CHAPTER 8 ROTARY PEELED VENEER MILL

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8. ROTARY PEELED VENEER- ENVIRONMENTAL MANAGEMENT PLAN

8.1 Rotary Peeled Veneer Mill Process Description

The following chapter describes the process of producing rotary peeled veneer. A heat plant is required in the Rotary Peeled Veneer (RPV) Mill process to produce steam used to dry veneer. A description of the heat plant process is included below. A viable alternative to having a heat plant on the RPV site is to pipe steam from the Power Station. The activities conducted at the RPV Mill will comply with the current best practice environmental management conditions operating throughout Australia.

8.1.1 Description of Operation and Equipment

The RPV Mill is located at the northern end of the site (refer to Figure 5) with direct access to the internal loop road. Refer to Figure 30 for the process flow diagram of the proposed operation and Figure 31 for wood flow through the RPV Mill site. All RPV Mill operations will be conducted in an enclosed space. Operations conducted in the open will be limited to temporary log storage and the car park. Refer to Table 66 for details on building dimensions and construction materials.

RPV is a thin sheet of veneer derived from regrowth pulpwood. Depending on the application, the thickness of the veneer sheet varies, see section 8.1.3 for details about products.

Peeling System Infeed

Peeler blocks will be cut to length in the Merchandising Yard, segregation area. Refer to Chapter 6 for description of segregation process. The peeler blocks will be placed on a log infeed deck by either a rubber tyred loader, or a fixed, electrically operated log grapple. From the infeed the blocks are taken one by one into the lathe charger that scans the blocks and in turn places them into the lathe on optimum centres (Plate 7).

Plate 7 Log infeed to Lathe

Rotary Lathe, Scanner and Clipper

In the rotary lathe, a full-length knife progressively peels a pre-set thickness of veneer from the rotating block at speeds of up to 100 metres per minute. Subject to block quality, peeling proceeds down to a core diameter as low as 50 mm. Once released from the lathe, the core falls onto a cross conveyor which transfers the core to a wood by-product chipper. The wood by-product generated is then blown to the fuel storage silo of the heat plant or transported by bins to the merchandising yard and onto the Power Station by conveyor if there is excess.

Due to the small diameter of core material production, it is expected that chips produced from cores will not meet export chip specification. In the event that export quality chips are produced they will be sold to the wood fibre mill.

The veneer ribbon is cut longitudinally and transversely ("clipping") to suit the size requirements of the finished dry veneer and to eliminate waste (Plate 8). The peeling line has one, 8 foot rotary clipper and two, 4 foot clippers. The veneer by-product is collected on a combination of conveyors and taken to a green waste veneer chipper from which wood by-product is blown to the fuel storage silo of the heat plant.

Veneer suitable for further processing is stacked in preparation for the veneer drying process, with a minimum of manual intervention in a largely mechanised process.

A critical performance criterion is the recovery of raw block volume to green veneer. The imperfections, which prevent the peeler logs being acceptable as sawlogs, also result in the generation of waste veneer. Selection of peeler material is therefore a balance between log quality against log cost.

Plate 8 Peeled veneer prior to clipping

Veneer Drying

Veneer sheets are conveyed through the dryer on a series of closely spaced roller pairs, called a deck. The rollers rotate in unison and are driven by a common chain running the whole length of the dryer. The six decks are housed in a large insulated container with fans circulating hot dry air, and a number of separately controlled drying stages along the length.

The length of the decks and the container is such that the veneer reaches the desired dryness in a single pass. Thus each deck can be loaded with green veneer at one end and dry veneer unloaded at the other. The speed of the deck can be varied to suit the different drying rates of different qualities and thicknesses of veneer.

To ensure that the hot dry air uniformly sweeps all veneer surfaces, a series of "jet boxes" cover the top and bottom veneer surfaces in each deck. In addition, close control of the temperature and humidity is required to maximise drying rate. These two requirements are most economically achieved by constructing self-contained sections along the length of the dryer, each provided with its own air inlet, fan, heating coil by-pass controls and exhaust. Warm moist air will be discharged to the atmosphere.

Full sheets of veneer are fed directly into a set of feed rollers at the drive end of the machine. Part sheets of veneer are fed into semi automatic machines between rollers at the feed end. These part sheets are stacked and graded at the outlet from the dryer.

Steam required for the veneer drying process will be sourced from the heat plant situated on the RPV site, as described later in this chapter.

Composing

Part sheets of dried veneer are fitted together to make full sheets in a process called "composing". The purpose of composing is to make full sheets from small pieces for easy handling before the product is finished in the plywood plant. Composers take random width short grain veneers, trim them accurately and assemble them into full sized short grain core veneer sheets. This is undertaken by applying hot polypropylene adhesive at the joint in a series of reinforcing strings to assist holding the pieces together. This is a fairly slow and labour-intensive process and in this mill a total of seven composers will be installed to handle the part-sheets expected to be produced in the peeling operation. The gluing process is carefully controlled using calibrated application equipment to minimise wastage.

Each of the seven proposed veneer composers incorporates a clipper. Waste veneer is generated while peeling away the out-of-cylindrical portions of the block and thereafter when imperfections in the rounded block need to be eliminated. The wood by-product from the dry veneer clipper is chipped and then blown to the fuel storage silo for the on-site heat plant.

Stacking, Packaging And Dispatch

Finished veneer stacks are compressed hydraulically between timber top and bottom pallets, wrapped in polyethylene sheet for protection from rain, and strapped using steel or plastic straps. A typical package contains a one metre depth of veneer sheets in one of the two sheet sizes of 2,440 x 1,220 mm or 1,820 x 910 millimetres.

Only temporary storage of finished packages stacked up to four deep is provided in the mill, major storage is provided off-site.

Transport Within the RPV Mill

Stacks of green veneer, dry veneer and finished product will be moved around the RPV Mill using light rubber tyre (gas powered) forklift trucks. The size of the production building and the continuous airflow into the veneer dryer are judged sufficient to prevent any significant build-up of exhaust products.

Future Block Conditioning

Conditioning of peeler blocks is a process of bringing the blocks to a uniform, preset temperature and moisture content before peeling. Conditioning often improves the quality and quantity of acceptable veneer produced.

It is not intended that blocks be conditioned for the initial development, however, depending upon performance, conditioning facilities may be constructed later and be subject to separate approvals. If so, the conditioning facility will comprise a concrete enclosure similar to a normal timber-drying kiln. Conditioning will be achieved by

storing logs in an atmosphere with gentle fan circulation, temperature adjustable up to 60°C, and relative humidity of 100%. Provision will be made to condition 20% of the daily throughput. Steam will be sourced from the mill's heat plant or the power station for this process and will be circulated through steel heating coils for temperature control. Humidity will be maintained by spraying water over the heating coils.

Heat Plant

Steam is required for the veneer drying process. It is planned to install a 15 MW stand-alone heat plant on the RPV Mill site for this purpose. There is also an option to obtain steam from the Wood Centre Power Station. The timing of the availability of steam from a central facility will determine which option will be used.

Wood by-products generated within the RPV Mill include peeler cores and waste veneer both green and dry. These by-products will be used as fuel in the mill's own heat plant. At design veneer production rates, it is expected that approximately 20,000 tonnes per annum of combustible wood by-products will be generated, sufficient to meet approximately 45% of the total fuel required by the heat plant. The wood by-product is prepared for use in the heat plant by designated chippers within the mill.

The heat plant requires diesel for start-up and is subsequently fueled by wood by-product. The internally generated fuelwood will be blown directly to a fuel storage silo with a particulate filter mounted above it. Up to 25,000 tonnes per annum of forestry residue will be sourced from the forest and/or from other facilities on-site, and delivered to a truck dump at the heat plant. The truck dump will have a live floor hopper feeding a belt type reclaim feeder and a bucket or screw type elevator lifting trucked fuel to the top of the silo. The silo will have capacity to store three day's operating fuel to allow some flexibility in fuel deliveries. Fuel will be extracted from the bottom of the silo by a live bottom and delivered to the heat plant furnace in-feed using a screw conveyor.

