



Application to replace expiring licence

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

Licence Number	L5908/1990/12
Licence Holder	Doral Fused Materials Pty Ltd
ACN	009 415 025
File Number	DEC1758/2
Premises	Doral Fused Materials Pty Ltd 1 Alumina Road EAST ROCKINGHAM WA 6168 Legal description Lot 6 on Deposited Plan 85297 As defined in Schedule 1
Date of Report	12 March 2021
Proposed Decision	Licence granted

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Manager, Process Industries

An officer delegated by the CEO under section 20 of the EP Act

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1. Decision summary

This decision report documents the Delegated Officer's decision to grant licence L5908/1990/12 to Doral Fused Materials Pty Ltd (the licence holder) for their metal refining and processing premises located at 1 Alumina Road in East Rockingham (the Premises). This licence follows licence L5908/1990/11, issued for the Premises and which expires on 13 March 2021.

In determining to grant this licence, the Delegated Officer noted that no changes to the activities undertaken, or the volumes of material produced, at the Premises have occurred. The Delegated Officer has not undertaken detailed review and risk assessment of emissions and discharges from the premises. Summary information has though been provided in relation to the general activities and emissions to air in support of some administrative changes. The format of the licence has been updated consistent with the current licence format.

2. Scope of assessment

2.1 Regulatory framework

In completing the assessment documented in this Decision Report, the Delegated Officer has considered and given due regard to Department of Water and Environmental Regulation's (department) Regulatory Framework and relevant policy documents which are available at <https://www.dwer.wa.gov.au>.

2.2 Application summary and overview of the Premises

The licence holder submitted an application for the renewal of licence L5908/1990/11 for the Premises on 13 May 2020. The Premises relates to the categories and assessed design capacity under Schedule 1 of the *Environmental Protection Regulations 1987* (EP Regulations), which are defined in licence L5908/1990/12. The infrastructure and equipment relating to the Premises categories and any associated activities which the Department has considered in line with *Guidance Statement: Risk Assessments* (DER 2017) are outlined in licence L5908/1990/12.

The Premises comprises three processing circuits for the smelting and sizing of alumina and zirconia and the sizing of spodumene. The alumina furnaces stopped operating at the end of 2014, but could be restarted in response to changing market conditions. When these furnaces were operational, calcined alumina was brought to site, prior to being placed into the furnace. Once the alumina became completely molten, the furnace poured 2.5 tonne ingots of alumina into water cooled moulds. The freshly poured ingots were transferred to cooling baths for up to 12 hours. The ingots were subject to crushing and sizing to meet customer specifications, before the sized alumina was dispatched to customers. The alumina crushing circuit and parts of the sizing plant are now used to process zirconia material, with other parts of the alumina plant set up to process spodumene.

Spodumene brought to site is fed through a feeder, conveyor and bucket elevator, which diverts the product into either mills or roll crushers. The spodumene material sized to create a product which meets customer specifications. Afterwards, it is placed into one tonne bulk bags and stored for dispatch to customers.

Zircon sand bought to site is mixed with coke and delivered to the furnace, where the zircon sand reacts to form molten zirconium dioxide (ZrO₂), silicon monoxide (SiO) and carbon monoxide (CO) gas. Once the silicon is removed, the molten ZrO₂ is poured through a water stream, where it solidifies. The off-gas from the furnace is drawn off to a heat exchanger, which cools the off-gas and causes the SiO to further oxidise to form silicon dioxide (SiO₂). The off-gas enters the furnace dust collector, where the shaker mechanisms will dislodge any SiO₂ for bagging or storage. The ZrO₂ is sampled to determine the silica content and left to cool before being subjected to a series of sizing procedures, based on customer specifications, prior to

being bagged. The ZrO₂ which is captured in the water stream during the pour out of the furnace is taken to the zirconia dryer prior to packaging for sale.

2.3 Emissions and discharges

The air emissions resulting from the above processing circuits mostly comprise particulates, which are either discharged into the interior of the process buildings, or into the atmosphere after passing through dust collectors. The exception is Stack 5, which is linked to the zirconia furnace. The off-gas that exits the furnace is drawn off to a heat exchanger where it is heated and mixed with ammonia (NH₃), depending on the levels of nitrogen oxide (NO_x) emissions detected. The heated off-gas and NH₃ mixture passes through a selective catalytic reduction system where the NO_x and NH₃ react to form nitrogen and water. The NO_x levels in the off-gas are monitored, with alarms activated if NO_x levels exceeds 100 parts per million. The off-gas passes the NO_x analyser and is discharged into the atmosphere.

