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Consulting Engineers Limited

Chirk Particleboard Factory

Kronospan

Environmental Risk Assessment

ENGINEERING CONSULTING

Document approval

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1 Introduction

Kronospan Limited (Kronospan) are proposing to vary the existing EP for the following changes:

1. Installation of an Oriented Strand Board (OSB) manufacturing process/plant.
2. Storge and use of additional chemicals associated with the OSB process.
3. Storage and use of hydrogen peroxide within WESP 21 and WESP 32 to oxidise TVOCs (if needed).
4. Minor EWC code additions.
5. Amendments to the rail unloading and biomass handling and storage arrangements.
6. Additional raw material storage areas, including the installation of hardstanding to some additional storage areas within the Log Yard.
7. A new site access point and new lorry parking facility.
8. Additional surface water run-off lagoons/wetlands, including discharge of uncontaminated surface water run-off from the lagoons/wetlands.
9. Additional land to be incorporated into the installation boundary to accommodate items 7,8, and 9.

Full details of the changes proposed are set out in the Supporting Information document to the EP application.

Within the EP variation application, Kronospan is required to demonstrate that the necessary measures are in place to protect the environment and ensure that the Facility, throughout its life, will not pose an unacceptable risk to the environment.

The aim of this document is to:

a. identify potential risks that the activity may present to the environment;
b. screen out those that are insignificant and don't require detailed assessment;
c. identify potentially significant risks, where appropriate;
d. choose the right control measures, where appropriate; and
e. report the findings of the assessment.

This document has been developed to consider the requirements of Environment Agency Guidance Notes H1 Annexes A, C, H and F. It is acknowledged that these guidance documents have been withdrawn; however, it is understood that the requirements of the guidance are still applicable.

This has considered the additional risks associated with the proposed variation to the EP and does not consider all risks across the Facility as these have been addressed in previous applications.

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 following report will identify the activities that present different types of risk to the environment associated with the operation of the Installation, including:

a. odour;
b. noise;
c. fugitive emissions; and
d. accidents.

1.3 Step 2 – assess the risk

The report will include an assessment of risks associated with the operation of the Installation, and will identify the:

a. hazard;
b. receptor; and
c. pathway.

1.4 Step 3 – justify appropriate measures

This report will demonstrate that the risks associated with the operation of the Installation have been considered, and 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:

a. possibility of exposure;
b. consequence; and
c. the overall risk.

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

a. insignificant;
b. not significant; and
c. 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 is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Additional emissions from the press abatement system serving the OSB press.	All receptors. Adverse weather conditions may result in grounding over residential properties, educational and leisure facilities. Due to predominant wind direction, most likely to be detected by the receptors to the east of the site.	Atmospheric dispersion – stack height 65.5m	Emissions from the press will be ducted to highest stack to assist with dispersion and reduce grounding events. Alarms on low flow for scrubbers direct to press technician. Interlock to stop process on failure of water flow. Abnormal emission is recorded as environmental incident.	Minimal.	Annoyance and residents complaints.	Not significant
Board stuck in press	All receptors	Atmospheric dispersion – source located within plant buildings	Press maintained to reduce likelihood of incident, alarms to indication potential problem to operator. Extraction system may aid in odour abatement.	Low	Annoyance and resident complaints	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 is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
WESP 32 – wet electrostatic precipitator for OSB Dryer 1 and 2	All receptors. Adverse weather conditions may result in grounding over residential properties, educational and leisure facilities. Due to predominant wind direction, most likely to be detected by the receptors to the east of the site	Atmospheric dispersion.	WESP technology is considered BAT for OSB dryer abatement. Regular monitoring and maintenance of abatement equipment. Process stopped will be within 60 minutes if fault in WESP 32 is identified. Any fault is reported as an environmental incident.	Low	Annoyance and resident complaints	Not significant

3 Table A2 – Noise and Vibration 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 is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Noise and vibration from different process plant items and noise radiation from the buildings containing the OSB manufacturing process.	Immediate area. The closest residential property to the site is located approximately 30 m from the site boundary.	Sound and vibration propagation through air and the ground.	Noisy plant will be installed within buildings where appropriate noise attenuation will be installed. Where practicable, process plant has been designed to reduce noise and tonal components.	Minimal.	Annoyance.	Not significant if managed well. Refer to the Noise Assessment, Annex E of the EP application.
Noise from lorries in the extended log yard.	Immediate area. The closest residential property to the site is located approximately 30 m from the site boundary.	Sound and vibration propagation through air and the ground.	Lorries will be required to comply with the site rules to minimise any offsite noise issues.	Minimal.	Annoyance.	Not significant if managed well. Refer to the Noise Assessment, Annex E of the EP application.

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 is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains? The balance and probability and consequence.**
Spillage/leak when off-loading bulk deliveries of hazardous chemicals (additional ones associated with this EP variation).	Immediate area - air, land.	Air, direct contact.	Deliveries will be from sealed tankers and offloaded 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 of vapour release.	Insignificant.
Re-suspension of dust from road surface when site vehicles arrive/leave (additional land).	Immediate area - air, land.	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 is 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 additional 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 additional 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	Immediate area – adjacent sites	Air	Alarms on low flow for scrubbers direct to press technician. Interlock to stop	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 is 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 water flow on wet scrubbers			process on failure of water flow. Press automatically stops and requires remedial action before process can restart.			

