

**Environmental Assessment
Report
Veneer & Plywood Mill
Bell Bay
Patriarch & Sons Pty Ltd**

February 2019



ENVIRONMENT PROTECTION AUTHORITY

Environmental Assessment Report

Proponent	Patriarch & Sons Pty Ltd
Proposal	Rotary Peel Veneer Mill & Plywood Mill
Location	17 Bell Bay Road, Bell Bay
NELMS no.	PCE No 9962
Permit Application No.	DA2018/86 (George Town Council)
Electronic Folder No.	EN-EM-EV-DE-256427
Document No.	M409239
Class of Assessment	2A

Assessment Process Milestones

13 August 2018	Notice of Intent lodged
17 September 2018	Guidelines Issued
19 October 2018	Permit Application submitted to Council
3 January 2019	Application received by the Board
12 January 2019	Start of public consultation period
26 January 2019	End of public consultation period
4 March 2019	Date draft conditions issued to proponent
7 March 2019	Statutory period for assessment ends

Acronyms

Board	Board of the Environment Protection Authority
EER	Environmental Effects Report
DPIPWE	Department of Primary Industries, Parks, Water and Environment
EIA	Environmental impact assessment
EL	Environmental licence
EMPC Act	<i>Environmental Management and Pollution Control Act 1994</i>
EMPCS	Environmental management and pollution control system
EPBC Act	<i>Environment Protection and Biodiversity Conservation Act 1999 (Cth)</i>
LUPA Act	<i>Land Use Planning and Approvals Act 1993</i>
LVL	Laminated veneer lumber
RMPS	Resource management and planning system
SD	Sustainable development
VOC	Volatile organic compounds

Report Summary

This report provides an environmental assessment of a proposal by Patriarch & Sons Pty Ltd to construct and operate a rotary veneer and plywood mill at an existing industrial site at 17 Bell Bay Road, Bell Bay.

The development is to occur in three stages: green rotary peeled veneer leaf production in the first stage; dried rotary peeled veneer leaf in the second stage; and a third stage of an LVL or plywood mill. This assessment and approval covers all three proposed stages of development. Production volumes for the proposal are:

- Up to 96,000m³ of veneer and plywood (or LVL) per annum
- Up to 80,000 tonnes of woodchips per annum

This report has been prepared based on information provided in the permit application and Environmental Effects Report (EER). Relevant government agencies and the public were consulted and their submissions, representations and comments considered as part of the assessment.

Further details of the assessment process are presented in section 1 of this report. Section 2 describes the statutory objectives and principles underpinning the assessment. Details of the proposal are provided in section 3. Section 4 reviews the need for the proposal and considers the alternatives. Section 5 summarises the public and agency consultation process and the key issues raised in that process. The detailed evaluation of environmental issues is contained in section 6. Other issues are discussed in section 7. The report conclusions are contained in section 8.

Appendix 1 contains a list of commitments made by the proponent. Appendix 2 contains the environmental permit conditions for the proposal.

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I Approval Process

A Notice of Intent in relation to the proposal was received by the Board of the Environment Protection Authority (the Board) on 13 August 2018.

The proposal is defined as two level 2 activities under:

- clause 2(g), schedule 2 of the *Environmental Management and Pollution Control Act 1994* (EMPC Act), a wood processing works: ‘the conduct of works...at which timber is sawn, cut, compressed, milled, machined or kiln dried, being works with a total production of 1000 cubic metres or more per year,’ and
- clause 2(i), schedule 2 of the EMPC Act, a woodchip mill: ‘works involving processing of trees or parts of trees to form woodchips which have a production capacity of 1000 tonnes or more per year...’.

The Board required that information to support the proposal be provided in the form of an Environmental Effects Report (EER) prepared in accordance with guidelines issued by the Board on 17 September 2018.

Several drafts of the EER were submitted to EPA Tasmania for review against the guidelines before it was finalised. The final EER was submitted to Council with the permit application. The EER was released for public inspection for a 14-day period commencing on 12 January 2019. An advertisement was placed in *The Examiner* and on the EPA website. 3 representations were received.

An application for a permit under the *Land Use Planning and Approvals Act 1993* (LUPA Act) in relation to the proposal was submitted to George Town Council on 19 October 2018.

Section 25(1) of the EMPC Act required Council to refer the application to the Board of the Environment Protection Authority (the Board) for assessment under the Act. The application was received by the Board on 3 January 2019, after it became valid.

The assessment has been undertaken by the Director, Environment Protection Authority under delegation from the Board.

2 SD Objectives and EIA Principles

The assessment has been undertaken by the Director, Environment Protection Authority under delegation from the Board.

The proposal must be considered by the Director in the context of the objectives of the Resource Management and Planning System of Tasmania (RMPS), and in the context of the objectives of the Environmental Management and Pollution Control System (EMPCS) (both sets of objectives are specified in Schedule 1 the EMPC Act). The functions of the Board are to administer and enforce the provisions of the Act, and in particular to use its best endeavours to further the RMPS and EMPCS objectives.

The Director must assess the proposal in accordance with the Environmental Impact Assessment Principles defined in Section 74 of the EMPC Act.

3 The Proposal

The proposal involves construction and operation of a rotary veneer and plywood mill at an existing industrial site at 17 Bell Bay Road, Bell Bay. The development is to occur in three stages: green rotary peeled veneer leaf production in the first stage; dried rotary peeled veneer leaf in the second stage; and a third stage of an LVL or plywood mill. This assessment and approval covers all three proposed stages of development. Production volumes for the proposal are:

- Up to 96,000m³ of veneer and plywood (or LVL) per annum
- Up to 80,000 tonnes of woodchips per annum

The main characteristics of the proposal are summarised in Table I. A detailed description of the proposal is provided in Part B of the EER.

Table I: Summary of the proposal’s main characteristics

Activity	
Processing of wood, producing up to 96,000m ³ per annum of rotary peel veneer or LVL or plywood per annum and the production of up to 80,000 tonnes per annum of woodchips.	
Location and planning context	
Location	17 Bell Bay Road, Bell Bay as shown in Figure I
Land zoning	General Industrial, within the Bell Bay Industrial Precinct
Land tenure	Private freehold
Existing site	
Land Use	Vacant industrial site with existing buildings and services.
Topography	The topography in the area is basically flat at an elevation of approximately 40m ASL. The site slopes north to south at a very shallow 1.6 degrees. There is a shallow slope of 0.6 degrees west to east. Benching for the main buildings and the hardstand areas has altered the natural profile of the site creating a 2m mound of spoil material in the North East corner.
Geology	Underlying rock is basalt consistent with the Tasmanian Geological Atlas.
Soils	The Digital Geological Atlas 1:25000 MRT 2009 identifies the soils as from the Paleogene – Neogene Period of the Cenozoic Era comprising conglomerate, gravel, sand, silt, mud and clay. An assessment in 2017 confirmed the presence of natural sandy clay soils. There are no acid sulphate soils at the site as shown on the Natural Values Database.
Hydrology	The site title shows a drainage easement in the north west and south east corners of the site. The north west easement provides drainage for a feature on the Tasmanian topographic map identified as York Creek. A table drain alongside the road has been established outside the perimeter of the site to the north and the west. The northern table drain directs off site runoff water into the site where a ditch drain on the northern boundary conveys it to York Creek. The western table drain directly discharges into a culvert that carries York Creek under Bell Bay Road. To the east a swale drain runs along the boundary between this property and Ecka Granules that also carries some road run off and to the south the roof drainage system runs to ditch drains on Bell Bay Aluminium land eventually flowing to the road table drain on Bell Bay Road.

