

Sofidel UK Limited

**Baglan Paper Mill – Generator  
Environmental permit**

Fugitive emissions assessment

Issues | 21 March 2022

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number

**Ove Arup & Partners Ltd**  
4 Pierhead Street  
Capital Waterside  
Cardiff CF10 4QP  
United Kingdom  
[www.arup.com](http://www.arup.com)

**ARUP**

# Contents

---

	Page
<b>1</b>	<b>Assessment scoring criteria</b> <b>1</b>
<b>2</b>	<b>Fugitive Risk assessment</b> <b>3</b>
<b>3</b>	<b>Accident risk assessment</b> <b>7</b>

# 1 Assessment scoring criteria

Risk assessments are an effective tool for identifying potentially hazardous or polluting consequences of activities and providing mitigation systems that reduce the risk of those activities causing pollution.

The fugitive emissions assessment aim is it to reduce the potential for fugitive emissions from the facility or the impact of the emissions on the environment.

The tool relies on a scoring system that is based on the frequency or probability of the event occurring and the resulting consequence or potential effect of the event on the environment, as explained in Table 1.

Controls or mitigation are also identified in the assessment, which consist of measures or actions that can be carried out to limit the potential for fugitive emissions. The mitigation factor is the score of how effective the mitigation will be, and the residual risk is the risk of any impact from the emission, following the mitigation. The mitigation factor scoring system is explained in Table 2.

The aim is it to reduce the risk of fugitive emissions from the facility or the impact of the emissions on the environment, through specific mitigation measures identified for each specific risk.

Table 1: Risk assessment methodology

Risk assessment	Definition	Score range
<b>Frequency (or probability)</b>	Describes the likelihood of the event occurring.	1 (least frequent) – 6 (most frequent)
<b>Consequence</b>	Describes the potential effect of the event on the environment.	1 (least consequent) – 6 (most consequent)
<b>Risk</b>	Risk is frequency multiplied by consequence.	1 – 36 (36 greatest risk)

Control and mitigation measures have been identified for all risks identified in the assessment, based on the Best Available Techniques (BAT) measures set out in the guidelines and on operational experience. The measures specific to each risk are described in the risk assessment. The mitigation measures will be incorporated into the site management processes and site operatives will be made aware of these measures during training.

More general mitigation measures to avoid fugitive emissions, in line with indicative BAT standards, are set out in the relevant sections of this report. In addition to these measures further measures specific to this section are included below.

Table 2 Risk Assessment Mitigation Scoring System

<b>Effectiveness of Mitigation</b>		
<b>Mitigation Factor</b>	<b>Comment</b>	<b>Score</b>
Non-existent	No mitigation in place	1
Ineffective	Some minor controls in place but mitigation not achieved	2
Partly effective	Basic controls in place and hazard partly mitigated but significant residual risk remains	3
Effective	Basic controls in place and hazard mitigated to an acceptable level although moderate level of residual risk may exist	4
Very effective	Processes fully controlled (basic/advanced) and hazard mitigated to recognised standard. Some minor residual risk may remain	5
Entirely effective	Processes fully controlled to level in excess of recognised standards. Hazard mitigation entirely effective and no residual risk remains	6

## 2 Fugitive Risk assessment

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
<b>Releases to air</b>								
Vapour release through leakages from fuel tanks and pipes during fuel delivery.	Air	Public Staff Atmosphere	4	2	8	<p>The tanks are enclosed, integrally banded to 110% and fitted with telemetry which allows instant accurate assessment of the filling level.</p> <p>All tanks, pipes and valves are designed to appropriate industry standards and flanged connections between pipes are kept to a minimum by the proximity of the tanker fill point.</p> <p>All tanks, silos, pipes and valves have a preventative maintenance programme to ensure ongoing integrity and effectiveness.</p> <p>Tank filling will be carried out by trainer tanker drivers in line with the Crown Oil Bulk Fuel Deliveries procedure, included with the application as Annex N2. This removes any significant risk of vapour release and spillages during deliveries.</p>	4	2
<b>Releases to land and water</b>								
Spillage of waste, fuels or other materials	Water Land	Surface water Groundwater	4	3	12	<p>The tanks are enclosed, integrally banded to 110% and fitted with telemetry which allows instant accurate assessment of the filling level.</p> <p>Tank filling will be carried out by trainer tanker drivers in line with the Crown Oil Bulk Fuel Deliveries procedure, included</p>	4	3

