
		15.44% - 1-hour 99.9 percentile
		29.39% - Annual
Copper	0.00001711	0.09% - 1-hour Max
		0.09% - 1-hour 99.9 percentile
		0.49% - 24-hour

The results of the screening shows that some pollutants could cause an exceedance of the AGV for that pollutant. Normally this would mean that a detailed air emissions modelling should be provided by the Licence Holder. However, in this case the Delegated Officer has decided that given the very conservative nature of the screening, the batch operating process (modelled as continuous) and given that when an effective stack height of 10m would be used that the result for cadmium drops down to around 40% of the AGV that it would be reasonable to control the potential impact of the emissions through a higher stack. The main interference

with good dispersion of the waste gases is the building next to the boiler. If the stack is at least 3m higher than the roof line than waste gases are not dragged to ground and can freely disperse and ensure that ground level concentration of the emissions are acceptable. Therefore, the Delegated Officer has decided that the stack height will need to be a minimum 11m high from ground level and at least 3 metres higher than the roof line.

3.1.2 Receptors

In accordance with the *Guideline: Risk Assessments* (DWER 2017), the Delegated Officer has excluded employees, visitors and contractors of the licence holder 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 emissions and discharges from the prescribed premises (*Guideline: Environmental Siting* (DER 2016)).

Table 3: Sensitive human receptors and distance from the Premises

Human receptors	Distance from the Premises
Single residence	~100m from the boundary of the Premises to the east
Industrial business	~200m from the boundary of the Premises to the west
Environmental receptors	Distance from the Premises
Groundwater	~20m below ground level
Marbellup Brook Catchment Area (Public Drinking Water Source Area)	~1.8km from the Premises

3.2 Risk ratings

Risk ratings have been assessed in accordance with the *Guideline: Risk assessments* (DWER 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 incomplete 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 4.

The Revised Licence L8334/2009/2 that accompanies this Amendment Report authorises emissions associated with the operation of the Premises.

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

Table 4. Risk assessment of potential emissions and discharges from the recycled oil fired boiler during installation and operation

Risk Event					Risk rating ¹ C = consequence L = likelihood	Licence Holder's controls sufficient? See 3.1.1 Table 1	Conditions of licence	Justification for additional regulatory controls
Source/Activities	Potential emission	Potential pathways and impact	Receptors	Licence Holder's controls				
Installation of diesel fired boiler								
Placement of containerised recycled oil fired boiler	No anticipated emissions	–	–	No controls proposed	–	-		N/A
Operation of diesel fired boiler								
Production of steam through the recycled oil fired boiler	Combustion gasses	Air/windborne pathway causing impacts to health and amenity	Single resident 100m away	Refer to Section 3.1.1	C = Moderate L = Possible Medium Risk	No- proposed 7m stack height is insufficient	Conditions 2 -8	See 3.1.1. The Delegated Officer prescribes a minimum stack height of 11m from the ground and minimum 3m higher than the nearest roofline to ensure emissions from the boiler will not unreasonably impact on receptors.
	Spills of recycled oil	Direct discharge to land causing contamination of soil and ground water	Soil and groundwater at 20m bgL	Refer to Section 3.1.1	C = Slight L = Unlikely Low Risk	Yes	Condition 2	To ensure risk to environment is kept low, the storage of recycled oil needs to comply with AS1940:2017, which is the normal standard for storing this kind of fuel type.

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

4. Consultation

Table 5 provides a summary of the consultation undertaken by the Delegated Officer.

Table 5: Consultation

Consultation method	Comments received	Delegated Officer's response
Draft Revised Licence and draft Amendment Report send to Licence Holder on 23 June 2021	On 8 July 2021 the Licence Holder responded stating that the boiler will be fuelled by recycled oil instead of diesel. The Licence Holder provided the additional information as requested and requested some changes as a result of the different fuel for the boiler.	The Delegated Officer has, as a result of the change of fuel type, re-assessed the application, as described in this document. The other changes and additional information provided have been processed.
Draft Revised Licence and draft Amendment Report sent again to Licence Holder 12 August 2021	On 23 August 2021 the Licence Holder initially responded, and after further consultation responded on 31 August 2021 that a stack height of a minimum of 11m and 3m above the roof line would be acceptable and that they did not have any further comments with the proposed licence amendment.	The Delegated Officer agrees with 11m as the main concern was the building wake effect and thus a minimum of 3m above the roofline would be the main control for sufficient dispersion of air emissions from the boiler.

5. Decision

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 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 Licence as part of the amendment process. The licence has been converted to a new licence format and as such Table 7 shows how the Delegated Officer has decided to deal with the previous conditions.