The existing regulatory controls which apply to emissions from the Premises include:

- the use dust collectors on Stacks 1 – 7 and Unit 11 and a selective catalytic reduction system established for Stack 5;
- emission limits for particulates, NO_x and SO₂;
- continuous monitoring of emissions from Stacks 1-7;
- triennial monitoring of particulate emissions from Stacks 1 -7 and annual emissions monitoring from Stack 5; and
- visual and audible alarms which trigger if emission limits for particulates are breached in Stacks 1-7.

The Delegated Officer determined that as the operations at the premises have not changed since the issue of licence L5908/1990/11, the risk presented by the Premises to environmental and sensitive receptors has not changed. The Delegated Officer therefore determined that the existing controls at the Premises are adequate to manage the risks to environmental and sensitive receptors.

The Delegated Officer also determined to remove conditions from the previous version of the licence which required a management response linked to particulate and NO_x emission 'trigger levels' (A1(b) and A2(d)) from the new licence. Condition A2(d)(iii) of the previous version of licence effectively sets an emission limit for NO_x of 200 ppm (0.41g/m³) which renders the triggers or target levels in A2(d)(i) and (ii) ineffective or redundant. Similarly, A1(a) set a particulate limit of 0.15g/m³ rendering the standalone management action in A1(b) redundant. The removal of these conditions is consistent with the *Guidance Statement: Setting Conditions*.

Unit 13 was removed from the new version of the licence as a discharge point, based on advice from the licence holder that this dust collector which was found to be redundant and removed from the premises in 2013. The triennial testing of Stacks 1-7 for particulate emissions was also converted from using Australian Standard 4323.2-1995 to USEPA Method 5, to reflect the most common methodology used to test particulate emissions in Western Australia.

3. Part V of the EP Act

3.1 Complaints and incidents history

There has been one incident identified at the Premises by the Department since the licence was issued in March 2013. This incident (detailed in ICMS 39903) related to the licence holder's annual report for the 2015 calendar year, where the NO_x emissions data provided indicated that the licence holder did not meet the criteria in condition's A2(d)(i) and (ii) of the licence. This exceedance was due to issues with a heat exchanger which arose in early 2015. As NO_x

emissions criteria on the licence were based on an annual percentage below the relevant concentrations, the annual percentage exceeded the two criteria contained condition's A2(d)(i) and (ii). The heat exchanger was subsequently replaced in March 2015 and the NO_x emissions reduced thereafter. This incident was closed off in 2016. There have been no complaints reported to the department in the last 5 years regarding operations at the premises.

4. Consultation

The draft licence and decision report were provided to the licence holder on 3 March 2021 for their review and comment. Comments were received on the contents of the draft licence from the licence holder on 5 March 2021. These comments are detailed in Appendix 1 and comprise clarifications to continuous emission monitoring system (CEMS) requirements and suggested changes to emission sampling methodologies to better accommodate the conditions and infrastructure at the premises.

The Delegated Officer provided the licence holder with updates drafts for a short period of comment. The licence holder sought additional clarifications in writing on 10 March 2021 which were responded to directly and are summarised in Appendix 1.

5. Decision

The Delegated Officer determined to grant licence L5908/1990/12 with administrative changes only and without conducting any additional risk assessment. This includes the removal of redundant air emission targets or management actions for particulates and NO_x as outlined in section 2.3.

The Delegated Officer made this decision on the grounds that neither the production capacity nor the nature of the operations at the Premises have changed since the previous version of the licence was issued. Therefore, the Delegated Officer determined the risks to public health and the environment from activities at the premises, as previously assessed by the Delegated Officer, have not materially changed and are deemed acceptable. The licence period is 20 years, in accordance with *Guidance Statement: Licence Duration*.

The Delegated Officer has also determined to:

- update the format and appearance of the licence;
- remove redundant conditions and include additional conditions considered necessary for the effective administration of the licence (i.e. record keeping and reporting requirements);
- revise licence condition numbers and realign condition numbers for numerical consistency; and
- transfer all relevant existing regulatory controls and conditions to the licence.

In response to the comments on the draft decision received from the licence holder on 5 March 2021, the CEMS requirements in the licence were limited to NO_x emissions only. The previous version on the licence had incorporated particulate and SO₂ emissions sampling into the continuous emissions sampling program due to a misinterpretation of the current continuous emissions sampling program at the premises.