Ash that drops into the furnace grate will be removed from the steam boiler and stored. In addition, the flue dust will be collected and stored. The ash and flue dust will be disposed of through use by local industry or as soil conditioner in the forest.

Steam will be generated at a pressure of approximately 7.5 bar to allow a temperature of up to 150°C to be utilised in the veneer dryer. The veneer dryer requires approximately 12 MW of thermal heating for winter operation. A steam capacity of 15 MW has been selected for the heat plant to allow for some future expansion. The level of heating does not constitute super heated steam (>700 kpa) therefore there is a lower potential of incident occurring and a Hazard and Operability study are not required.

The heat plant furnace is a tall but otherwise conventional combustion chamber with a steam swept incline, chain type ash conveyor and variable top-grade air supply to control flame temperature. Heat transfer surfaces are water-tube type with natural circulation between a top hot drum and bottom headers. As defined by Australian Standards, the

system will be rated for "limited attendance." Condensate water will be returned to the steam boiler via a condensate tank and feed water pump. Make-up water will be pumped from the domestic water supply and treated by the boiler water treatment system before entering the heat plant.

Ash that drops into the furnace grate will be removed from the steam boiler and stored. In addition, the flue dust will be collected and stored. The ash and flue dust will be disposed of through use by local industry or as soil conditioner in the forest.

Process Supervision

It is envisaged that in the main mill building, overall production supervision would be centralised in an elevated control room with a view over all production centres and material movements.

In this location there will be a comprehensive central control room, which will display and record all production data. Some operations, such as the peeling and composing, will be controlled locally in which case display and data will be relayed from the local control station to the central control room. Other operations, for example the dryer, will be controlled directly from the central control room with occasional delegation to local control stations.

It is also planned to provide a dual redundant backup computer system to maintain mill integrity in the event of system failure, as well as to allow for maintenance work with minimal interruption to manufacturing

Principal Items of Equipment and Operation

The main types of RPV Mill equipment, their function, specifications and hours of operation are outlined in Table 65.

Table 65 Details of the Main Types of Rotary Peeled Veneer Mill Equipment

Equipment	Function	Power/Fuel	Hrs used/day
Heat plant (including fuel receival hopper, silo, furnace, boiler, condensate system, fans and pumps).	Steam raising.	Plant by-product and Forest residue	24 hrs
Block receival (including infeed deck and conveyor).	Receival and temporary storage of peeler blocks, presentation to infeed of peeling system.	Electricity	24 hrs
Peeling system (including charger, rotary lathe, scanner, clippers, veneer conveyors, core and waste veneer conveyors, veneer stackers).	Conversion of peeler blocks into stacked green veneer, waste veneer on conveyor and peeler cores on conveyor.	Electricity	24 hrs
Dryer (including infeed, dryer chamber and conveying decks, air handling, outfeed and dry veneer stackers).	Drying of green veneers to finished moisture content.	Electricity	24 hrs
Composing (including short and long grain composers, infeed and outfeed stackers and waste veneer conveyors).	Converts random width veneer strips into full sheets, presents waste veneer on conveyor.	Electricity	24 hrs
Finished product handling (including cold press and packaging systems).	Presses, wraps and crates stacks of dry veneer.	Electricity / Manual	24 hrs
By-product conversion.	Accepts peeler cores and waste veneer (green and dry), chips and blows fibre to heat plant for storage.	Electricity	24 hrs

Figure 30 Rotary Peeled Veneer Mill Process Flow Diagram

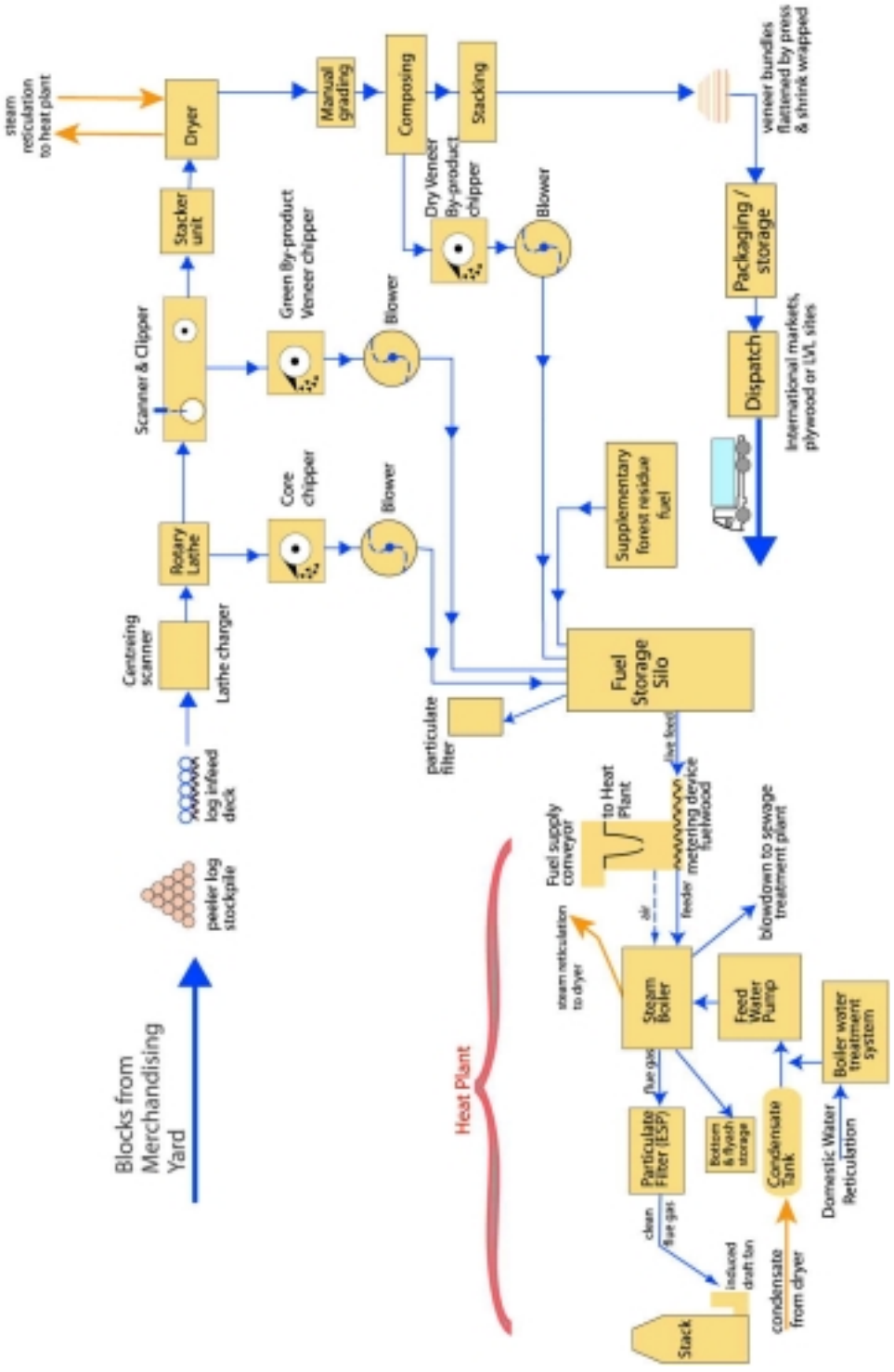
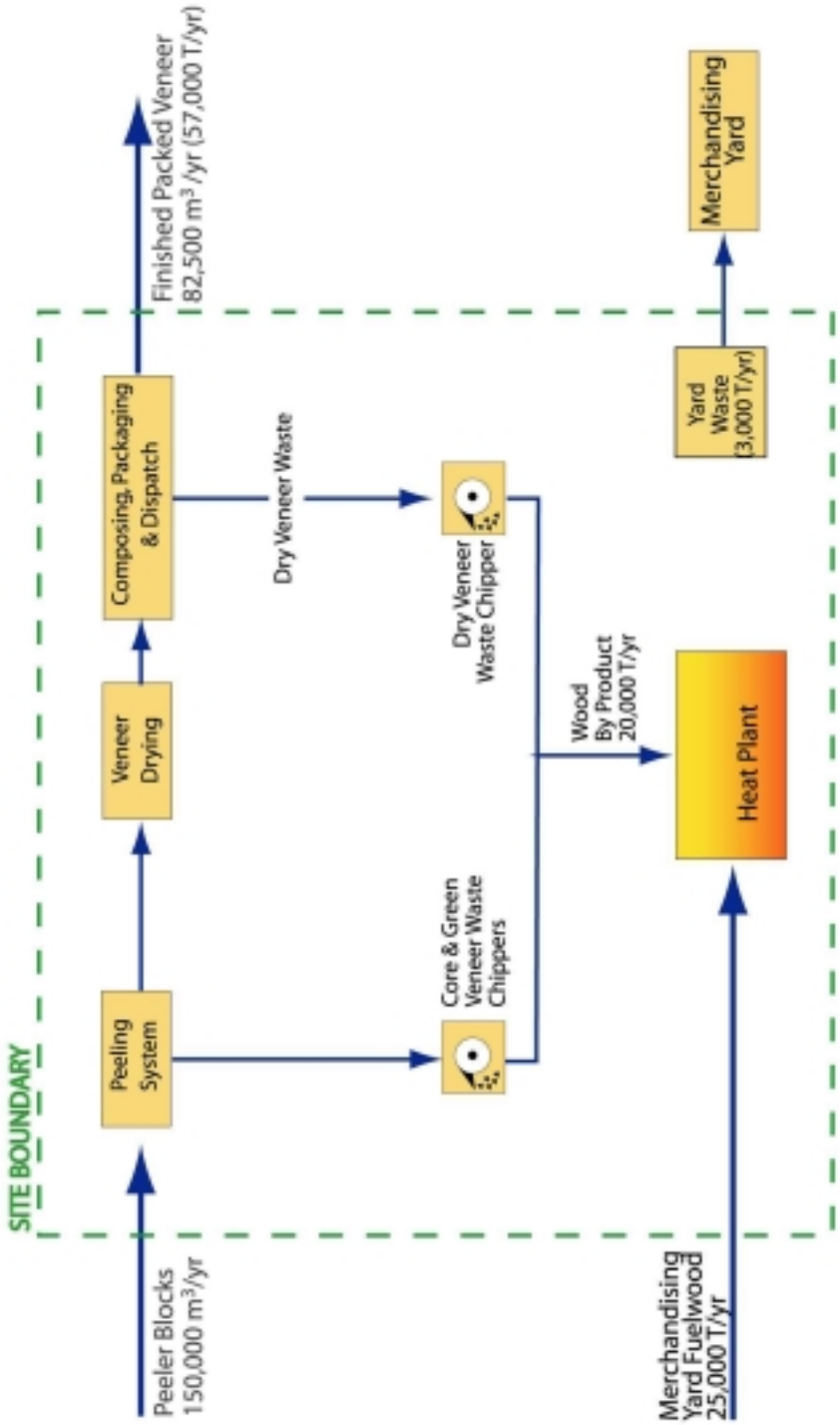