Natural Values	<p>There is a planted vegetation belt on the East Tamar Highway side of the site.</p> <p>The balance of the site has previously been cleared. Some landscaping shrubs were planted when the existing building was established.</p> <p>The Natural Values Atlas identifies 3 recorded sightings of threatened species, noted since 1994 - Tasmanian devil, spotted-tail quoll, Eastern-barred bandicoot. These sightings were on the Tamar Highway and Bell Bay Rd within 500 m of the site.</p> <p>One site hosting <i>Caladenia patersonii</i> was identified in 1947 located in the natural vegetation about 500m north of the site.</p> <p>There are no raptor nests on or near the site but 3 nests have been identified within 5km of the site.</p>
Local region	
Climate	<p>Mean monthly rainfall is relatively consistent throughout the year. Lowest falls are in February when mean rainfall is 35mm, in other months the rainfall is between 40 to 60mm, which increases in the winter months to 70 to 80mm.</p> <p>Mean monthly wind data has been obtained for the Georgetown air quality monitoring station. Wind direction at the station was predominately south easterly with northwest to westerly winds being the next most predominant groups.</p> <p>There are likely to be seasonal and diurnal patterns in the local winds in the lower Tamar, and significant variation in wind patterns can occur at locations in relative proximity, due to the effects of the surrounding topography.</p>
Surrounding land zoning, tenure and uses	<p>Located within the Bell Bay Industrial Precinct. The surrounding land uses in the industrial zone includes Ecka Granules and Pacific Aluminium Bell Bay, South 32, Timberlink, Reliance, Artec and a range of service industries.</p> <p>To the north of the site land is zoned as open space and utilities, providing corridors for the East Tamar Highway, Tasrail rail track and the Natural Gas pipeline before continuing as general industrial zoning.</p> <p>To the west of the site, the industrial zone comprises a forested area that transitions to a short corridor of rural resource 1.5km from the site, before changing to light industrial and general residential zonings.</p>
Species of conservation significance	None
Proposed infrastructure	
Major equipment	Log cutting line, chipper, chip bin, rotary veneer lathes & clipper, conveyor, shredder, wood silo, boiler, blade sharpeners, dryers, pallet sawing line, storage area, veneer composer, press line (including hot and cold press) and sawing line.
Other infrastructure	Log yard, storage areas, laboratory, workshop, warehouse, packing area, staff offices and amenities, parking areas.
Inputs	
Water	For amenities through existing services to site. Irrigation pond constructed in SW corner of site used to suppress dust in the log yard.
Energy	Electricity from current supply to site. Energy generated from on-site boiler.
Other raw materials	Timber, polypropylene, urea formaldehyde or phenol formaldehyde glue.
Wastes and emissions	
Liquid	Stormwater runoff from hard stand areas and log yard.
Atmospheric	Sawdust from external cutting of logs

	<p>Dust from wood fibre generation and conveyor to external boiler and log yard</p> <p>Steam, dust and VOC from dryers during veneer sheet drying</p> <p>Volatile organic compound emissions associated with LVL or plywood manufacture</p> <p>Sanding due during LVL production</p> <p>Steam</p> <p>Exhaust from vehicles</p> <p>Particulates from boiler</p>
Solid	<p>Dry veneer waste reused in boiler</p> <p>LVL/plywood trimmings used in boiler.</p> <p>Wood dust/saw dust from saws and sanding line reused in boiler</p> <p>Waste glue separated from wastewater into solid form and disposed to landfill</p> <p>Packing and domestic wastes collected and disposed of to waste transfer facilities and landfill periodically.</p> <p>Log yard waste – bark and timber slithers – periodically disposed of to landfill.</p>
Controlled wastes	<p>Waste oils and other hydrocarbons disposed by licenced operator. Possible contaminated soils through hazardous substances leaks and spills.</p> <p>Waste from production, formulation and use of resins, latex, plasticisers, glues and adhesives solidified by heating.</p> <p>Sewage sludge periodically pumped out of on-site system by licenced contractor. Disposal at authorised wastewater treatment plant.</p>
Noise	From log yard and external shredder and chipper.
Greenhouse gases	The key source of emissions will be from vehicle exhausts within the manufacturing process. The estimated annual consumption of fossil fuels per annum will result in total GHG emissions of <510,000kg CO ₂ -e/annum.
Construction, commissioning and operations	
Proposal timetable	<p>Following planning and environmental approval a submission will be made for building approval that is expected to be completed within two weeks of the final planning conditions being known.</p> <p>Installation of plant foundations is expected to commence in January 2019 inside the building, where it has been advised no approvals are required. It is expected approvals will be in place in February 2019 for external works to start early that month. External civil construction work (log yard and external structures) is expected to take 4 months.</p> <p>Stage 1 (green veneer) equipment is expected to arrive in late May 2019 with commissioning expected in late June 2019 and export operations commencing at the end of July.</p> <p>Stage 2 (dry veneer) equipment will arrive progressively from May 2019 to August 2019. The planned installation time is 3-4 months with the boiler being the item with the longest lead times. Commissioning is expected in November 2019 with operations being in full production in January 2020.</p> <p>Stage 3 (LVL/plywood plant) timing of equipment installation is still in the planning phases and is expected to be undertaken in 2020.</p>
Operating hours (ongoing)	At full operation the facility will operate 24 hours a day Monday to Saturday and maintenance on Sundays between 7am and 4pm.
Other key characteristics	
None.	



Figure 1: Map showing proposal location (red marker) and location of nearest residence and school in George Town (Figure 6 of the EER).

