FICHTNER
Consulting Engineers Limited

KRONOSPAN

CHIRK WOOD BASED PANEL PRODUCTION FACILITY

ENVIRONMENTAL RISK ASSESSMENT

Fichtner Consulting Engineers Limited
Kingsgate (Floor 3), Wellington Road North,
Stockport, Cheshire, SK4 1LW, United Kingdom
t: +44 (0)161 476 0032 f: +44 (0)161 474 0618 www.fichtner.co.uk

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1 Introduction

The aim of this document is to:

- identify potential risks that the Chirk Wood Based Panel Production facility (the Facility) may present to the environment;
- screen out those that are insignificant and don't require detailed assessment;
- where appropriate identify the appropriate control measures; and
- report the findings of the assessment.

1.1 Risk Assessment Process

This assessment has been developed in accordance with the Environment Agency Guidance Note H1. This guidance promotes four key steps:

(1) identify risks from the activity;

(2) assess the risks and check that they are acceptable;

(3) justify appropriate measures to control the risks; and

(4) present the assessment.

1.2 Step 1 – Identify risks

The report will identify the activities that present different types of risk to the environment associated with the operation of the combustion plant, including:

- odour;
- noise;
- fugitive emissions; and
- accidents.

1.3 Step 2 – Assess the risk

The report will include an assessment of risks associated with the operation of the CHP Plant and will identify the following:

- hazard;
- reception; and
- pathway.

1.4 Step 3 – Justify appropriate measures

The report will demonstrate that Kronospan has considered the risks associated with the operation of the Facility and will identify the control measures which will be in place to demonstrate that the risks are being appropriately managed.

1.5 Step 4 – Present the assessment

The assessment will conclude by presenting the following:

- possibility of exposure;
- consequence; and
- overall risk.

The report will present the overall risk applying the Environment Agency's H1 criteria:

- insignificant;
- not significant; and
- significant.

2 Table A1 Odour Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Formalin Plant Steam release with entrained heat transfer oil	Adjacent receptors. The closest residential property to the Site is located approximately 30m from the Site boundary.	Air	Safety system. Monthly offsite odour assessment.	Low	Odour detectable offsite	Not significant
Formalin Plant Storage tanks	Adjacent receptors.	Air	Weekly process audit designed to identify abnormal odorous emissions. Monthly offsite odour assessment.	Low	Odour detectable offsite	Not significant
Press Abatement System Wet scrubbers serving MDF 1/2 and Particle Board presses.	The closest residential property to the Site is located approximately 30m from the Site boundary.	Air	Alarms on low flow for scrubbers direct to press technician. Interlock to stop process on failure of water flow. Press automatically stops and requires remedial action before process can restart. The SHEQ Department maintain a daily plume observations log which records weather conditions and plume dispersion directions.	Low	Release of unabated press and press hall emissions. Grounding of plume may result in odour complaints from residents.	Not significant

SEKA WESP Abatement equipment for Chipboard driers.	Adjacent receptors.	Air	Regular monitoring and maintenance of abatement equipment. Process stopped within 60 minutes if fault in WESP is identified. The SHEQ Department maintain a daily plume observations log which records weather conditions and plume dispersion directions.	Low	Emissions of potentially odorous substances that may result in complaints from residents. Grounding of plume may result in odour complaints from residents.	Not significant

3 Table A2 Noise Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Noise from different process plant items and noise radiation from the buildings containing the particle board manufacturing processes.	Immediate area. The closest residential property to the Site is located approximately 30m from the Site boundary.	Sound propagation through air and the ground.	Noisy plant items have been installed within buildings and where appropriate additional noise attenuation has been installed. Where practicable, process plant has been designed and installed to reduce noise and tonal components.	Minimal.	Annoyance.	Not significant if managed well. Refer to the Noise Assessment, Annex 5 for further information on the impact of noise generated by the Facility.

4 Table A3 - Fugitive Emissions Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Windborne wood dusts from the Logyard	Local environment, adjacent sites	Wind	Wood which has potential for the generation of windborne dusts will be stored in dedicated bays/bunkers/silos. Materials stored externally will be sprayed with water to prevent the generation of dusts. Roadways within the Log Yard are regularly cleaned by a road sweeper.	Unlikely	Statutory nuisance Pollution of air	Not significant
Dusts from unloading of RCF	Local environment, adjacent sites	Wind	RCF unloading will be undertaken in an enclosed RCF unloading facility. Water curtains are installed on the unloading facility to contain dusts generated during unloading. Misting sprays are installed around the perimeter of the RCF unloading facility to damp down dusts generated during unloading.	Unlikely	Statutory nuisance Pollution of air	Not significant