Figure 31 Rotary Peeled Veneer Mill Wood Flow Diagram



8.1.2 Description of Buildings and Associated Infrastructure

Principal Buildings

The major buildings and services on the RPV Mill site are as follows:

- Main RPV mill building (including heat plant, veneer production, and product storage);
- Peeler log stockpile;
- Workshop including hazardous materials storage;
- Office; and
- Amenities.

Although the docking mill is in close proximity to the RPV it is considered part the merchandising yard and as such is described in Chapter 6. The details of the building dimensions and construction materials for the preceding buildings are provided in Table 66.

Table 66 Building Dimensions and Construction Materials – Rotary Peeled Veneer Site

Building	Area (m^2) (Approx.)	Height (m)	Construction Material		
			Floor	Walls	Roof
Main RPV Mill building	14,000	6	Concrete slab	Tilt-up concrete panels and steel sheet	Steel sheet (Colourbond Trimdek clad)
Office	280	5	Concrete slab	Brick	Steel sheet (Colourbond Trimdek clad)
Amenities	350	5	Concrete slab	Brick	Steel sheet (Colourbond Trimdek clad)
Workshop	380	12	Concrete slab	Steel sheet (Colourbond Trimdek clad)	Steel sheet (Colourbond Trimdek clad)

Main Veneer Plant Building

The main RPV Mill building will have plan dimensions of approximately 50 m width by 230 m length and be designed around providing a clear and logical flow path for the product. The building will be constructed with provision for a 50 m extension for the future addition of a plywood plant.

Office

Office space and corporate facilities will be provided.

Amenities

The amenities building, based on the requirements of the Building Code of Australia, will be constructed adjacent to the main office to provide for approximately 125 production staff.

Workshop

A workshop will be constructed on-site in which maintenance equipment, small amounts of hazardous goods and tools will be stored, selected maintenance tasks carried out and three offices will be included.

Car Parking

Car parking will be provided for all staff, commercial vehicles and visitors to the site. This will account for approximately 50 personnel and visitors.

8.1.3 Source of Wood and Quantity of Production

Quantity of Production

From 150,000 tonnes of peeler blocks received at the RPV Mill, 82,500 m^3 (57,000 tonnes) of packaged dried rotary peeled veneer sheet, and approximately 20,000 tonnes of green wood by-product and small amounts of dry veneer trimming waste will be generated.

Maximum recovery of rotary peelable billets is an objective of the Merchandising Yard these will be directed to the RPV mill.

The heat plant, or power station, will consume all of the above wood by-product generated on-site and will be supplemented by forest residue from the forest floor as required.

Block Supply

Blocks will be primarily *Eucalyptus obliqua* and *E. globulus*, which share a similar drying characteristic. *E. regnans* may also be peeled although its drying characteristics are different and must therefore be dried separately. *E. nitens* may also be trialed. All blocks will come from regrowth forests less than 100 years old.

Products

Products will be manufactured slightly oversized for each of two sheet sizes:

- 3' x 6' (finished plywood size 1,820 mm x 910 mm); and
- 4' x 8' (finished plywood size 2,440 mm x 1,220 mm).

For each sheet size four products will be manufactured:

- Short grain core veneer (2.4 mm thick) being a mixture of full sheets and sheets composed from jointers in the core builder;
- Long grain core veneer (1.2 mm thick) being a mixture of full sheets and sheets built from random width veneers;
- Face veneer sheets (1.2 mm thick) being high quality full sheets; and
- Back veneer sheets (1.2 mm thick) being medium quality full sheets.

8.1.4 Emission Sources

Air emissions

Air emissions associated with the operation of the RPV Mill are likely to include:

- Dust generated during the unloading of forest residues from trucks (material to be used as fuelwood in the heat plant;
- Dust from wood fibre generation and blowing operations on-site;
- Hot moist air discharged from the veneer dryer fans. A plume of water vapour can be expected under cooler atmospheric conditions, but no significant dust load is expected;
- Small fugitive steam losses from leaks and air ejection points;
- Furnace stack emissions from the heat plant;
- Large steam flow to atmosphere when boiler safety valves are tested and activated in the steam system;

- Exhaust from diesel and/or LPG powered vehicles both within and outside of the building associated with forklift movements; and
- Odour emissions associated with hot polypropylene used to join part sheets of dry veneer in the composers. (Note: The odour from this operation is not offensive and is barely perceivable to the operator standing adjacent to the process joining area).

Water Emissions

The RPV Mill is primarily a dry process, with water emissions produced by the boiler water treatment system, the boiler, contaminated stormwater and domestic wastewater. Figure 32 illustrates the water flows on the RPV Mill site excluding the domestic wastewater that is discussed in Chapter 5.

Process Wastewater

Process wastewater from the RPV Mill will only comprise a low volume stream that is associated with the boiler water treatment bleed stream and heat plant (boiler) blowdown. The quantities are expected to be approximately 1.0 ML/yr for each of these streams.