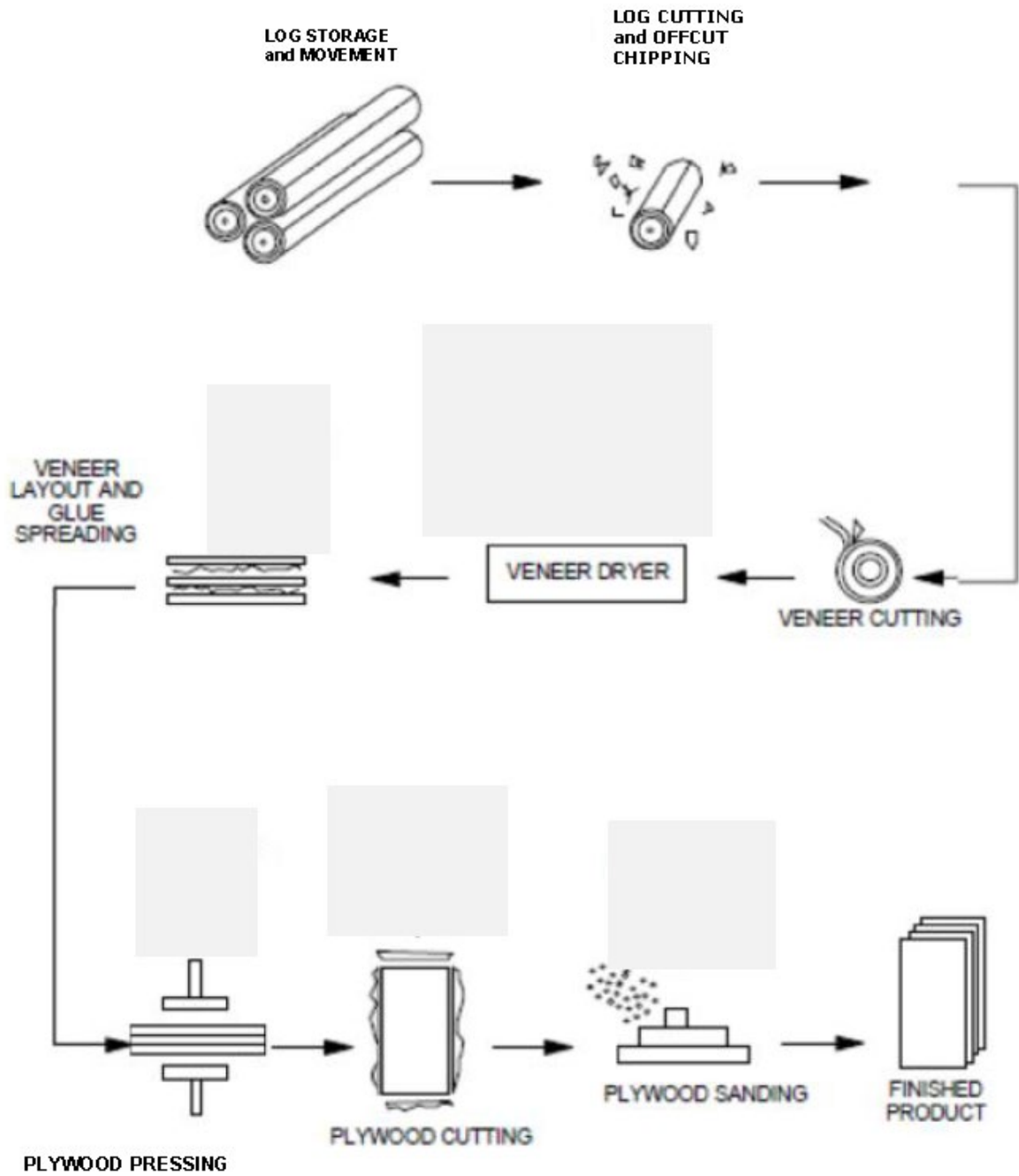


Figure 2: Process flow diagram (Figure 1 of the EER)

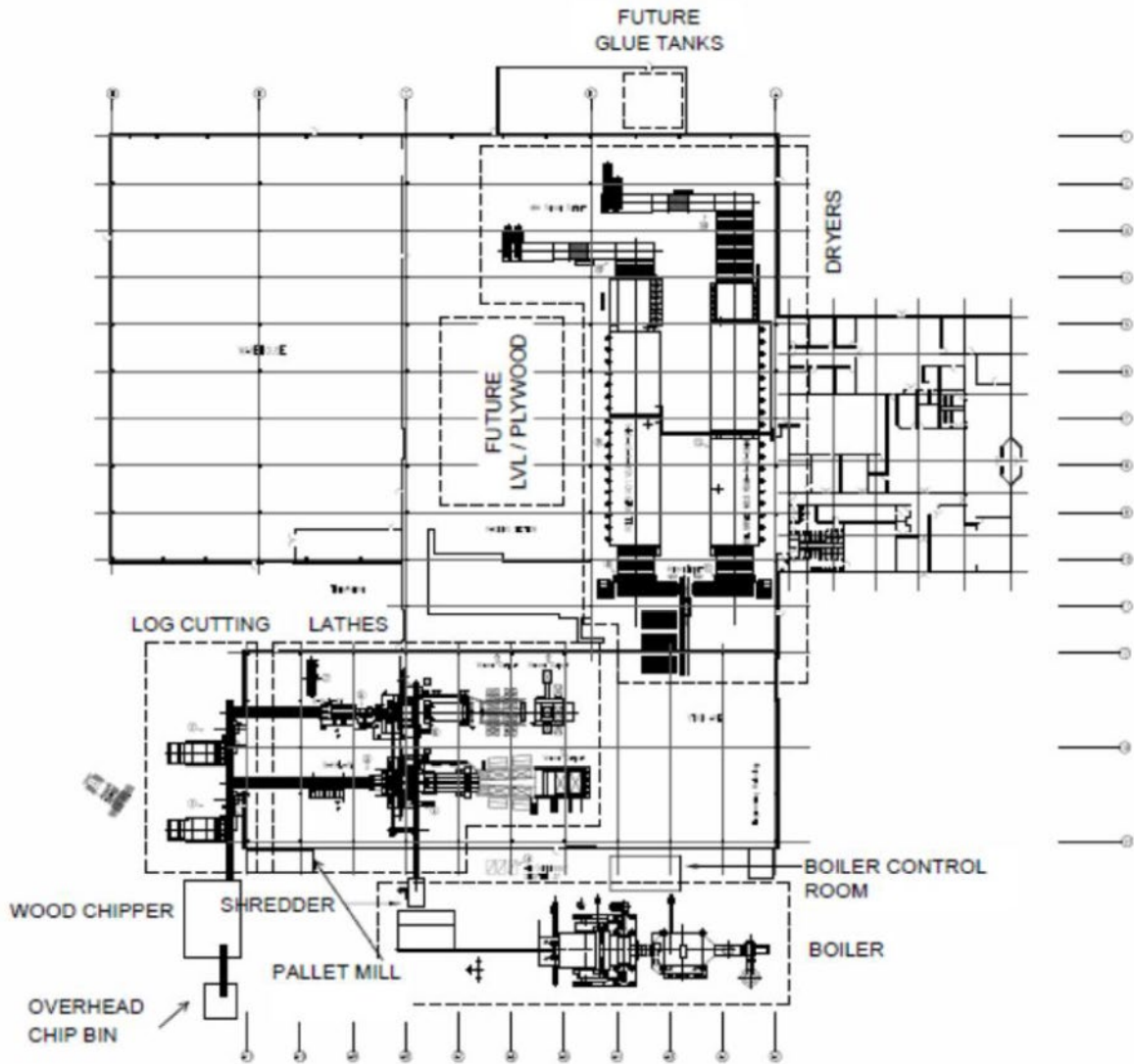


Figure 3: Plant layout (Figure 9 of the EER)

4 Need for the Proposal and Alternatives

According to Section 4 of Part B of the EER, the rotary peel veneer and plywood mill at Bell Bay will allow a greater percentage of timber from plantation and native forest resources within the region to be converted from pulpwood into higher value products.

While initially the mill will focus on producing veneer leaf for export, the third stage of the development includes a plywood or laminated veneer lumber (LVL) product. The production of LVL or plywood is considered a progression of the development from the investment in the manufacture of rotary peeled veneer leaf and would fill an expected market opportunity for high strength LVL in Australia.

The EER states the key benefits of the proposed project will be:

- an investment in establishment of the first two stages of the mill in excess of \$28million;
- the development of an estimated 80 full-time equivalent (FTE) employment opportunities to manufacture the veneer leaf;
- the construction phase will take approximately 9 months and will involve about 30 personnel;
- value adding to generate an additional \$20 million revenue in the forestry sector;
- no additional log transport traffic as the harvested timber already flows to the wood chip mills in the Bell Bay zone; and
- once plywood or LVL production is commenced, an expansion of the work force to 109 full-time equivalent employees is forecast and a further investment of \$26 million.