Table 6: Summary of licence amendments

Condition no.	Proposed amendments
-	The licence converted to the latest format.
1-4, 9	Condition 1 added to allow for the construction/installation of the recycled oil fired boiler. Recycled oil fired boiler added to the infrastructure table and list of authorised discharge points. Environmental Compliance Report condition added for the construction/installation of the recycled oil fired boiler
4-5	The Licence Holder only uses one boiler at any given time for the production of steam for the Sandalwood Oil extraction/distillation process. When they need to do a changeover of boiler then this will only be a very short time. This manner of operation has been now regulated in conditions 4 and 5.

Table 7: Record of conversion of previous licence conditions to this amendment

Previous condition	Condition summary	Revised licence condition	Explanatory notes
1.1.1 1.1.2	Interpretation and definitions	N/A Interpretation section, Definitions and Table 1	Redundant condition. Revised to current licensing format.
1.1.3	Australian or other standard	N/A Interpretation section, Definitions and Table 1	Redundant condition. Revised to current licensing format.
1.1.4	Reference to code of practice	N/A Interpretation section, Definitions and Table 6	Redundant condition. Revised to current licensing format.
1.2.1	Emissions	N/A	Redundant condition, removed from the licence.
1.2.2	Pollution control and monitoring equipment	N/A	Redundant condition. Intend of this condition is captured under Condition 1.
1.2.3	Storage of environmentally hazardous materials	N/A	Redundant condition. Adequately regulated by the <i>Dangerous Goods Safety Act 2004</i> . Deleted from licence as Code of practise no longer is in force.
1.2.4	Recovery and removal of spills	N/A	Redundant condition. Adequately covered by <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> . Deleted from licence.
1.2.5	Prevention of contamination and containment of contaminated stormwater	N/A	Redundant condition. Adequately covered by <i>Environmental Protection (Unauthorised Discharges) Regulations 2004</i> .
1.3.1	Freeboard condition for evaporation pond and raw water pond	Condition 1, Table 1	Included required freeboard in infrastructure requirements table.
1.3.2	Allowable fuels	Condition 1, Table 1	Included in infrastructure requirements table. Reference to Wren BF-90 replaced with a reference to standard for high grade fuel oil as the reference has not been used for a while by Wren Oil.
1.3.3	Storage of process wastewater and raw water for the process	Condition 1, Table 1	Included in infrastructure requirements table.
2.1.1	Record and investigate exceedances of limits or targets	N/A	Redundant condition. Deleted from licence.

Previous condition	Condition summary	Revised licence condition	Explanatory notes
2.2.1	Point source emissions to air	Condition 3, Authorised discharge points	Converted to new condition and diesel fired boiler added as a new discharge point.
2.2.2	Emission of dark smoke	Condition 6	-
2.7.1	Odour emissions	N/A	Redundant condition. Adequately covered by s.49 of the <i>EP Act 1986</i> . Deleted from licence.
3.1.1	Time period between annual monitoring	N/A	Removed from the licence as there was no annual monitoring required in the conditions of the licence.
3.6.1	Monitoring of inputs and outputs	Condition 7	Added monitoring of litres of diesel accepted at the premises.
3.7.1	Process monitoring	Condition 8	Added monitoring of hours of operation of the diesel fired boiler.
3.7.2	Service and inspection condition of the boilers.	Condition 1, Table 1.	Condition not enforceable as it was not clear. Boilers will need to be maintained to ensure the outcome as per condition 1, Table 1.
3.7.3	Annual service and inspection of the boilers	Condition 1, Table 1	Condition not enforceable as it was not clear. Boilers will need to be maintained to ensure the outcome as per condition 1, Table 1.
4.1.1	Improvement condition	N/A	IR1 is a redundant condition, thus removed. IR2 included in Condition 1, Table 1.
5.1.1	Records	Condition 10	New numbering and update to latest format
5.1.2	Person left in charge of the premises to be aware of the licence	N/A	Redundant condition. Removed.
5.1.3	AACR condition	Condition 12	Updated to latest format.
5.1.4	Complaints management	Condition 9	New number and updated to latest format
5.2.1	Annual Environmental Report	Removed	Record keeping required.
5.3.1	Notification condition	N/A	Redundant condition. Removed, as notification requirement under S. 72 of the <i>EP Act 1986</i> covers this.
Schedule 1: Maps	Premises map	Schedule 1: Maps	Updated map of the premises and premises layout with updated emission points.
Schedule 2	Annual Audit Compliance Report	N/A	Redundant attachment. Deleted from Licence conditions.

Previous condition	Condition summary	Revised licence condition	Explanatory notes
Reporting & notifications	Form N1 Notification		AACR Form can now be accessed at www.dwer.wa.gov.au

References

1. DER 2016, *Guideline: Environmental siting*, Perth, Western Australia.
2. DWER 2017, *Guideline: Risk Assessments*, Perth, Western Australia.
3. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.