Domestic Wastewater

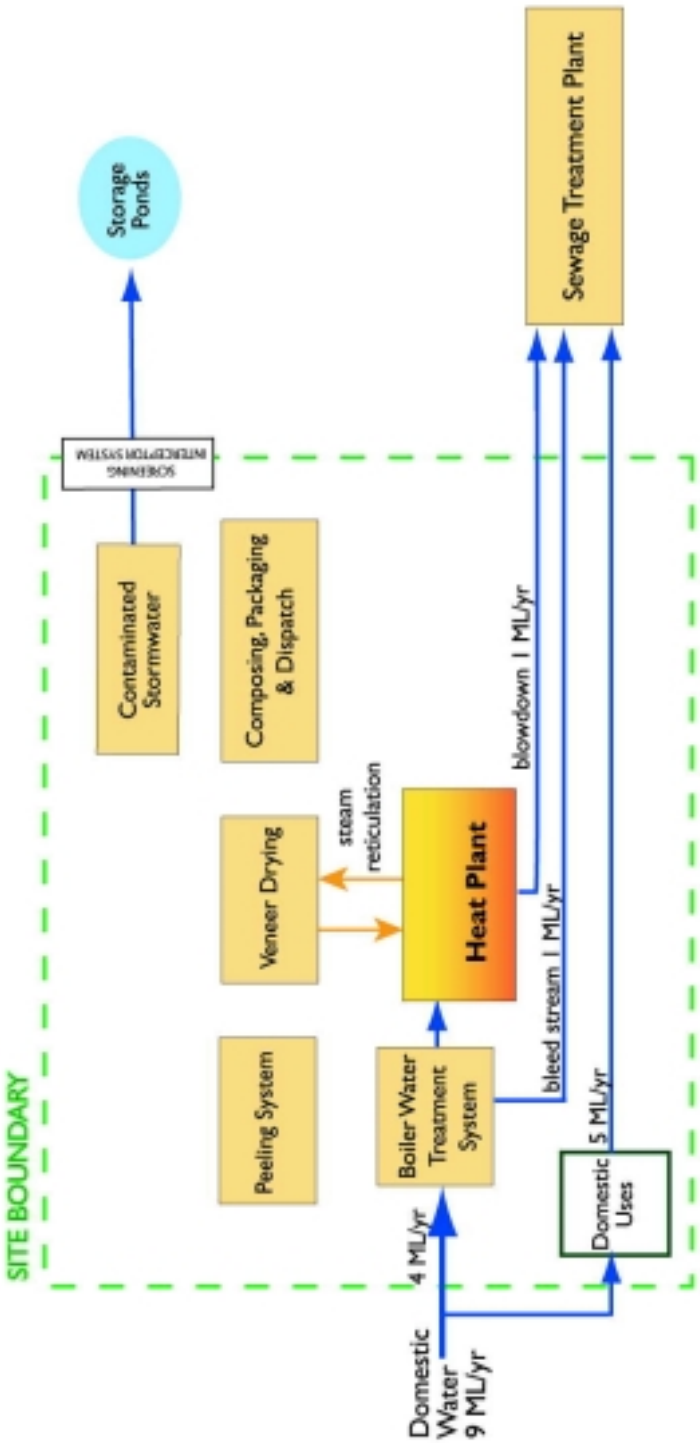
Approximately 150 L/day/person (or a total of 18,750 L/day for 125 employees) of sewer and grey water will be generated by amenities for site personnel and visitors.

Contaminated Stormwater

Contaminated stormwater from external operational areas should be low in volume and potential contaminant levels, as the majority of activities will be undertaken within the main RPV Mill building. External activities will primarily comprise docked log conveying into the building and product transport vehicles leaving the building.

Contaminants may include traces of oil and fuel associated with vehicle movements and conveyors and minor wood materials generated during conveying, such as wood fines and sawdust.

Figure 32 Rotary Peeled Veneer Mill Water Flow Diagram



Noise Emissions

The RPV Mill comprises: a number of pieces of mechanical handling equipment; steam is generated on the site; large amounts of air is recirculated and mobile equipment is used for many transport tasks.

The main noise sources associated with the operation of the RPV Mill and heat plant include:

- Docked veneer log/block handling into the building;
- Peeling of blocks;
- Clipping of veneer (uses a high velocity guillotine or knife/anvil);
- Dryer fans;
- Core and waste veneer chippers (cutting noise);
- Motors for driving/maintaining component activities (ranging in capacity from 0.1 kW to 45 kW);
- Vehicle movements associated with wood by-product and product handling;
- Heat plant - boiler forced and induced draft fans;
- Veneer dryer (8 – 37 kW fans and 7 – 26 kW fans in the drying and cooling sections);
- Heat plant safety valve discharge and blowdown systems; and
- Reversing alarms on vehicles.

Much of this equipment will be housed within the main process building and heat plant.

In general, veneer mills are quieter than sawmills as noisy equipment and activities are undertaken within the confines of the process building, and the only external noise source is from external log handling operations.

Solid Waste

The main types of solid waste that is likely to be generated as part of the RPV Mill operation are as follows:

- Wood by-products (including peel, clippings, composing/jointing, wood fines,

peeler cores, off-cuts, and damaged veneer);

- Packaging wastes (including polyethylene sheet, and steel or plastic strapping);
- General office, domestic refuse (e.g. paper, plastic and food scraps);
- Minor quantities of workshop wastes (e.g. metal shavings, wood fibres); and
- Waste glue containers.

The quantity of wood by-product generated by the RPV Mill is predicted to be 20,000 tonnes per year plus a small amount of dry wood by-product. It is not possible to predict the quantity of other wastes generated at this time. Solid waste generated from the boiler water treatment system will be largely dependent on the raw water quality, with the amount generated not considered to be significant. The small quantities generated will be collected for disposal and/or reuse at an approved site.

8.1.5 Projected Hours of Operation

A continuous 24 hour shift production operation is planned for maximum utilisation of capital equipment.

A day maintenance crew and administration staff of 47 will work a conventional 5 day week. A crew of 27 will maintain operations during the night shift.

8.2 Atmospheric Emissions

Emissions to the atmosphere may arise at various stages in the RPV Mill process. The potential sources of atmospheric emissions are shown on Figure 20. The emissions will be in the form of:

- Fugitive sawdust;
- Dust from wood fibre handling;
- Dust from vehicular movements;
- Fugitive steam and moist air emissions; and
- Composer Emissions.

In addition, greenhouse gas emissions relevant to the RPV Mill are discussed.

8.2.1 Potential Impact

Fugitive Dust, Sawdust and Wood Fibre Particle Emissions

Dust generated during the unloading of forest residues from trucks for use as fuelwood in the heat plant, and forklift or loader operations have potential to cause on-site nuisance if not managed appropriately, but are not likely to result in nuisance off-site.

Internal forklift movements have potential to be cause for occupational health and safety risk if not managed properly.

Wood fibre generation and blowing operations will be fully enclosed for normal operations, but have potential to cause on-site nuisance if not managed appropriately.

Fugitive Steam and Moist Air Emissions

A plume of water vapour (moist air) and/or steam flow is likely to be visible under cooler atmospheric conditions from sources such as:

- Heat plant stack;
- Veneer dryer fans;
- Boiler safety valves; and
- Small fugitive steam loss from leaks and air ejection points.

The impact of steam and moist air emissions should not be cause for adverse impact on air quality and will not be considered further.

Vehicle Exhaust Emissions

Diesel powered vehicles will be fitted with standard equipment and should not adversely impact on the local air quality. Indoor air quality will be degraded where gas powered forklifts are used within buildings and have potential to be an occupational health and safety risk if not managed appropriately.

Composer Emissions

Potential odour emissions and fumes associated with hot polypropylene operations and the joining of part veneer sheets is not likely to be offensive and will barely be perceivable to the operator standing adjacent to the process joining area. No off-site emissions will result from this process.