Locational factors considered included:

- a) proximity for veneer billet supply and wood chip disposal from site– the location of a plant in the vicinity of existing wood chip mills will allow significant synergies, particularly in not increasing log truck traffic to the area;
- b) site services – the site has a range of existing infrastructure that will minimise time and cost to obtain connections for the mill;
- c) several service industries in the region supporting larger industries in the Bell Bay precinct make local support easy to access;
- d) establishment in an area zoned for industrial activities;
- e) value adding nearer the wood source; and,
- f) close proximity to Bell Bay port to allow easy access to export shipping.

5 Public and Agency Consultation

Three (3) public representations were received. The main issue raised in all three representations was the sourcing of wood for the activity from native forests, which would impact on environmental and tourism values and future high value timber resources. One representation was supportive of the job opportunities provided by the activity.

The following officers within EPA Tasmania also provided advice on the EER:

- Regulator, EPA Tasmania
- Air Specialist, EPA Tasmania
- Water Specialist, EPA Tasmania
- Noise Specialist, EPA Tasmania

According to Part E of the EER, the proponent has also undertaken some stakeholder consultation involving:

- Briefings with various industry operators near the mill. The immediate adjacent property is occupied by Ecka Granules and Bell Bay Aluminium. The project has also been discussed with both Reliance and Artec wood chipping operators and with South 32.
- A briefing to the Bell Bay precinct service network members on Thursday 27 September 2018.

6 Evaluation of Environmental Issues

EPA Tasmania has evaluated environmental issues considered relevant to the proposal. Details of this evaluation, along with the permit conditions required by the Director, are discussed below:

The following issues are discussed:

1. Air Emissions
2. Noise Emissions
3. Surface Water Management
4. Liquid Effluent and Solid Wastes
5. Hazardous Substances
6. Decommissioning and Rehabilitation

General conditions

The following general conditions will be imposed on the activity:

- **G1** – Access and awareness of conditions and associated documents
- **G2** – Incident response
- **G3** – No changes without approval
- **G4** – Change of responsibility
- **G5** – Change of ownership
- **G6** – Complaints register
- **G7** – Notification prior to commissioning
- **G8** – Notification prior to commencement

Issue 1: Air Emissions

Description of potential impacts

Air emissions from the activity have the potential to cause impacts to human health and the environment if not appropriately avoided, mitigated or managed. According to section 6 of the EER, air emissions associated with the operation of the project are likely to include:

- sawdust from cutting logs to billet lengths on the log cutting lines and manufacture of pallets;
- dust (particulate matter) from wood fibre generation (shredding off cuts of clipped veneer sheets and veneer cores) and the belt conveying the material to the boiler fuel store;
- steam, dust and VOC emitted from the dryers liberated when the green veneer sheets are dried;
- volatile organic compound (VOC) emissions associated with adhesives used in LVL manufacture;
- sanding dust and sawdust from face sanding and sawing LVL to final product and conveying material to storage;
- small fugitive steam losses from leaks and steam from effluent water evaporation;
- exhaust from LPG powered vehicles both inside and outside the building, associated with forklift movements;
- dust from the operation of vehicles in the log yard;
- exhaust from log loader and excavators/telelogger in the log yard and,
- off-site emissions from wood residue burnt in the biomass boiler.

The location of emissions within the process is shown in Figures 14 and 15 of the EER.

Sanding dust from LVL production is estimated at 154 tonnes per annum or 20kg/hour.

Sawdust from cutting and trimming panels is estimated at 25kg/hour.

Emissions of particulate matter from the dryer are estimated at 1.22 kg/hour. These particles are expected to be large and settle out after leaving the flue. Estimated in-duct concentration of particulate matter is <math><20\text{mg}/\text{m}^3</math>. It is noted the estimates are based on soft wood veneer data, with eucalypt veneer expecting to produce larger particulates and therefore results are conservative. VOC data for the dryer is also only available for softwood veneer production. Hardwood production is expected to have lower VOCs. Propane is estimated at 9.45kg/hr per dryer.

Other emission rates (except those at below detection levels) are shown below (Table 2 of the EER):

Pollutant	Dryer cooling Section		Dryer heating Section	
	kg/m ³	kg/hr	kg/m ³	kg/hr
THC as carbon	0.310	2.170	0.115	0.805
VOC as propane	0.360	2.520	0.140	0.980
acetaldehyde	0.016	0.112	0.002	0.015
acetone	0.024	0.165	0.002	0.014
formaldehyde	0.003	0.023	0.001	0.004
methanol	0.011	0.074	0.021	0.144
methyl isobutyl ketone	0.015	0.102	0.001	0.008
phenol	BDL	BDL	0.002	0.011

Note USEPA emission factors are provided in lb/thousand square feet of 3/8in veneer. Conversion to SI is listed as 1lb/thousand square feet = 0.5 kg/m³. (p 10.5-6). This conversion factor has been applied to derive the emission factors in Table 2

Formaldehyde is expected to be emitted at an estimated peak rate of 0.027kg/hr.

Phenol formaldehyde (PF) resin may be stored in liquid form in three fully enclosed bulk tanks. The constituents are Resonicol 10- 25%, Phenol 3-5%, Ethanol 3-5%. The only constituent that has a reporting threshold is Ethanol. Total annual usage of PF resin is estimated as 120,000L, with maximum annual ethanol storage of 6000L and estimated emissions of 2.71kg/annum or 0.0003kg/hr.

The adhesives for panel production will be either phenol formaldehyde or amino plastic types. All adhesives are rated as E0 for formaldehyde emission (E0 <0.5mg/L), which will result in slight odour at the glue spreader and hot press locations. Formaldehyde levels are expected to be below the workplace standards limit of 1ppm/8hour and more likely <0.2ppm. VOCs are expected at peak production to be 8.25kg/hr. This data again uses softwood rather than hardwood inputs.

Vehicle emissions will include those from on-site forklifts and trucks transporting products to or from the activity. Other fuel emissions include the log loader, excavator and/or telelogger. GHG emissions from vehicles is expected to be 258,600 kg CO₂-e/annum.

Minor steam emissions are expected from the dryers. Evaporation of effluent water will occur intermittently and be vented through a flue to the atmosphere.

Dust emissions have the potential to occur during construction, particularly the creation of the log yard hard stand area and trenching.

The boiler will be used to create steam for the hot press. It will use multiple sources of fuel including sawdust and wood offcuts as well as waste veneer and LVL/plywood material. Gases created by the boiler leave the combustion chamber after heat exchange and pass through a multi-clone filter. Combustion products then pass through an electrostatic precipitator (ESP) to remove particulate matter before being exhausted through a 30m stack. The dominant fuel is green wood chip from sawdust from the cutting line and the veneer round up process at the rotary veneer peeler lathes (95%). Material from the rotary peel veneer process is estimated as

5000kg/hr green chips and 300kg/hr of dry chips arising from trimmings from the LVL panels. Dry waste will represent less than 5% of the total mass of material burnt per hour. Analysis of sawdust samples from the LVL product by Analytical Services Tasmania indicates a total formaldehyde content of 123mg/kg sawdust BDM, so these trimmings if used are estimated to introduce less than 40g/hr of formaldehyde to the boiler combustion chamber. The boiler is planned to operate on a 24 hour per day basis depending on process shifts and overall steam requirements. Key emissions from the boiler are formaldehyde, particulate matter, VOCs and hazardous air pollutants (chemicals). Estimated boiler emissions are shown in Table 6 of the EER.

Management measures proposed in EER

Dust from wood fibre generation

- Sawdust from the log cutting line will be moved by enclosed conveyor to the fuel store.
- Wood chips will be conveyed to an enclosed overhead bin for transport. The chipper and conveyor will be enclosed.
- Veneer sheet material reduced to chip will be processed inside the building. The shredding unit is enclosed and chipped material falls into a duct and is then conveyed to the fuel store.