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Windborne wood dusts from the conveying of woodchips within the site	Local environment, adjacent sites	Wind	All conveyors used for the transfer of wood are enclosed.	Unlikely	Statutory nuisance Pollution of air	Not significant
Dusts from sawing and sanding operations	Local environment, adjacent sites	Wind	All sawing and sanding operations are undertaken within enclosed buildings. Dusts from sawing and sanding activities are installed with local extractive ventilation, with dusts being transferred to dust storage silos.	Low	Statutory nuisance Pollution of air	Not significant
Spillage/leak when off-loading bulk deliveries of hazardous chemicals	Immediate area – air, land	Air, direct contact.	Deliveries will be from sealed tankers and off-loaded via a hose. Spillage will be prevented by good operating procedures, high tank level alarm/trips etc. Tanks are bunded with suitable tertiary containment where necessary.	Low	Hazardous liquid or vapour release	Insignificant

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Re-suspension of dust from road surface when site vehicles arrive/leave.	Immediate area – air, land, water	Air, surface runoff.	20 mph speed limit imposed on site. Wetting of site roads during dry weather with a water bowser	Low	Nuisance, dust on cars and road	Insignificant

5 Table A4 - Accidents Risk Assessment and Management Plan

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Failure of pipework used to transfer liquid raw materials and chemicals	Immediate area – water	Surface runoff	Pipework design in accordance with the Kronospan Pipeline Specifications. Regular inspection of transfer pipework, including flanges and valves by insurers. If required, maintenance will be undertaken to repair failures and leaks.	Unlikely	Pollution of surface water	Not significant
Failure of chemical storage facilities	Immediate area – water	Surface runoff	Regular inspection of bunds and storage tanks. If required, maintenance will be undertaken to repair failures and leaks.	Unlikely	Pollution of surface water	Not significant
Release of unabated press and press hall emissions due to reduced flow or failure of water flow on wet scrubbers	Immediate area – adjacent sites	Air	Alarms on low flow for scrubbers direct to press technician. Interlock to stop process on failure of water flow. Press automatically stops and requires remedial action before process can restart.	Very unlikely	Pollution of atmosphere, health impacts	Not significant

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Leak of demin water treatment and boiler water treatment chemicals	Immediate area - water	Surface runoff	Secondary containment for chemical storage facilities. Routine inspection and maintenance. Impervious surface indoor, separate drains for process water.	Unlikely	Pollution of surface water	Not significant
Flue gas leak	Local environment - air	Air	Design standards. Inspection and maintenance programme. Controls and alarms for pressure. Most of system under vacuum so that leaks draw air in.	Very unlikely	Pollution of atmosphere, health impacts	Not significant
Combustion control upset	Local environment - air	Air - Winds generally blow from a south westerly direction.	Design of control system. Monitoring of combustion conditions. Maintenance of combustion air systems.	Unlikely	Pollution of atmosphere (short term), human health	Not significant
Failure of containment (e.g. bund)	Immediate area – water, land	Surface runoff, wind, leaching.	Regular inspections of bunds, secondary and tertiary containment facilities.	Unlikely	Pollution of surface water	Not significant
Preventing incompatible substances coming into contact	Immediate area	Surface runoff, wind, direct contact.	Due care and attention. Substance storage segregation	Low	Low	Not significant

What Do You Do That Can Harm and What Could Be Harmed?			Managing The Risk	Assessing The Risk		
Hazard	**Receptor**	**Pathway**	**Risk Management**	**Possibility of Exposure**	**Consequence**	**What is the Overall Risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs who is responsible for what?**	**How likely it this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Unwanted reactions	Immediate area	Surface runoff, wind, direct contact.	Due care and attention.	Unlikely	Low	Not significant
Loss of compressed air	None	N/A	Multiple compressors, backup power supplies	Low	None	Insignificant
Loss of boiler water, process water and cooling waters	None	N/A	Failsafe shutdown	Low	None	Insignificant
Steam leak to plant building/atmosphere	Noise, Visual	Air	Statutory design, fabrication and inspection standards for steam systems. Controls and alarms for pressure. Routine operator checks.	Low	Nuisance from noise and visual impact	Not significant
Fires in RCF off-loading facility	Immediate area – air	Direct contact	Fire detection and protection systems.	Low	Pollution of air	Not significant
Fire from ignition of hot oil leak	Immediate area – air	Wind, direct contact	Use of fire-proof lube oil. Fire detection and protection systems.	Low	Visual	Not significant
Vandalism	Immediate area	Land, air, water	Security fences, controlled entrance to the site	Low	Release of substances to any environment	Not significant

6 Detailed Assessment

The environmental impact of the Installation has been evaluated using the H1 software tool as described in Part 2 of Technical Guidance Note EPR-H1, presented in Appendix A. This assessment has been expanded by a more comprehensive Dispersion Modelling Assessment (see Annex 3) and a Noise Assessment (see Annex 5).