Heat Plant Emissions

Wood by-product, including sawdust will be burned in the heat plant, which has the potential to produce particulate emissions that will affect air quality. In addition, the heat plant start-up requires diesel, consequently associated diesel emissions will, on occasion, be produced. Appropriate disposal of ash is required in order to limit impacts on the quality of the environment.

The heat plant emissions have been considered for the combined effect along with the sawmill heat plant emissions and the power station emissions. Refer to Chapter 10 and Appendix U for description and analysis of the air quality modelling results. The modelling has provided a good estimate of the actual conditions however it is recommended that the model be re-run once engineered specifications and weather data from the site is available to confirm the findings.

Greenhouse Gas Emissions

The RPV Mill represents both a generator of greenhouse gas and effectively a carbon sink. Fuel to power the RPV Mill and vehicles represents a small source of greenhouse gas. The RPV Mill product will be of a high quality for long-term use and will not be subject to decomposition that would release CO_2.

8.2.2 Management Measures

Fugitive Dust, Sawdust and Wood Fibre Particle Emissions

The generation of dust associated with external vehicular movements should be low due to the limited requirement for movements outside of the main veneer mill building. External movements will primarily be from the peeler log stockpile to the docking mill. Watering of unpaved areas will be undertaken as determined necessary[1]. If this practice is not adequate, highly trafficked areas will be sealed[2]. These management measures will ensure that dust is confined to the site as effectively as possible[3]

The fuelwood handling system from truck unloading onwards at the heat plant will be designed and operated to minimise the potential for dust emissions with the incorporation

[1] Commitment: Dust suppression of highly trafficked unpaved areas will be achieved by watering.

[2] Commitment: Seal highly trafficked areas of the RPV site and use street sweeper if watering is an inadequate dust control measure.

[3] Commitment: Ensure dust is confined to the site.

of coarse particulate filters over the fuel storage bin and for filtering flue gas[4]. In addition, an electrostatic precipitator will be positioned for flue gas filtration subsequent to the coarse particulate filter.

By using pneumatically conveyed air to move wood by-product from the chippers to the fuel storage and discharging air to the atmosphere through a particulate filter, the dust collection system will prevent dust emissions from the wood fibre production.

Particulate control will be limited to personal protection for operational personnel[5]. Given the size of particulates and the construction of the RPV Mill it is unlikely that particulates will leave the building. The relatively slow release of volatile organic carbon (VOC) from the log steaming and veneer drying throughout the year will be controlled to some degree by passing exhaust gases back to the wood by-product heat plant but will be limited by the need to introduce oxygen to the combustion chamber. It is unlikely that the VOC emissions from the veneer drying will impact unduly on the environment. The estimate for VOCs is conservative (North American softwoods compared to Australian hardwoods) and it is expected that there will be no need to control the VOCs.

Composing Emissions

An appropriately designed ventilation system will be installed in the main RPV Mill building to ensure hot polypropylene emissions are managed in accordance with relevant occupational health and safety requirements[6].

Heat Plant Emissions

The following mitigation measures are based on the results of the modelling undertaken for air quality of the heat plant emissions. The results of the modelling are provided in Appendix U. The modelling has provided a good estimate of the actual conditions however it is recommended that the model be re-run once engineered specifications and weather data from the site is available to confirm the findings[7].

The use of the heat plant will ensure that no open burning occurs on the premises, thereby

[4] Commitment: Design and operation of fuelwood transfer to minimise dust generation.

[5] Commitment: Provide personnel with appropriate protection equipment.

[6] Commitment: Installation and on-going operation of an appropriately designed ventilation system in the main RPV Mill building.

[7] Commitment: Conduct air quality modelling once engineering specifications and weather data for the site is available.

eliminating uncontrolled ash and related emissions[8].

The installation of cyclone filters and electrostatic precipitation will be used to control particulate emissions from the heat plant. The total ash emission from the Rotary Peeled Veneer Mill heat plant is estimated at 1,000 T/yr. The ash will be contained and eliminated in a controlled manner involving removal from the site for disposal in a licensed landfill, for occasional use by industry or as soil conditioner in the forest as allowed or required by conditions.

Predicted contaminant concentration in gaseous emissions from the heat plant are given in Table 67.

Table 67 Air Emissions from the Rotary Peeled Veneer Heat Plant based on a fuel level of 45,000 tonnes per annum

	Emission Factor (kg/t)	Quantity	Units	Total Emission (kg/yr)
Particulates	0.090	7,000	tonnes/yr	4,050
CH_4	0.042	45,000	tonnes/yr	1,890
N_2O	0.041	45,000	tonnes/yr	1,845
NO_X	0.750	45,000	tonnes/yr	33,750
CO	6.800	45,000	tonnes/yr	306,000
CO_2	940.000	45,000	tonnes/yr	42,300,000
NMVOC*	0.068	45,000	tonnes/yr	3,060

*NMVOC – Non-Methane Volatile Organic Compound

Emissions from the heat plant have been calculated using emission factors published by the US EPA 1995, AP42 Table 1.6-1 and 1.6-2.

Particulate emissions will be continuously monitored by the monitoring program described in section 8.7. The heat plant stack will be fitted with an obscuration meter. This meter will provide real time analysis of particulate levels in the stack. The heat

[8] Commitment: Open fires will not be permitted on-site.

plant control panel will be fitted with a display of the obscuration meter level and warning alarms if the recorded level is above the upper control limit. The obscuration meter will be calibrated against in-stack monitoring for particulates using a NATA certified laboratory. The frequency of the calibration test will be every 12 months or at a frequency recommended by the manufacturer of the selected obscuration meter.

An obscuration meter will be used in combination with an audible alarm. Adjustments to fuel-to-air ratio will be used to control particulate emissions and efficient energy generation[9].

Vehicle Exhaust and Greenhouse Gas Emissions

Vehicle exhaust emissions will be managed by use of vehicles that are fitted with standard exhaust management equipment[10].

Refer to Chapter 5 regarding site-wide greenhouse gas emission management.

8.3 Wastewater Emissions

Wastewater emissions from each of the facilities at the Wood Centre will be collected, treated and reused in a combined system for the site as a whole. This system is described in detail in Chapter 5.

In the following section the wastewater generated on the RPV site will be described.

8.3.1 Potential Impact

Process Wastewater and Contaminated Stormwater

Contaminated stormwater will be generated within both external unsealed highly trafficked and the peeler log stockpile areas, as the majority of wood processing activities will be conducted within buildings. The high level of suspended solids in the contaminated stormwater has potential to degrade the receiving environment if discharged untreated.

The process wastewater resulting from the boiler blowdown will be high in total suspended solids. This wastewater stream will be discharged to the site-wide sewage treatment plant, as the volumes involved will be sufficiently diluted by the domestic wastewater flow. The sewage treatment plant will be designed to cater for these

[9] Commitment: Monitor heat plant particulate emissions with an obscuration and audible alarm and adjust fuel-to-air ratio as required.

[10] Commitment: Utilise modern vehicles with appropriate exhaust management equipment.

wastewater flows.

Boiler blowdown, condensate and boiler water treatment effluent is likely to contain dissolved and suspended matter, which may impact on the receiving environment if not managed appropriately.

Water collected in hazardous material bunds may become contaminated during: tank filling within the bund; operations; or by tank failure. Discharge of contaminated stormwater from this facility has potential to adversely impact on soil and water quality.

Domestic Wastewater

The RPV Mill will employ approximately 125 employees. It is predicted that domestic wastewater generation will be 18,750 litres. This wastewater is expected to be high in solids, BOD, nutrients and faecal coliforms, and will require treatment and sustainable management in order to avoid causing adverse impact on the receiving environment.

Domestic sewage and grey water from the office and amenities facilities will be directed to a site-wide sewage treatment system and will therefore not be considered further in this chapter. Refer to Chapter 5.

8.3.2 Management Measures

Contaminated Stormwater

All stormwater will be captured in cement or earthen stormwater drains from paved and hardstand areas, respectively where potential contamination may occur. This wastewater stream will then pass through a screening/interceptor system to remove coarse suspended pollutants (wood fibres and soil) as well as some oil or fuel residues from the site areas prior to being fed to the storage ponds[11]. The management of solids from this system is presented in section 8.5.