Sanding and sawdust

- Fines from sanding in LVL manufacture is to be collected by a pneumatic system within the building and stored in sealed bins for transfer to the boiler. The system is sealed except at the extraction point from the LVL process.

Veneer dryers

- Use of eucalypt veneer reduces particulate matter.
- Use of hardwood is expected to reduce VOC production.
- Large volumes of air circulated through building to prevent impacts from formaldehyde emissions.
- Wind roses indicate emissions are unlikely to disperse towards sensitive receptors.

VOC emissions from glue storage, application and curing panels

- Ethanol is vented from the top of the tanks and is dispersed by air leakage from the housing structure.
- Odour from adhesives will dissipate through natural ventilation from the building.

Vehicle emissions

- Maintenance.

Log yard dust

- Dust suppression through sprinkler system.

Emissions from boiler

- Operated at a temperature to ensure thermal destruction of formaldehyde.
- Installation of an electrostatic precipitator to remove particulates.
- Emissions within Schedule 1, Table 2 levels in the Air EPP.

Measures that will be used to suppress dust during the construction phase include:

- Covering stockpiles of dusty construction materials (fine sands, soils and the like) with tarpaulins
- Watering high traffic areas as determined
- Covering truck trays conveying dusty materials with tarpaulins
- Minimising areas of exposed excavation
- Covering exposed soil with planting and mulching as soon as practical

The construction environmental management plan will include a dust mitigation strategy to control smaller diameter dust particles.

Commitments relevant to air emissions are:

- 1: Maintain housekeeping to minimise fugitive dust emissions
- 3: Enclose all external chip and sawdust conveying systems to minimise fugitive dust
- 4: Maintain all mobile equipment to minimise air emissions and noise
- 6: Maintain all boiler operating and maintenance routines to minimise emissions

Public and agency comment

The Air Section commented that some information may not be available on air emissions until the plant design was final. This means there is some uncertainty regarding definitive information on air emissions from the site. They expect that application of Accepted Modern Technology (AMT) and Best Practice Environmental Management (BPEM), together with correct operation, maintenance and testing of equipment would be sufficient to suggest there would be low risk of exceeding the relevant Air EPP Schedule 1 criteria.

However, they recommend that a condition be included in the permit to require annual testing to be undertaken, by NATA accredited professionals, of the boiler stack and drying vents for particulate matter, formaldehyde (HCHO), nitrogen oxides (NOx) and volatile organic compounds (VOCs). The emission parameters obtained from this testing should be compared with the relevant values provided in the latest version of the EER and be used to monitor the continued efficient performance of this equipment. This measured information could also be used to confirm the expected relatively low risk of environmental nuisance occurring as a result of emissions from the activity.

In the absence of estimates of emission rates more specific to the actual plant and emission control equipment planned to be used on the site, the Air Section indicated that they cannot make a more definitive statement about likely compliance with the relevant criteria specified in Schedule 2 of the Air EPP.

Evaluation

Climate information indicates predominant wind directions are principally away from the nearest sensitive receptor, which is located 3 km from the site. However, the activity will produce air emissions including particulates, VOCs and some chemicals. These will contribute to the air emissions at Bell Bay Industrial Estate and require management within accepted guidelines. As air modelling was not required for the assessment, based on an expectation of limited potential for environmental harm or nuisance – which is confirmed in the final Air Section comments - Schedule 2 of the Air EPP and the assessment and regulation of emissions at the boundary of the land does not apply.

There are multiple potential sources of dust emissions, including sawdust. Dust can be moved significant distances in the right conditions and requires effective management. To ensure that dust does not move off the Land and cause environmental nuisance or other issues on nearby industrial sites, **condition A1** is to be imposed. It requires appropriate measures in place to

limit this risk. This condition will also support dust management during construction and any dust emitted from sawing and sanding. Installation of a pneumatic system within the building and storage of sawdust in sealed bins is supported and will reduce the potential for dust emissions. The transfer of sawdust and chips via enclosed conveyors into storage facilities will also limit the potential for air emissions.

As well as sawdust and fines, other potential air emissions within the building include fugitive emissions from chemicals used in the veneer and plywood mill production process, such as formaldehyde and volatile organic compounds (VOCs). Appropriate storage and handling of these chemicals will help to prevent emissions. This matter is further discussed and conditions recommended in Issue 5.

The pneumatic system in the building and the circulation of large amounts of air are expected to ensure appropriate management of emissions within the building, and therefore limit the potential for impacts beyond the site boundary. The need to manage emissions within the building for the purpose of allowing a safe operating workplace, limits the potential for emissions at rates that are likely to cause environmental harm. Although the Air Section has recommended annual testing of the dryer vents, the information provided on emissions and mitigation measures does not justify this condition.

The key emission location for the activity is the stack from the on-site boiler. The boiler will burn wood waste including veneer and LVL or plywood off cuts which contain glues. The glues contain formaldehyde. According to the EER, studies indicate that formaldehyde breaks down into water and carbon dioxide at a temperature of 600 °C. The boiler at this facility is to operate at 1200 °C in order to produce sufficient energy and steam for the drying process. As such, the release of formaldehyde into the environment is expected to be limited to periods when the boiler is not operating at or above 600 °C. The activity is expected to operate 24 hours/day, 6 days/week. Low boiler temperatures are therefore expected to be limited to shut down and start up related to maintenance once each week. The EER estimates a rate of less than 40g/hr of formaldehyde going into the boiler chamber. This is based on when the plywood mill is operating, which will be the third stage of development at the site. There is no in-stack regulatory limit on emissions of formaldehyde under the Tasmanian Air EPP. However, the limited time the boiler will be operating below full decomposition temperature limits the potential for emissions and, based on the low input rate and distance to sensitive receptors, impacts are considered unlikely. Annual monitoring of this emission, as requested by the Air Section, is therefore not considered to be necessary.

Burning of wood waste in the boiler is likely to result in emission of particulates, VOCs and some chemicals. The information in the EER indicates that emissions are expected to be below the levels in Schedule I in the Air EPP. However, the emission rates are based on a range of assumptions regarding the wood product, its combustion and the operation of the electrostatic precipitator. This was identified by the Air Section in their review. To ensure the activity complies with the requirements of Schedule I of the Air EPP, emission limits relevant to the facility, namely particulates and oxides of nitrogen, will be imposed under **condition A2**. This is consistent with regulation of other wood processing facilities. Compliance with emission rates under the Air EPP is considered more appropriate than a condition requiring assessment against assumed emission rates in the EER as proposed by the Air Section.

To confirm the activity is operating within these limits, stack testing will be required on commencement of any product mill on the Land under **condition A4**. This means at the commencement of operation of the veneer mill and any additional mill, which may be LVL or plywood. As the stack is considered the key location for air emissions that have not been fully articulated due to future equipment design, testing at this location is considered sufficient to address the initial recommendation of the Air Section to undertake an air emissions assessment.

Monitoring at commencement allows confirmation that the activity is operating, such that emissions are unlikely to cause environmental harm or nuisance. Annual testing is not considered justified based on the information in the EER and the conclusion accepted by the Air Section that emissions are likely to be low.

Condition M1 and **A3** establish how monitoring samples must be managed and the facilities that must be present to allow stack testing, respectively. **Condition A2** also enables the Director to require additional stack testing, should the previous testing indicate issues with emissions or due to compliance management requirements. This method is considered more reasonable than annual testing based on the information provided in the EER and the expected low levels of emissions.