An additional condition was placed on the licence requiring the licence holder to assess the Stack 5 NO_x CEMS against standards to demonstrate its accuracy and reliability. The licence holder was unable to confirm the Stack 5 NO_x CEMS complied with the CEMS Code (or other applicable standard), therefore the Delegated Officer has required the licence holder to undertake a comparative assessment and outline actions to rectify any identified issues (if applicable).

In addition, the sampling methodologies available to sample particulate emissions from Stacks 1-7 during the triennial sampling program were expanded to incorporate USEPA Method 5 or USEPA Method 17. The sampling methodology to be employed to sample SO₂ emissions from

Stack 5 during the annual emissions sampling program was changed to USEPA Method 6C. The Delegated Officer took into account comments from the licence holder and agreed with the changes to better accommodate the infrastructure and conditions at the premises, while allowing reliable emissions sampling results to be obtained.

In response to the licence holder's comments received on 10 March 2021, the NO_x emission limit in the new licence was changed back to 200ppm, in order to maintain consistency with the previous version of the licence.

5.1 Transfer to the new format licence and summary of amendments

The amendments made to licence L5908/1990/12 during the assessment of this licence application are documented in Table 1.

Table 1: Licence amendments

Existing licence condition	Replacement licence condition	Description
Expiry date: 13 March 2018, amended to 13 March 2021 via the Notice of Amendment issued on 29 April 2016.	12 March 2041	Granted for 20 years in accordance with the <i>Guidance Statement: Licence Duration</i> (August 2016).
Front Page	Front page	Updated to the current licence format.
Definitions	Definitions	Definitions have been updated to be relevant to the renewed licence. The definitions are also now located at the back of the licence, in accordance with the current licensing format.
G1(i) and (ii)	Condition 15	Updated consistent with the current licence format.
G2	Condition 14	
G3	Condition 2	
A1(a)(i), (ii), and (iii)	Condition 1	
A1(d)	Condition 3	
A1(e)	Condition 4	
A1(f)	Condition 1	
A2(b)	Condition 9	
A2(c)(i), (ii) and (iii)		
W1	Condition 5	
A2(a)	Condition 8	Updated consistent with the current licence format. NO _x emissions limit was restored to 200ppm to maintain consistency with the previous version of the licence.
A1(a)(iv)	Condition 9	Updated consistent with the current licence format. Accepted sampling methodologies for the triennial monitoring of particulate emissions and the monitoring of annual SO ₂ emissions were revised, based on the licence holder's feedback on the draft licence. The units used to measure NO _x emissions during the annual and continuous emissions monitoring campaigns were also revised to ppm, to maintain consistency with the previous version of the licence.
G1(iii)	N/A	Deleted, as these reporting requirements are redundant.
A1(b)		
A1(c)		
A2(d)(i), (ii) and (iii)		
W2		
New Condition	Condition 6	Requires the licence holder to undertake a comparative assessment of the Stack 5 NO _x CEMS and provide a plan to rectify any identified issues (if applicable).
Schedule 1: Premises Map	Schedule 1: Premises Map	Updated to reflect current aerial imagery of the Premises, to provide more detail on the location of the processing circuits at the premises and to detail the discharge point's location.

References

1. DER 2015, *Guidance Statement: Setting Conditions*, Perth, Western Australia.
2. DER 2016, *Guidance Statement: Licence Duration*, Perth, Western Australia.
3. Doral Fused Materials Pty Ltd 2020, *Application submission (A1893042)*, City of Rockingham, Western Australia.
4. Doral Fused Materials Pty Ltd 2021, *Licence holder's comments on draft licence – 10 March 2021 (A1987727)*, City of Rockingham, Western Australia.
5. DWER 2021, *Licence holder's comments on draft licence – 10 March 2021 – with responses from Delegated Officer (A1987729)*, Joondalup, Western Australia.