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. The H1 software tool is presented in Appendix A of this report. This assessment has been expanded by a more comprehensive Dispersion Modelling Assessment (see Annex D of the EP application) and a full Noise Assessment (see Annex E of the EP application).

6.1 Emissions to air

The Dispersion Modelling Assessment is presented in Annex D of the EP application. The assessment concludes that "with regards to the impact on human health, during normal operations, although the predicted process contribution cannot be screened out as 'insignificant', the total impact of the Proposed Facility can be described as not significant. The same conclusion can be reached for the identified non-standard operating scenarios."

6.2 Habitats assessment

There are a number of habitat sites present within a 10 km radius of the Facility. The following habitat features presented in Table 6-1 have been considered within the Dispersion Modelling Assessment:

Table 6-1: Sensitive Ecological Receptors

European designated sites (Ramsar, SPA, SAC) (within 10 km)
River Dee and Bala Lake SAC
Johnstown Newt Sites SAC
Berwyn and South Clwyd Mountains SAC
Berwyn SPA
UK designated sites (SSSI) (within 2 km)
River Dee and Bala Lake SSSI
Chirk Castle SSSI
Nant-y-Belan & Prynella Woods
Locally designated sites (LNR) (within 2 km)
Barracks Field
Ceod-Y-Canal Wood
Various Ancient Woodlands

The Dispersion Modelling Assessment concludes that the impact on these features can be described as follows:

1. At European designated sites the change in impact associated with the proposed EP variation can be screened out as 'insignificant' and the total impact of the Facility can be screened out as 'insignificant'.
2. At UK designated sites whilst the change in impact cannot be screened out as 'insignificant', the total impact of the Facility when including the background (the PEC) is less than 70% of the Critical Level and can be described as 'not significant'.

3. At Chirk Castle SSSI, whilst the total impact of the Facility cannot be screened out as insignificant the change in impact associated with the proposed EP variation can be screened out at 'insignificant'.
4. At Nant-y-Belan and Prynella Woods SSSI the total impact of the Proposed Facility is greater than 1% of both the upper and lower Critical Load for nitrogen and acid deposition and the PEC including the background sources exceeds the Critical Load. However, as set out this assumes that the Facility continually operates at the ELVs for each item of plant. Even with these conservative assumptions the change in relation to the lower Critical Load can be screened out as 'insignificant'.
5. At locally designated sites the description of the impact for the Proposed Facility is the same as that for the Permitted Facility.

6.3 Emissions to water and sewer

There are not proposed to be any changes to discharges to sewer.

As part of this EP variation application and addition emission point to water is being applied for (W2). Discharge would only be permitted if it complies with the emission limits within the discharge consents. Noting that this discharge will consist of un-contaminated surface water run-off, and not any effluent from the process. As there are no discharge of process effluents a H1 assessment is not required.

6.4 Noise

The impact of noise from the Installation is considered in the noise assessment contained in Annex E of the EP application. The assessment concludes that:

- The EP Variation noise sources are between 18dB below to 2dB above the representative baseline background sound levels at residential noise sensitive receptors during daytime and between 16dB below to 2dB above background sound levels during night-time. This represents an impact which is either low or below an adverse impact according to BS4142:2014+A1:2019.
- In terms of IEMA guidance on noise level increase the daytime change in ambient noise levels is between 0dB and 1dB LAeq at residential noise sensitive receptors during the daytime and between 0.1dB and 1.5dB during night-time periods. This represents a negligible impact according to IEMA.
- The Lorry Park and Access Road has been designed and optimised through the planning process and is designed to provide improvements to local HGV movement which needs to pass through part of the village to get to the Kronospan entrance. This proposal therefore provides an improvement and benefit to local residential amenity from associated site traffic from noise along Holyhead Road.
- The effect of the existing traffic flow and lorry park has not been considered in the assessment for the EP application, but as shown in the planning submission it will provide an improvement in noise levels at noise sensitive receptors. BAT has therefore been applied to available mitigation measures in context with the applied environmental constraints defined by Local Planning Authority and associated consultees.
- The analysis shows that the Lorry Park and Access Road development is a significant contributor at noise sensitive receptors to the north and northeast of the Kronospan site. This means that trying to reduce noise levels further relative to these receptors is limited by the mitigation measures proposed, due to the environmental constraints enforced by the Planning Authority consultees (i.e. BAT has been applied).

- The assessment has also considered the cumulative effect of the operation of permitted development i.e. development that was not built or operational during the latest baseline surveys undertaken in 2021 and 2022. The analysis shows that the permitted development (i.e. plant that is not operating) would result in no changes in the cumulative noise level and therefore no cumulative impacts or effects would occur.

6.5 Visual impact

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

6.6 Odour

The Odour Management Plan for the Facility has been updated to include for the changes proposed as part of this EP variation. This is contained in Annex G of the EP application. This demonstrates the control measures in place at the Facility to control odours including preventative and reactive measures, how odour impacts are determined, and the processes involved if an odour complaint is received.

6.7 Disposal of waste

There are no changes to the waste residue streams arising from the operation of the Facility associated with this EP variation.

7 Conclusions

As presented in this report, the Facility is considered to contain appropriate control measures and management systems to ensure that the Facility does not have any significant impacts upon the local environment as a result of the proposed EP variation.

Appendices

A H1 Assessment Tool

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