Other conditions that will support management of air emissions include the requirement for a complaints register under **condition G6** and submission of an Operation Procedures Manual for approval within 3 months of commencement of operation, which is regularly updated, under **condition OPI**. The Manual is expected to include all procedures for reducing air emissions at the site, both inside and outside the buildings, including management of the boiler on operation of any product mill at the site.

To ensure EPA Tasmania is aware when air emissions from the stack will commence, **condition G7** requires notification of the commencement of commissioning. **Condition G8** requires notification on commencement of operation to allow regulation of timeframes associated with stack testing and submission of the operation procedures manual.

Conclusion

The proponent will be required to comply with the following conditions:

- G6** Complaints register
- G7** Notification prior to commissioning
- G8** Notification prior to commencement
- M1** Dealing with samples obtained for monitoring
- A1** Control of dust emissions
- A2** Emission limits from the wood-fired boiler
- A3** Stack testing facilities
- A4** Stack testing frequency
- OPI** Operation procedures manual

<p>Issue 2: Noise Emissions</p>
<p>Description of potential impacts</p>
<p>Noise emissions from construction and operation of the proposal have the potential to cause environmental nuisance, particularly to sensitive receptors, if not appropriately mitigated or managed. An increase in vehicle movements may also result in impacts to sensitive receptors. The mill is located approximately 2.8 km south-south-east of the nearest residence at George Town. The majority of the operation will be located within the main building. External operations will be limited to the shredder and chipper units, log yard operations and vehicle movements.</p> <p>A noise study undertaken for the proposal (Appendix D of the EER) indicates noise emissions from the operation of the equipment with the highest emissions on the site, the mobile log yard wheeled loader, will result in estimated emissions of 76dBA at the boundary of the site. Noise emissions at George Town, with no screening factors applied, are estimated at 26-35dBA. Section 10 of the EER indicates vehicle movements of logs to the area will not significantly change for the proposal. Most of the logs for veneer production already pass the entrance to the site on Bell Bay Road to the two wood chip facilities closer to the wharf.</p> <p>The key new traffic from the site will be containers moved to the port for shipment of veneer/LVL. The total number of movements is estimated at less than 20 movements in each direction per day. There will also be wood chip truck movements to one of the wood chip mills estimated at less than 10 movements in each direction. These movements are confined to the Bell Bay Industrial Precinct.</p> <p>Additional material necessary for LVL/plywood manufacture such as glues are likely to be delivered by the same carriers that currently service the area or will come directly from the Bell Bay wharf. Adhesive resin deliveries will result in about two additional truck movements a week to the site from the port. These come into Bell Bay from the south.</p>
<p>Management measures proposed in EER</p>
<p>Commitments to install noise attenuation structures as necessary (Commitment 2) and maintain all mobile equipment to minimise air emissions and noise (Commitment 4) are relevant. The noise attenuation structures that are to be installed relate to the shredder and chipper units, which are to be housed in concrete filler besser block structures. Maintenance of equipment includes maintenance of manufacturer fitted sound suppression equipment, volume controlled audible reversing alarm devices, including fitting white noise generators where offered by the manufacturer.</p>
<p>Public and agency comment</p>
<p>EPA Tasmania's noise specialist did not expect emission of noise that was likely to cause environmental harm or nuisance due to the significant separation distance to the nearest residence. Noise emission limits were recommended to ensure ongoing management and maintenance to prevent impacts.</p>
<p>Evaluation</p>
<p>Based on the location of the activity within the Bell Bay Industrial Estate, its distance from sensitive receptors and the outcomes of the noise study, environmental nuisance from the activity is considered unlikely. However, noise emission limits of 35 (night time), 40 (evening) and 45 (night) dBA at the nearest noise sensitive premise (in this case a residence) have been imposed under condition NI to ensure that the activity continues to manage and maintain the activity to prevent the potential for impacts from noise emissions. Continued operation of</p>

attenuation devices and management of sound suppression devices in accordance with manufacturer's specifications will be enforced through the **condition OPI** requirement for an Operational Procedures Manual.

General **condition G6** requires the establishment and maintenance of a complaints register. Should ongoing noise issues be identified from the activity, they can be managed through the compliance framework available to the regulator under the EMPC Act, which may include the requirement for noise studies.

Conclusion

NI Noise emission limits

Issue 3: Surface Water Management
<p>Description of potential impacts</p>
<p>Inappropriate design, operation and management of surface water infrastructure has the potential to cause environmental harm through the discharge of pollutant water and sediments to land or water.</p> <p>According to section 2 of the EER, stormwater from the site is collected by existing drains in the Bell Bay Industrial Area and is directed southwards until it connects to the main drain that flows to Deceitful Cove on the Tamar River.</p> <p>The water runoff from the Tamar Highway is collected in the table drain to the north, and runs into York Creek on the North East corner of the site. The storm water from the balance of the site runs in drains to the south that flow to the table drain on Bell Bay Road and then to the general industrial area drainage system.</p> <p>No additional stormwater is intended to be discharged from the site. It is proposed to construct a new irrigation pond of approximately 50kL capacity in the southwest corner of the log yard (see figure 11 of the EER) along with additional swale drains. This pond will collect water from the boiler blowdown as well as run off within the log yard. Blowdown water is used to maintain a low concentration of dissolved solids in the boiler to minimise scale formation, and as the water has been boiled, it is sterile. The pond will be the source for water for the log irrigation sprinklers in the log yard and will dispose of water by evaporation. The pond will also act as a sediment settling pond if excess stormwater causes an overflow from the pond into the drain.</p>
<p>Management measures proposed in EER</p>
<p>A monitoring program to test BOD5 levels in the new irrigation pond on a monthly basis will be implemented for the first year of operation, to establish baseline data. Patriarch will then consult with the EPA to determine what, if any, future monitoring is required. This monitoring will also include oil and grease, pH and NFR parameters. The initial monitoring forms commitment 11 of the EER.</p>
<p>Public and agency comment</p>
<p>EPA Tasmania’s water specialist commented that the water risks associated with the activity were relatively minor. The monitoring of the discharge from the irrigation pond was supported but with the addition of electrical conductivity (EC) and total petroleum hydrocarbons (TPH) rather than oil and grease. ‘NFR’ was to be referred to as Total Suspended Solids. The commitments to a closed loop water system and maintenance of the on-site wastewater treatment system were also supported.</p>
<p>Evaluation</p>
<p>The site has an established stormwater system that is connected to the broader Bell Bay Industrial Estate stormwater system. To ensure water entering the system, which ultimately reaches the Tamar River, is appropriately stored and treated condition SW1 has been imposed.</p> <p>The proposed installation of an irrigation pond and additional swale drains to capture and reuse process and stormwater on the log yard is supported. As this pond is also to be a sediment settling pond, condition SW2 will also been imposed to ensure it is maintained to retain suitable capacity.</p> <p>To understand the type of contaminants in the pond, and ensure that water leaving the pond is not likely to cause environmental harm, monitoring will be required on a monthly basis until authorised by the Director under condition M2. The monitoring is consistent with that</p>

proposed, with the addition of EC, and the change of oil and grease to TPH and NFR to Total Suspended Solids, as recommended by the water specialist. Approval for cessation or change of frequency will be through provision of monitoring reports to an authorised officer on request for review. Monitoring for 12 months after commencement of operation of the activity forms Commitment 11 of the EER. **Condition MI** has been imposed to support the measurement and analysis of any monitoring undertaken under the environmental permit conditions.