The interceptor system will be monitored as detailed in Chapter 5 to ensure it is operating effectively.

[11] Commitment: Collection of contaminated stormwater and screening prior to diversion to the site-wide storage pond.

Process Wastewater

Process water will be drawn from the domestic water supply as required for the heat plant steam reticulation system. It is estimated that 4 ML/yr will be treated in the boiler water treatment system before circulation through the heat plant. The recycling of water through the heat plant reduces the demand on domestic water. A small amount of water will be diverted from the boiler water treatment system and heat plant as a bleed stream and blowdown, respectively. These two water streams will be treated in the site-wide sewage treatment plant[12] and will amount to 2.0 ML/yr.

Collected solids will be removed from the screening/interceptor system as determined necessary[13]. This material will be beneficially reused where possible in an approved manner, or disposed of to an approved landfill. The minor quantities of solid waste generated from the boiler water treatment system will be reused and/or disposed of in an approved manner[14].

Water Collected in External Hazardous Materials Bunds

Most hazardous materials will be stored in the workshop however if hazardous materials are stored externally in bunds they will be roofed to minimise stormwater collection within the bund. Water collected in bunds will be visually inspected prior to discharge to stormwater drains to ensure that it is suitable for discharge[15].

Where bund water is considered likely to be unsuitable for discharge, testing will be undertaken and a licensed waste contractor organised to collect and dispose of the wastewater. Records will be maintained for internal management purposes[16].

8.4 Noise Emissions

Noise emissions from the RPV Mill have been assessed and mitigation measures are

[12] Commitment: Treat boiler water treatment system bleed stream and heat plant blowdown in sewage treatment plant.

[13] Commitment: Regular solids removal from wastewater screens.

[14] Commitment: Reuse or dispose solid waste from boiler water treatment system in an approved manner.

[15] Commitment: Undertake controlled discharge of uncontaminated stormwater from external hazardous materials stores.

[16] Commitment: Test potentially contaminated bund water, organise for its approved disposal and maintain records of disposal.

discussed below. Figure 20 shows the main potential sources of noise from the RPV Mill.

8.4.1 Potential Impact

In assessing the potential noise impacts of the Wood Centre operations, Terts (2001) has taken into consideration the following matters:

- The existing noise climate at the Wood Centre site;
- The weather conditions at the time of measurement (i.e. no rain and little or no wind);
- The predicted operating noise levels at the residences in other ownership, 6 kilometres from the Wood Centre;
- Possible DPIWE permit conditions for noise;
- Assessment of the predicted noise levels against possible DPIWE noise limits; and
- Noise mitigation measures.

The methodology used to predict the noise levels likely to be encountered at 6 kilometres was as follows (Terts 2001).

Distant noise level data was obtained for existing operating facilities located in Tasmania (sewage treatment plant, merchandising yard, sawmill, veneer mill and wood fibre mill), and from a manufacturer (wood fired power station, and portable wood fibre plant).

The following formula was then used to determine the attenuation of sound over flat and gently undulating ground.

Attenuation, dB(A)=6dB(A)/dd+ 3dB(A)/km

Where dd=doubling of distance.

It should be noted that the calculations obtained by using this model, do not include the attenuation provided by topographical features such as hills, which are prevalent around the Wood Centre. As such the predicted noise levels at the nearest residence are extremely conservative, and represent the worst case.

The calculated noise levels are then compared to the existing ambient noise levels in the area. Whether the calculated noise levels are intrusive or not depends on the following factors:

- The level of the background noise;
- The level of the intruding noise;
- Whether the noise has tonal components;
- Whether the noise has impulsive components;
- Whether the noise is regretfully inflicted or mindlessly caused; and
- The time of day or night the noise occurs.

As described in Section 8.1.4, the main potential noise source is the transfer of docked peeler logs into the main RPV Mill building, since the majority of RPV mill operations are to be undertaken within the main RPV building.

A noise assessment of an operating veneer mill of comparable size, had a noise level at 45 m as follows (Terts, 2001):

- L10-61 dB(A)
- L90-58 dB(A)
- Leq-61 dB(A)

Based on this sound output, the calculated noise level at 6 kilometres is an Leq of 0.5 dB(A), which will not be heard by the nearest residence.

8.4.2 Management Measures

Although the noise assessment has demonstrated that noise emissions from the RPV Mill are unlikely to be heard at the nearest residence a number of management measures will be implemented, to ensure environmental best practice is achieved.

All equipment will be selected and maintained to minimise noise emissions[17]. The log trucks, chain saws, and mobile log loaders will all be fitted with standard noise control equipment. The operation of this equipment and vehicles will be undertaken in a manner that complies with appropriate occupational health and safety requirements[18].

[17] Commitment: Select and maintain machinery to minimise noise emissions.

[18] Commitment: Ensure forklifts and loaders are fitted with reversing alarm volume control and flashing lights where possible.

Although no significant noise impacts are expected from the RPV Mill operation, the following management measures will be implemented to further minimise potential generation of elevated noise:

- The loading of veneer product onto transport vehicles will typically be undertaken within the main RPV Mill building[19].

- Orientation of the buildings is shown in Figure 5. Openings will be limited in number and avoid the east ends of the buildings. Noise absorbing insulation will be used in the buildings.

- For safety purposes, reversing alarms and/or flashing lights will be used on forklifts and log loaders. Due to the nature of surrounding site, it is considered unlikely that the sound level of the alarms would be cause for complaint, provision will however be made for sound level modification if found to be a cause of nuisance[20].

- Control mechanisms for sound intensity of PA system speakers and shift sirens will enable adequate noise management[21].

When the technical specifications for key items of equipment in the RPV Mill have been finally selected on assessment of the noise impact will be undertaken to verify the predicted noise levels. This is discussed further in Section 8.7.2.

All noise complaints will be recorded, investigated and the facility manager will take necessary remedial action[22].

8.5 Solid Waste Disposal and Generation

8.5.1 Potential Impact

The RPV Mill will generate a large quantity of wood by-product, 30,000 T/yr, including peel, clippings, composing/jointing, wood fines, peeler cores, off-cuts, and damaged veneer. Figure 31 illustrates the main wood flows on the RPV Mill site.

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[19] Commitment: Conduct veneer product loading operations within the RPV Mill building where possible.

[20] Commitment: Modify sound levels of alarms if found to be a cause of nuisance.

[21] Commitment: Control sound intensity of PA system speakers and shift sirens.

[22] Commitment: Investigate, record and take remedial action as necessary in response to all noise complaints.

If not managed appropriately, the wood by-product materials, the screened wood by-products and sediment from the wastewater management system screens, ash from the heat plant, and miscellaneous waste materials generated on-site, have potential to:

- Accumulate and adversely impact on the aesthetics of the site,
- Cause dust and litter generation;
- Attract vermin; and
- Generate leachate and contaminate stormwater.

There will be negligible quantities of waste glue generated as a result of the calibrated application equipment used. The only waste related to the gluing operation to be disposed of are the empty glue containers.

8.5.2 Management Measures

Wood by-products

Wood by-products are generated from the peeling operation in which recovery to green veneer is approximately 75%. The remaining 25% of block mass appear as either waste veneer or peeler cores. This wood by-product will be minimised where possible through the adoption of process technology that maximises the production of veneer and composing where possible.

Large wood by-products will be directed to the Green By-Product Veneer Chipper prior to use in the heat plant, then temporarily stored on-site in hoppers (with lids if stored in external areas)[23]. Other wood by-product such as wood fines and sawdust will be directed to a hopper for temporary storage prior to use in the heat plant.

If any, veneer off-cuts containing glue, will not be burnt in the heat plant but will be disposed of to an off-site composting plant or approved reuse or disposal site.

Wastewater Screened Solids

As discussed in Section 8.3.2, the collection and treatment of run-off from areas of solid waste should minimise the potential impact of contaminated stormwater on the surrounding environment.