6.1 Emissions to Air

An assessment of emissions to air has been undertaken using the Environment Agency's assessment tool H1. The H1 assessment is presented in Appendix A. Due to the limitations of the H1 assessment tool, and the complicated arrangement with the release of emissions from the Facility, only those emissions from the MDF Cyclones, WESP and Particle Board WESP have been considered within the assessment.

A more detailed assessment and discussion of the emissions to air has been presented within the Dispersion Modelling Assessment which is contained within Annex 5. In summary, as presented within the Dispersion Modelling Assessment, ……………….

Furthermore, as reported in the Dispersion Modelling Assessment, a review of baseline monitoring has identified that there are three diffusion tube monitoring sites in Chirk. The Holyhead Road monitoring site is located to the north of the site, and monitored concentrations over the last few years have been around 10% of the AQAL greater than the 2015 mapped background concentration. At the Ceiriog School monitoring site the concentrations monitored are very similar to the mapped background. At the Chapel Lane site the maximum concentration was 69%, which is around 43% above the mapped background concentration. However, this is located on the junction with Holyhead Road and not at an area of public exposure relevant to the annual mean AQAL. This review shows that the existing air quality in the local area is very good, with ambient concentrations of nitrogen dioxide well below the AQALs at areas of relevant exposure. The dispersion modelling has predicted that in both of these areas in the likely emissions scenario the predicted annual mean impact is similar to that monitored, and confirms that the modelling undertaken based on the likely emissions best represents actual impacts from the facility.

6.1.1 Habitats Assessment

There are a number of habitat sites within the Environment Agency screening distances. These habitat sites are presented in Table 6.1.

Table 6.1: Sensitive Ecological Receptors

Site	Approximate Distance from the Site (km)
River Dee and Bala Lake (SAC, SSSI)	1.3
Johnstown Newt Sites (SAC)	6.7
Berwyn and South Clwyd Mountains (SPA, SAC, IBA)	9.0
Chirk Castle (SSSI)	0.4
Nanteris Wood (Ancient Woodland)	1.9

An assessment of the impact of the Installation upon these habitat sites is presented in Annex 3. This assessment has concluded that ……

6.2 Emissions to Sewer

All process effluents from the Facility are discharged to sewer. Trade Effluent Consents for the discharge of effluents have been granted by Dwr Cymru (Welsh Water), which are presented in Appendix H of the application. The trade effluent consent includes the following constraints on the discharge to sewer:

An assessment of the impact of this emissions to sewer have not been undertaken in support of this application as they have previously been considered by Dwr Cymru and WCBC in granting the existing permit for the Facility.

There will no process emissions to water from the combustion processes other than discharges of surface water from building roofs and external areas of hardstanding. External areas of hardstanding are provided with curbed containment, where appropriate, to prevent any potential spills from causing pollution of the ground/groundwater and surface water.

All chemicals are stored in an appropriate manner incorporating the use of bunding and other measures (such as acid and alkali resistant coatings) to ensure appropriate containment. The potential for accidents, and associated environmental impacts, is therefore limited.

Adequate quantities of spillage absorbent materials are available on-site, at easily accessible location(s), where liquids are stored. A site drainage plan, including the locations of foul and surface water drains and interceptors, is available on-site.

6.3 Noise

The impact of noise from the Installation is considered in the noise assessment contained in Annex 3.

6.4 Visual Impact

The visual impact of the plant buildings has not been considered in this application, since this is primarily a matter for the planning authorities.

6.5 Odour

The Facility is operated in accordance with a Noise and Odour Management Plan (NOMP). The NOMP is presented in Appendix F of the application.

6.6 Photochemical Ozone Creation

Releases of NO_2 and Formaldehyde contribute to the generation of excess tropospheric ozone, while releases of NO remove ozone from the atmosphere. The annual releases of these substances can be ascribed a photochemical ozone creation potential (POCP). Values for the POCP values relative to ethylene are stated in Annex (f) of Technical Guidance Note EPR-H1 as:

a) NO_2 2.8

b) Formaldehyde 51.9

The total POCP for the plant is calculated in the H1 Software Tool as approximately 31,400 tonnes, on the assumption that all NO_x is released as NO_2.

6.7 Disposal of Residues

The manufacturing process and directly associated activities are expected to give rise to a limited number of residues which will require transfer off-site for recovery/disposal. The residues generated by the Facility are presented in Section 2.9 of the Supporting Information.

7 CONCLUSIONS

As presented in this report, the Installation is considered to contain appropriate control measures and management systems to ensure that the Installation does not have any significant impacts upon the local environment.

Appendix A – H1 Assessment

FICHTNER

Consulting Engineers Limited

Fichtner Consulting Engineers Limited
Kingsgate (Floor 3), Wellington Road North, Stockport, Cheshire, SK4 1LW, United Kingdom
t: +44 (0)161 476 0032 f: +44 (0)161 474 0618 www.fichtner.co.uk