Conclusion

The proponent will be required to comply with the following conditions:

- SW1** Stormwater
- SW2** Maintenance of settling ponds
- MI** Samples and measurements for monitoring purposes
- M2** Irrigation pond monitoring

Issue 4: Liquid Effluent and Solid Wastes

Description of potential impacts

Inappropriate discharge and management of liquid and solid wastes can result in pollution of land and water.

According to Section 7 of the EER, the rotary peeling and drying process inside the building is not expected to have any liquid discharge. The blowdown water from the boiler is the only liquid generated. This water will be directed to the irrigation pond for sprinkling of logs in the log yard and will be lost through evaporation (see Issue 3 for further discussion).

The LVL/plywood mill will operate on a closed water loop. No process liquid effluent will be discharged from the LVL mill. The only source of LVL mill liquid will be wash down water from cleaning of glue spreaders. Glue spreader wash down occurs once a day and will produce about 100 litres of water per machine per day. A block diagram representation of the LVL mill water cycle is shown below.

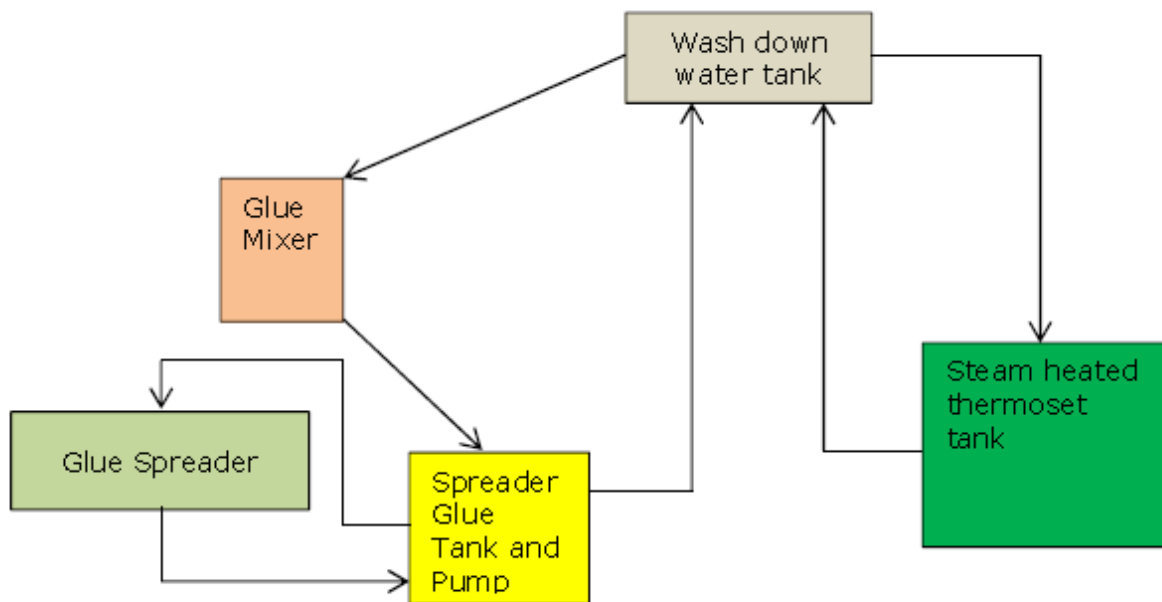


Figure 4: Internal water cycle for LVL mill, no discharge (Figure 17 of the EER)

The effluent from the glue spreaders is captured in the machine glue-holding tank and is then transferred by pump into an agitated tank that supplies water back to the glue mixing.

Where effluent can't be reused, it is directed to a steam heated evaporation bund that thermosets the residual adhesive, precipitating it from the water and allowing the water to be recycled.

The site has an on-site wastewater treatment system for discharge from the on-site amenities. The water from the wastewater treatment system is reused on site for irrigation of garden beds. Based on a study of water generation, a reinstatement and expansion of the irrigation system will be undertaken, and a new plumbing permit sought. Other upgrades will be done under a plumbing permit process to ensure the system can operate at maximum capacity.

<p>Solid wastes from the operation of the activity include:</p> <ul style="list-style-type: none"> • Dry veneer waste from the composer line – approximately 3-5000m³ per annum • LVL offcuts -1600-3200m³ per annum (approx. 1 tonne/hour) • Wood dust from saws and sanding line • Waste glue – approximately 100kg in low LVL production weeks. • Log yard waste in the form of stray bark and timber slithers – estimated at a maximum of 10 tonnes per month.
<p>Management measures proposed in EER</p> <p>Install closed loop water system for glue wash down when the LVL/plywood mill is installed (Commitment 10).</p> <p>Transfer all suitable clean solid wood waste to the boiler to combust (Commitment 5). Veneer waste, LVL/plywood trimmings and wood dust to be reused in boiler as fuel to supplement the steam capacity for the dryers.</p> <p>Waste glue is to be hardened and sent to landfill.</p> <p>Packaging materials and domestic waste disposed of by contractors to waste transfer stations for recycling and landfill.</p> <p>Log yard waste sent to landfill.</p>
<p>Public and agency comment</p> <p>None.</p>
<p>Evaluation</p> <p>Liquid waste from the wood processing mill is limited to blowdown water from the boiler which is redirected to the irrigation pond for reuse in dust control. Management of this pond is discussed in Issue 3. Sewage from amenities will be directed to the onsite treatment plant and resulting treated water will be used on the gardens which do not involve plants for consumption. These amenities are usually approved through a plumbing permit issued by Council. Should there be any discharge from this onsite facility, condition G2 requires the responsible person to take all action necessary to limit environmental harm. They also required to report the incident to EPA Tasmania under s32 of the EMPC Act. It would then be managed under the compliance framework of the EMPC Act.</p> <p>The reuse of veneer waste, LVL or plywood trimmings and wood dust in the boiler for the production of additional steam to dry the products will significantly limit the amount of waste produced by the activity. All other sources of waste are to be managed appropriately and, where possible, in accordance with the waste management hierarchy. Once waste leaves the activity its disposal is government by the requirements under legislation, regulations and policy. No conditions are considered necessary for the management of waste at the activity.</p>
<p>Conclusion</p> <p>No liquid effluent or solid waste conditions are considered necessary.</p> <p>The information section reminds the proponent of the waste management hierarchy, notification of incidents under s32 of the EMPC Act, and that controlled waste must be transported by an authorised person.</p>