[23] Commitment: Wood by-products will be reused as fuelwood in the heat plant on-site.

Solids (such as soil and wood fibre) collected within the screening/interceptor system on-site will be removed manually on a regular basis, or upon solids filling 15% of the system. This material will, where possible, be:

- Beneficially reused as a soil conditioner within plantation areas;
- Beneficially reused for other approved projects; and/or
- Disposed of to an approved landfill[24].

Oil, grease, petrol and oil contaminated material collected in this system will be removed off-site by a licensed waste transport operator.

Refer to section 8.7 regarding the monitoring of the screening/interceptor system on-site.

Ash

Ash from the heat plant will be removed on a regular basis. The quantity of ash that will be produced annually is estimated at 1,000 tonnes. The ash will be contained in a sealed hopper and then transported to an approved reuse activity (such as spreading as a soil conditioner within plantation areas, incorporation into a compost product, or other approved reuse project), and/or disposed of to approved landfill[25].

Miscellaneous Waste Materials

The generation of miscellaneous waste materials on-site will be minimised where possible through the design and installation of process equipment, and the implementation of operational procedures (e.g. returning empty containers to suppliers, or refilling them).

As described in 8.1.4, solid waste generated from the boiler water treatment system will be largely dependent on the raw water quality, with the amount generated not considered to be significant. The small quantities generated will be collected for disposal and/or reuse at an approved site.

Reuse and recycling options will be investigated and implemented as determined appropriate (e.g. waste oil, paper, glass, and can recycling). Miscellaneous waste materials will be collected regularly by a waste contractor and disposed of to approved

[24] Commitment: Regularly dispose of screening/interceptor system solids and oils to beneficial reuse operations and/or approved landfill.

[25] Commitment: Collection and beneficial reuse of screened solids and ash.

landfill[26].

The amount of miscellaneous wastes cannot be estimated at this stage however, as described above, every effort will be made to ensure that waste management is undertaken in accordance with the waste management hierarchy with reuse options investigated after commissioning of the RPV Mill[27].

Empty glue containers will be disposed of to an approved landfill[28].

8.6 Hazardous Materials, Health and Safety Issues

8.6.1 Potential Impact

As noted for the other proposed facilities for the Wood Centre development, other than fuel, there will be limited hazardous materials stored or used on-site as part of the operation of the RPV site. Those hazardous materials that will be used on the site are detailed in Table 68 and Table 69 and the location of storage is shown in Figure 20.

These hazardous materials do have the potential to adversely impact on water quality, result in soil contamination, and/or be an occupational health and safety risk if not managed appropriately. The amount of water treatment chemicals to be used annually are identified in Table 68. All of the hazardous materials to be used on-site are identified in Table 69.

8.6.2 Management Measures

Hazardous Materials Storage and Bunding

In order to limit diesel storage on each site, diesel will generally be stored in the communal diesel store (45 kL) operated by the site wide manager. A small diesel fuel storage (200 L) will be located on the RPV Mill site primarily for heat plant start-up purposes.

The majority of hazardous materials detailed in Table 69 are hazardous materials that are stored and/or used in minor quantities on-site (e.g. oil and grease). These minor

[26] Commitment: Regular collection of general refuse for disposal at approved landfill by waste contractor.

[27] Commitment: Ensure solid waste minimisation by following the waste management hierarchy and investigating all options for reuse upon commissioning.

[28] Commitment: Empty glue containers will be disposed of to an approved landfill.

quantities of fuels, chemicals and gases will be stored in relocatable bunds, or similar facility as required by AS-1940, within the workshop and main RPV Mill building[29].

The petrol and diesel fuel storage facility will be constructed to meet the requirements of Australian Standard AS-1940, and the Dangerous Goods Act and Regulations. It will have a bund with an impervious base, locked valve and roof[30].

To reduce the risk of release to the environment or the potential for fire, all hazardous substances will be stored with signage and fire control measures according to the Dangerous Goods Act and Regulations and the Australian Standards (AS-1940).

Material safety data sheets will be displayed where hazardous materials are stored; and appropriate occupational health and safety equipment will be provided to meet appropriate standards and regulatory requirements[31].

Table 68 Hazardous Materials Annual Rate of Use

Reagent	Use	Typical Annual rate
Hydrochloric Acid (32% solution or Sulphuric Acid)	pH adjustment	4 T/yr
Sodium Bicarbonate (or Lime)	pH adjustment	3 T/yr
Aqueous Ammonia	Boilerwater treatment	500 L/yr
Sodium Triphosphate (3.5% solution)	Boilerwater treatment	200 L/yr
Carbohydrizine (6% solution)	Oxygen scavenger	200 L/yr

[29] Commitment: Storage of minor quantities of hazardous materials in relocatable bunds or similar facility as required by AS-1940.

[30] Commitment: Design and construction of the diesel storage to meet appropriate standards and legislation.

[31] Commitment: Display of relevant material safety data sheets and signage in storage locations.

Table 69 Hazardous Materials Stored/Used On-Site – Rotary Peeled Veneer Mill

Hazardous Materials	Active Ingredient	Dang. Goods Class	Hazchem	Packaging Class	Container Size	Max. Quantity Stored on-site	Storage Location & Type
Diesel	Petroleum distillate	3 [Y]E	3A1	I, II or III	200 L	200 L	Bunded store in or adjacent to the heat plant
Liquid Petroleum Gas	Liquid Petroleum	2.1		-	45 kg	2250 kg	Gas store adjacent to workshop.
Grease and oils	Petroleum	3 [Y]	-	-	25 L	250 L	Bunded store in workshop & main RPV Mill building
Paint	Solvents	3	-	-	25 L	50 L	Sealed tins in workshop
Degreaser	Petroleum	9	-	-	25 L	50 L	Bunded store in workshop & main RPV Mill building
Acetylene	Acetylene	2.1	2 [S] E	-	7.0 m^3	200 m^3	Cylinder in workshop
Oxygen	Oxygen	2.2	2 [S]	-	8.9 m^3	250 m^3	Cylinder in workshop
Hydrochloric Acid (32% Solution or Sulphuric Acid)	Hydrochloric Acid	8	2R/EP G 8AI	II	2T	2.5T	Bunded sealed drum in workshop
Sodium Bicarbonate (or Lime)	Sodium Bicarbonate	-	-	-	2T	3T	Bunded sack in workshop
Aqueaus Ammonia (25% solution)	Ammonia	8	2P/8AI	III	200L	400L	Bunded sealed drum in workshop
Sodium Triphosphate (35% solution)	Sodium Triphosphate	-	-	-	100L	200L	Bunded sealed drum in workshop
Carbohydrazine (6% solution)	Carbohydrazine	-	-	-	100L	200L	Bunded sealed drum in workshop

As discussed in Chapter 5, an emergency response plan will be designed for the RPV Mill facility and training of staff will be undertaken to ensure all are familiar with the plan and responsibilities[32]. A component of the plan will be the location of and handling of the spill kit to be maintained at an appropriate location for containment and clean-up of materials in the event of spillage[33]. Licensed waste contractors will be employed on an as needs basis to collect and dispose of spilled material that has been collected in bunds[34].

An inventory will be kept of any hazardous materials stored and handled on-site, including the location of storage, their quantities, and their material safety data sheets[35].

Waste lubricating oils will be collected in 205 L drums for return to recycling along with the oil recycled from the adjacent operations. Waste oil drums will be stored within an area where spillage can be contained, and/or collected by the wastewater management system[36].

In the event that a spillage occurs within the facility there are contingency measures in place to mitigate off-site affects. These measures are presented in Chapter 5.

All spillage incidents of hazardous materials with potential to harm the environment will be reported to DPIWE. Where an emergency or accidental emission exceeds a statutory requirement (according to either regulation or Permit conditions), notification will be given to the Director of Environmental Management (DEM) as soon as reasonably practicable and within 24 hours of becoming aware of the release of the pollutant in relation to the RPV Mill activity[37].