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

Condition	Summary of licence holder's comment	Department's response
New Condition (Condition 6).	The licence holder advised the CEMS used to monitor NO _x emissions from the premises had not been assessed against the CEMS Code or another relevant standard.	The Department added a condition which requires the licence holder to submit a report which assesses the CEMS used to monitor NO _x emissions for compliance against the CEMS Code or another relevant code or standard. If necessary, this report will also include a plan detailing measures the licence holder will take to rectify any issues with the CEMS identified in the comparative assessment, along with timeframes to implement those measures. This report is required within 90 days of receiving the licence.
Condition 9 – Table 4.	The licence holder advised that the Department had inadvertently added new requirements to the licence by requiring SO ₂ and particulate emissions to be monitored continuously.	The Department acknowledges this was a result of a misinterpretation of existing continuous monitoring programs at the premises. These requirements were removed from the licence.
	The licence holder advised that the use of USEPA Method 5 to monitor particulate emissions from the premises was not suitable due to the infrastructure and conditions at the premises. USEPA Method 17 would be a suitable methodology for this sampling program at this premises.	The Department expanded the methodologies available to sample particulates from the premises to include both USEPA Method 5 and USEPA Method 17.
	The licence holder advised that USEPA Method 6C would be a more appropriate method to sample SO ₂ emissions from the premises, based on the conditions and infrastructure at the premises.	The Department revised the methodology available to sample SO ₂ emissions from the premises to USEPA Method 6C.
Condition A2(d) (i), (ii) and (iii) (Old licence) – Now removed.	The licence holder queried their ability to shut the plant down safely if the NO _x emissions exceed 0.41g/m ³ (200ppm). The licence holder advised that condition A2(d)(iii) on the previous licence provides written authorisation to shut down the plant, when safe to do so. The licence holder further elaborated that the ability to run the zirconia furnace on to finish a cycle before switching it off is a critical allowance of the current licence.	<p>The Department clarified that Condition A2(d)(iii) in the previous version of the licence required for immediate shutdown of the plant (subject to safety considerations) in the event of a 200 ppm NO_x exceedance. The department aims to avoid the use of standalone targets, and noting the existing 200ppm limit, the department removed the two NO_x targets while retaining the limit. The 200ppm limit has a 1-hour averaging period to allow for troubleshooting and shutdown of the plant (if required) over the 1-hour averaging period.</p> <p>The Department expects the licence holder to troubleshoot process issues resulting in elevated NO_x emissions, prior to a 200ppm NO_x emission 1-hour average exceedance, prior to shutdown the plant if that is a required course of action.</p>

Condition	Summary of licence holder's comment	Department's response
		The NO _x emission limit in the new licence was reverted back to 200ppm, to maintain consistency in units with the previous licence.
Condition A2(d) (i), (ii) and (iii) (Old licence) – Now removed. Condition G2 – Now condition 14.	The licence holder sought clarity on how to report compliance with the monitoring requirements for the continuous monitoring of NO _x emissions. The conditions of the previous licence required the AACR to include a table with monthly weighted averages depicting the percentage of time NO _x emissions were below 100ppm and 150 ppm.	The Department advised that since conditions A2(d)(i) and (ii) have been removed from the new licence, there is no expectation for reporting NO _x emissions against the previous 100ppm and 150ppm targets. The new licence requires the reporting of all monitoring data under conditions 9 to 12, including continuous monitoring of NO _x emissions. The licence holder can determine how this data is presented in their AACR and AER reports, which may include graphical representation. As per condition 17, raw data is to be retained and available on request.
Condition A2(d) (iii) (Old licence) – Now removed. Now condition 8.	The licence holder also queries how exceedances of the NO _x emission limit are to be reported, including the need for the submission of incident reports to DWER.	The Department clarified that any breach of an emission limit would be reported in accordance with condition 14 and condition 15 of the new licence. There are also general obligations to notify the Department of discharges of waste under Section 72 of the EP Act, which includes a discharge of waste otherwise in accordance with a licence.
Condition 14 and Condition 15 – Table 5.	The licence holder sought clarification on whether two versions of the 2021 AACR and AER will be required; to account for the previous and new version of the licence.	The Department clarified that only one version of the AER for the 2021 calendar year would be required. Two AACR reports would be required, each detailing compliance with the conditions of the previous and new version of licence for the period these licences were in effect in the 2021 calendar year (i.e. prior to and post 12 March 2021).