Issue 5: Environmentally Hazardous Substances
<p>Description of potential impacts</p>
<p>Inappropriate transport, storage and use of environmentally hazardous materials has the potential to cause pollution through discharge to land or water. According to section 12 of the EER, the key substances will be various adhesive compounds, diesel fuel, LPG, lubrication and hydraulic oils and paint as detailed in Table 11 of the EER.</p> <p>It is proposed that oils will be stored in designated bunded areas inside the building. A flammable liquids store locker for paint and similar products will be established in the existing storage shed for flammable liquids external to the building.</p> <p>A diesel refuelling station for log yard mobile plant will be established. Initially LPG refuelling will be by swapping 45kg bottles that will be stored onsite in the flammable store. Ultimately, a bulk storage bullet will be installed to allow refuelling without removing the LPG bottles from the forklift trucks.</p> <p>The external storage for adhesive products will be housed in tanks installed in the storage area in front of the building.</p>
<p>Management measures proposed in EER</p>
<p>All hazardous materials will be stored with signs and fire control measures in compliance with AS 1940 and the Dangerous Goods Act and Regulations. Material Safety Data Sheets will be held at a designated location on site.</p> <p>The refuelling station will be a self-contained fuel storage container with internal bunding. Fuel transfer will be through an electric pump with an automatic nozzle flow cut off. A spill kit will be located next to the refuelling station for use in event of a spill during fuel dispensing.</p> <p>A suitably constructed and bunded area for adhesive products will be provided to house the adhesive tanks.</p> <p>Accidental spills will be covered by standard operating procedures that include the protection of storm water pits, location, management and use of spill kits for spill control and any precautions for fumes etc.</p> <p>The mill will have an emergency management plan, which will deal with emergency response.</p>
<p>Public and agency comment</p>
<p>None.</p>
<p>Evaluation</p>
<p>Significant volumes of potential environmentally hazardous materials are to be stored at the site. Condition H1 has been imposed to ensure that these materials are appropriately stored and handled. Condition H2 has been imposed to ensure smaller amounts of environmentally hazardous materials are also properly stored and handled. Condition H3 requires the spill kits to be available in the event of a spill to ensure a quick and effective clean up to prevent environmental harm. These are consistent with the management measures proposed in the EER. Storage and handling of hazardous materials is expected to be included in the Operational Procedures Manual required under condition OPI and reflects the management measures proposed in the EER.</p> <p>Should an incident occur that has the potential to cause environmental harm, condition G2 requires the responsible person to take all action necessary to limit environmental harm. They are also required to report the incident to EPA Tasmania under s32 of the EMPC Act. It would then be managed under the compliance framework of the EMPC Act.</p>

Conclusion

The proponent will be required to comply with the following conditions:

- G2** Incident response
- H1** Storage and handling of hazardous materials
- H2** Hazardous materials (<250 litres)
- H3** Spill kits
- OPI** Operational Procedures Manual

The information section reminds the proponent of how to notify the Director incidents under s32 of the EMPC Act.

Issue 6: Decommissioning and Rehabilitation
Description of potential impacts
<p>Appropriate decommissioning and rehabilitation of equipment and the land is necessary on cessation to prevent ongoing impacts to land and water.</p> <p>The EER states that the operation is expected to have a long and indefinite operating life. Future use is intended to be another manufacturing use suitable in the industrial zone.</p>
Management measures proposed in EER
<p>The proponent intends to ensure facilities remain in good repair and if no longer required, processing equipment is removed from site.</p>
Public and agency comment
<p>None.</p>
Evaluation
<p>To ensure that the land and equipment are suitably managed in the event of a temporary suspension of the activity, condition DC1 will be imposed. This condition also requires remediation in the event that the suspension is ongoing.</p> <p>In the event the activity is to cease operation, condition DC2 requires notification to the Director. Due to the complexity of the activity, its equipment and operations a Decommissioning and Rehabilitation Plan (DRP) will be required under condition DC3. This Plan must be prepared within 3 years of the commencement of operations and the condition stipulates the minimum information it must contain. The Director can require additional information in the DRP to manage potential risks in the event of cessation. To ensure the DRP is provided within the statutory timeframe, condition G8 has been imposed to require notification prior to commencement of the activity.</p> <p>On cessation of the activity, condition DC4 requires the DRP to be implemented, limiting the potential for ongoing environmental impact from the activity or its remaining equipment or infrastructure.</p>
Conclusion
<p>The proponent will be required to comply with the following conditions:</p> <p>G8 Notification prior to commencement</p> <p>DC1 Temporary suspension of activity</p> <p>DC2 Notification of cessation</p> <p>DC3 Decommissioning and Rehabilitation Plan</p> <p>DC4 Implementation of the DRP</p>

7 Other Issues

The following issues have been raised during the assessment process and are discussed briefly here. These are issues which are not the Board’s responsibility under the EMPC Act, or issues which are more appropriately addressed by another regulatory agency.

- I. Sourcing wood for the activity from native forests. Management of forest resources is not within the responsibility of the Board, and outside the assessment of environmental impacts from the construction and operation of the proposed activity.

8 Report Conclusions

This assessment has been based on the information provided by the proponent, Patriarch and Sons Pty Ltd, in the permit application, the case for assessment (the EER).

This report incorporates specialist advice provided by EPA Tasmania scientific specialists and regulatory staff and has considered issues raised in public submissions.

It is concluded that:

1. the RMPS and EMPCS objectives have been duly and properly pursued in the assessment of the proposal;
2. the assessment of the proposed activity has been undertaken in accordance with the Environmental Impact Assessment Principles; and
3. the proposed activity is capable of being managed in an environmentally acceptable manner such that it is unlikely that the objectives of the *Environmental Management and Pollution Control Act 1994* (the RMPS and EMPCS objectives) would be compromised, provided that the Permit Conditions - Environmental No. 9962 appended to this report are imposed and duly complied with.

9 Report Approval

Environmental Assessment Report and conclusions, including environmental conditions, adopted:



Wes Ford

DIRECTOR, ENVIRONMENT PROTECTION AUTHORITY

Acting under delegation from the Board of the Environment Protection Authority

Date: 7th March 2019

10 References

Dario Tomat, Whetstone Pty Lt; *Patriarch and Sons Pty Ltd, Environmental Effects Report, 17 Bell Bay Road, Bell Bay, Rotary Peel Veneer Mill and Plywood Mill* (dated 12/12/2018), Patriarch and Sons Pty Ltd, Wembley Downs, Western Australia.

11 Appendices

Appendix 1 Table of proponent commitments

Appendix 2 Permit conditions

Appendix I – Table of proponent commitments

No.	Commitment	Completion date	By Whom
1	Maintain housekeeping to minimise fugitive dust emissions	From commencement of operations and on-going	Patriarch Resources Pty Ltd
2	Install noise attenuation structures as necessary.	At least 30 days prior to commencement of operations	Patriarch and Sons Pty Ltd
3	Enclose all external chip and sawdust conveying systems to minimise fugitive dust	At equipment selection	Patriarch and Sons Pty Ltd
4	Maintain all mobile equipment to minimise air emissions and noise.	From commencement of operations and on-going	Patriarch Resources Pty Ltd
5	Transfer all suitable clean solid wood waste to the boiler to combust.	From commencement of operations and on-going	Patriarch Resources Pty Ltd
6	Maintain all boiler operating and maintenance routines to minimise emissions	From commencement of operations and on-going	Patriarch Resources Pty Ltd
7	Continue to maintain the on site wastewater treatment plant in accordance with installer recommendations	From commencement of operations and on-going	Patriarch and Sons Pty Ltd

No.	Commitment	Completion date	By Whom
8	Install and manage log irrigation sprinklers to manage water evaporation to minimise discharge from irrigation pond	From commencement of operations and on-going	Patriarch Resources Pty Ltd
9	Provide a vegetated visual barrier along East Tamar Highway to minimise view lines to the log yard and mill	Establish at completion of construction	Patriarch and Sons Pty Ltd
10	Install closed loop water system for glue wash down when the LVL mill is installed	Established during LVL plant installation	Patriarch and Sons Pty Ltd
11	Undertake monitoring of the discharge from the irrigation pond to establish baseline data	Establish at completion of construction	Patriarch Resources Pty Ltd

Appendix 2 – Permit conditions – Environmental



ENVIRONMENT PROTECTION AUTHORITY