[32] Commitment: Design an emergency response plan for the RPV Mill site and provide training.

[33] Commitment: Maintain a spill-kit on-site and contain spills.

[34] Commitment: Employ licensed clean-up crew when required.

[35] Commitment: Maintain an inventory of hazardous substances on-site.

[36] Commitment: Collection of waste oil in drums for removal and recycling by waste contractor.

[37] Commitment: Report accidental emission to DEM within 24 hours of becoming aware of it.

8.7 Monitoring and Review

8.7.1 Monitoring

To ensure the operation of the RPV Mill is in accordance with the EMP and best practice environmental management the following monitoring programs will be implemented as described for the sawmill, with the following additional measures.

Dust and Air Emissions

High traffic areas within the RPV Mill site will be monitored visually. If required the area will be watered as determined necessary to minimise dust generation[38].

Contaminated Stormwater & Process Wastewater

The collection and distribution of stormwater and process wastewater from the site to the site-wide facility will be checked on a weekly basis to ensure the screening/interceptor system is operating effectively. The solids removal system will be checked daily or on a more frequent basis. The frequency of the inspections will be modified after six months of operation based on inspection results[39].

The wastewater flow from the site passing through the screen/interceptor system will be sampled by the facility operator at the outlet on a regular basis. If the results of the monitoring are consistent with on-site operational requirements the frequency of monitoring may be reduced to monthly. Monitoring will be undertaken for TPHC, TSS and BOD in accordance with standard industry practice[40]. In addition, continuous flow rate from the site will be monitored to affect efficient use of water. Monitoring data for wastewater discharge from the site will be reported to the Director of Environmental Management on an annual basis. When TSS and BOD levels exceed performance criteria additional on-site treatment will be conducted prior to discharge to the communal wastewater system as described in Section 5.7.4 (contingency measures).

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[38] Commitment: Undertake visual monitoring and water for dust suppression as necessary.

[39] Commitment: Weekly inspection of wastewater screening/interceptor system to ensure effective operation. Review system after six months of operation.

[40] Commitment: Monitor water quality (TPHC, BOD and TSS) regularly and flow rate from the screening/interceptor outlet continuously. Report results to the DEM annually.

Prior to discharge to the Sewage Treatment Plant the wastewater will be monitored for TDS, pH and BOD on a daily basis[41].

Heat Plant Emissions

The heat plant stack emissions will be continuously monitored by an obscuration meter, which will record the particulate density in the waste gas as a percentage light obscuration value. The instrument will be set to sound an audible alarm if the value exceeds Ringelmann 1 as 20% equivalent opacity. Adjustment to the fuel-to-air ratio will be undertaken immediately to regain efficient energy generation[42].

Monitoring data for the heat plant will be reported to the DEM on an annual basis[43].

Noise

A record of noise emission complaints will be kept in a complaint register for the site, together with details of investigations and actions[44].

In addition, formal monitoring of noise emissions from the Wood Centre as a whole will be undertaken after 6 months of operation. The parameters that will be measured include sound intensity and frequency patterns. The monitoring will be undertaken in accordance with a program approved by DPIWE. A report will be submitted to the DEM within six months.

Other

Oil supplied and waste oil returned for re-use will be recorded. Similarly, the following will be recorded for internal management purposes regarding hazardous materials and solid wastes, the[45]:

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[41] Commitment: Daily monitoring of blowdown and bleed streams from heat plant for TDS, pH and BOD.

[42] Commitment: Continuous obscuration monitoring of the heat plant stack emissions.

[43] Commitment: Annual reporting of heat plant stack monitoring results to the DEM.

[44] Commitment: Record noise emission complaints with details of investigations and actions.

[45] Commitment: Maintenance of internal management records regarding hazardous materials storage and use.

- Quantity;
- Type of material;
- Details of transport (ie. the waste contractor used); and
- Method of disposal, or reuse.

When an emission of hazardous materials or wastewater exceeds a statutory requirement, a special report will be submitted to the DEM within 5 days. The report will detail the extent of the emission, the likelihood of environmental harm, the cause of the event, procedures applied to minimise the environmental harm, monitoring results, and the system introduced to avoid any repetition[46].

A general incident response and notification protocol will be developed and implemented along with reporting procedures for the RPV Mill[47]. Refer to Section 8.7.2.

Wood fine and sawdust collection systems will be monitored visually on a regular basis to ensure they are operating effectively and for the removal of collected solids[48].

8.7.2 Reporting

The RPV Mill proponent will establish and maintain a procedure to monitor, measure and report key characteristics of its operations and activities that have potential to have a significant impact on the environment. Reports are to be forwarded to the Site Wide Manager. This will comprise the incident reporting protocol and will allow the Site Wide Manager to determine the effectiveness of environmental measures implemented in reducing impacts on the environment and/or to determine the extent of potential environmental harm. The measures ensure the management of the activity will achieve ongoing minimisation of the activity's environmental harm through cost effective measures.

Environmental harm is defined, for the purposes of the *Environmental Management and Pollution Control Act 1994*, as any adverse effect on the environment (of whatever

[46] Commitment: Notification of emissions that exceed statutory requirements and provision of a report to the DEM.

[47] Commitment: Develop and implement an incident response and notification protocol.

[48] Commitment: Regular visual inspection of sawdust and wood fines handling systems and solids removal.

degree or duration) and includes an environmental nuisance. The responsibilities for reporting environmental incidents are as follows:

- The person discovering a reportable environmental incident, as described below, on the proponent's site must report it to the proponent;
- The proponent may report the incident to external organisations that are needed to provide response support, e.g. State Emergency Services;
- The proponent gathers details about the incident and supplies them to the office of the Site Wide Manager and Environmental Committee; and
- The Site Wide Manager is responsible for reporting environmental incidents to relevant external organisations (e.g. DPIWE) who are not involved in immediate response.

The activities on the Wood Centre are Level 2 activities and therefore incidents must be reported to the DEM as soon as reasonably practicable, but no later than 24 hours, after becoming aware of the release of a pollutant occurring as the result of an emergency, accident or malfunction in relation to that activity.

When an incident occurs so that serious or material environmental harm from pollution is caused or threatened in the course of an activity undertaken by a person, the person must, as soon as reasonably practicable, but no later than 24 hours after becoming aware of the incident, notify DPIWE of the incident, its nature, the circumstances in which it occurred and the action taken to deal with it. A person is not required to notify DPIWE of such an incident if the person has reasonable grounds for believing that the incident has already come to the attention of DPIWE or any officer engaged in the administration or enforcement of the *Environmental Management and Pollution Control Act 1994*.

Good practices as outlined below will ensure that environmental incidents will be minimised.

The proponent's responsibilities include but are not limited to:

- Developing and implement Environmental Action Plans (EAP);
- Developing clear communication arrangements, taking into account after hours and holiday periods;
- Clearly defining roles and responsibilities;

- Maintaining, modifying, reviewing and analysing all monitoring procedures, so that overall trends in environmental performance are assessed and recorded;
- Requesting that additional monitoring or testing be conducted to confirm or negate the original recordings;
- Determining if EAPs or amendments to Operating Procedures are required; and
- Ensuring the maintenance and calibration of monitoring equipment.

Monitoring defined in EAPs will address:

- Water quality and quantity;
- Visual observations;
- Noise; and
- Hazardous materials handling.

EAPs will also address:

- Triggers for implementing monitoring;
- Sampling and analysis;
- Interpretation and corrective action;
- Recording and maintaining monitoring data;
- Monitoring reviews;
- Control actions as a result of monitoring;
- Selecting monitoring equipment;
- Maintenance and calibration of monitoring equipment; and
- Calibration records.

By effectively implementing the Incident Reporting Protocol, the facility may be able to decrease its impact on the environment.

8.7.3 Review

An EMP review for the RPV Mill will be undertaken, as described in Chapter 5, within 12 months of the commencement of operations and at agreed intervals thereafter in accordance with the requirements of DPIWE[49].

[49] Commitment: Review EMP after 12 months of operation and as agreed with DPIWE thereafter.