Appendix 2: Application validation summary

SECTION 1: APPLICATION SUMMARY				
Application type				
Works approval	<input type="checkbox"/>			
Licence	<input type="checkbox"/>	Relevant works approval number:		None <input type="checkbox"/>
		Has the works approval been complied with?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Has time limited operations under the works approval demonstrated acceptable operations?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/>	
		Environmental Compliance Report / Critical Containment Infrastructure Report submitted?	Yes <input type="checkbox"/> No <input type="checkbox"/>	
		Date Report received:		
Renewal	<input checked="" type="checkbox"/>	Current licence number:	L5908/1990/11	
Amendment to works approval	<input type="checkbox"/>	Current works approval number:		
Amendment to licence	<input type="checkbox"/>	Current licence number:		
		Relevant works approval number:	N/A	<input type="checkbox"/>
Registration	<input type="checkbox"/>	Current works approval number:	None	<input type="checkbox"/>
Date application received	13/05/2020			
Applicant and Premises details				
Applicant name/s (full legal name/s)	Doral Fused Materials Pty Ltd			
Premises name	N/A			
Premises location	1 Zirconia Drive, East Rockingham 6168 Lot 6 On Diagram 85297			
Local Government Authority	City of Rockingham			
Application documents				
HPCM file reference number:	A1893042			
Key application documents (additional to application form):	Attachment's 1A – 9B included in the above email.			
Scope of application/assessment				
Summary of proposed activities or changes to existing operations.	6. Licence renewal. L5908/1990/11 expires on 14 March 2021.			

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	Assessed throughput or design capacity
Category 08: Mineral sands mining or processing: premises on which mineral sands ore is mined, screened, separated or otherwise processed.	4,500 tonnes per year (Category 8 has a commencing category of 5,000 tonnes per year). DWER will assess the applicability of this license category to the activities Doral undertake at the site during the license renewal assessment.	
Category 44: Metal smelting or refining: premises on which metal ore, metal ore concentrate or metal waste is smelted, fused, roasted, refined or processed.	24,000 Tonnes	7. Doral are not currently using the Alumina circuit this category relates to. However, they would like to resume these activities at a moment's notice if economically viable to do so. License renewal application fees are to be charged out as they would for an annual renewal (with this category being the predominant fee category). If the license renewal assessment determines this category is no longer relevant, Doral will be refunded.
Category 70: Screening etc. of material: premises on which material extracted from the ground is screened, washed, crushed, ground, milled, sized or separated.	20,000 Tonnes	

Legislative context and other approvals

Has the applicant referred, or do they intend to refer, their proposal to the EPA under Part IV of the EP Act as a significant proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Referral decision No: N/A Managed under Part V: N/A Assessed under Part IV: N/A
Does the applicant hold any existing Part IV Ministerial Statements relevant to the application?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Ministerial statement No: N/A EPA Report No: N/A
Has the proposal been referred and/or assessed under the EPBC Act?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Reference No: N/A
Has the applicant demonstrated occupancy (proof of occupier status)?	Yes <input type="checkbox"/> No <input type="checkbox"/>	Certificate of title <input checked="" type="checkbox"/> Certificate of Title dated from 1999. Certificate of title also refers to the proprietor as Australian Fused Materials Pty Ltd- a previous name of the company. However a review of the Geocortex "Land Tenure" layer confirms the proprietor of the Lot is Doral Fused Materials Pty Ltd.

Has the applicant obtained all relevant planning approvals?	Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>	Construction of the site was finalised in 1999, no changes to site proposed through this application.
Has the applicant applied for, or have an existing EP Act clearing permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	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 <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A No clearing is proposed.
Has the applicant applied for, or have an existing RIWI Act licence or permit in relation to this proposal?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Application reference No: N/A Licence/permit No: N/A Licence / permit not required.
Does the proposal involve a discharge of waste into a designated area (as defined in section 57 of the EP Act)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Type: N/A Has Regulatory Services (Water) been consulted? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/> Regional office: N/A
Is the Premises situated in a Public Drinking Water Source Area (PDWSA)?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Name: N/A Priority: P1 / P2 / P3 / N/A Are the proposed activities/ landuse compatible with the PDWSA (refer to WQPN 25)? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Is the Premises subject to any other Acts or subsidiary regulations (e.g. <i>Dangerous Goods Safety Act 2004, Environmental Protection (Controlled Waste) Regulations 2004, State Agreement Act xxxx</i>)	Yes <input type="checkbox"/> No <input type="checkbox"/>	N/A
Is the Premises within an Environmental Protection Policy (EPP) Area?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	The Application Area is situated within the Kwinana Environmental Protection Policy Area.
Is the Premises subject to any EPP requirements?	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Site is subject to SO ₂ requirements of Kwinana EPP.
Is the Premises a known or suspected contaminated site under the <i>Contaminated Sites Act 2003</i> ?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Based on a review of the DWER Contaminated sites database.