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
						<p>with the application as Annex N2. This removes any significant risk of spillages and leaves</p> <p>The operator will carry out daily checks for signs of leakage.</p> <p>High standards of housekeeping will be maintained across the site.</p> <p>Trained personnel will ensure that any spills are cleaned as soon as practicable with the correct safety measures being taken.</p> <p>Spill kits will be available to deal with any leaks.</p> <p>Relevant spill response equipment will be situated at various locations around the site, designed for the particular hazard characteristics of the materials (fuel) present. All spillages will be logged, investigated and corrective action will be taken.</p> <p>Only specified areas will be used for loading residual waste into transporters for export from the site.</p> <p>The site drainage system drains to an attainment pond that has an impermeable line and is maintained as a closed pond, so that in the event of a spill none can be released to surface water.</p>		

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
Leaks from tanks, containers or pipework	Water Land	Surface water Ground-water	4	2	8	<p>The tanks are enclosed, integrally banded to 110% and fitted with telemetry which allows instant accurate assessment of the filling level.</p> <p>All tanks, pipes and valves are designed to appropriate industry standards and flanged connections between pipes are kept to a minimum by the proximity of the tanker fill point.</p> <p>All tanks, pipes and valves will have a preventative maintenance programme to ensure ongoing integrity and effectiveness.</p> <p>The operator will carry out daily checks for signs of leakage.</p> <p>Spill kits will be available to deal with any leakage.</p> <p>Load discharge will be supervised in accordance with the operational procedures.</p>	5	1.6
<b>Nuisance issues</b>								
Mud/litter carried onto highway	Water Land	Public	1	2	2	All internal roads, storage and processing areas will be hard-surfaced with concrete or tarmac and swept when required.	5	0.4
Pest, vermin and scavengers	Land	Staff Public	2	1	2	<p>Waste that is likely to attract pests, vermin and scavengers will be transferred to the main Sofidel waste handling area.</p> <p>The facility will contract a local specialised company to implement a pest control management plan. This will include vermin, flies and birds.</p>	5	0.4
<b>Odour</b>								

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
Odour from loading and storage of fuel	Air	Staff Public	2	2	4	Staff training will include raising employee awareness with respect to normal plant operational odour levels and actions to be taken to rectify any faults.	5	0.8
Odour release from combustion plant	Air	Staff Public	5	2	10	Regular maintenance of the generators will reduce the level of emissions from the combustion process. The footpath closure will mean members of the public are not in close proximity to the generators when operating.	5	2
<b>Noise and vibration</b>								
Noise and vibration from generators	Air	Staff Public	6	3	18	Staff training will include raising employee awareness with respect to normal plant operational noise levels and actions to be taken to rectify any faults. During periods of downtime, all non-essential plant will be switched off. Plant will be maintained in line with manufacturer's recommendations. This includes checking for deterioration of plant conditions (e.g. bearings becoming worn). Repairs will be undertaken as appropriate to rectify any identified defects. The footpath closure will mean members of the public are not in close proximity to the generators when operating.	5	3.6
Noise from vehicles delivering fuel	Air	Staff Public	6	3	18	Reversing will be minimised where possible. HGV deliveries will be routed around the facility site to avoid the need to reverse, therefore eliminating the potential for reversing beepers during any deliveries. Engines will be switched off when not in use.	5	3.6

### 3 Accident risk assessment

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
<b>Fuel delivery</b>								
Major vehicle accident – leading to a significant loss of fuel	Air Water Land	Staff Public Surface Water	1	5	5	<p>Traffic entering site will be managed by the reception.</p> <p>The internal road layout is designed to accommodate the vehicles that will visit the facility. Junction radii, carriageway widths and layouts are designed to minimise the risk of vehicle conflicts.</p> <p>The use of mobile phones will be prohibited during driving.</p> <p>Drainage will be regularly maintained to keep standing water off roads and site roads will be cleaned regularly to remove any scum, oils etc.</p>	5	3
Fuel tanks overfill	Air Water Land	Staff Surface water Drainage to sewer	4	3	12	<p>The tanks are enclosed, integrally banded to 110% and fitted with telemetry which allows instant accurate assessment of the filling level.</p> <p>Tank filling will be carried out by trainer tanker drivers in line with the Crown Oil Bulk Fuel Deliveries procedure, included with the application as Annex N2. This removes any significant risk of spillages and leaves.</p> <p>The site drainage system drains to an attainment pond that has an impermeable line and is maintained as a closed pond, so that in the event of a spill none can be released to surface water.</p>	4	3

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
<b>General site issues</b>								
Ineffective firewater containment	Water	Surface or ground water	1	4	4	Fire water contained on the site roads will drain via site drainage to the attainment pond, which has an impermeable liner, so that in the event of a spill none can be released to surface water. Prior to release the surface water would be tested and removed by tanker if not suitable for discharge. Firewater draining to grass areas on the site would infiltrate into the ground. In this event soil testing would confirm if any ground contamination had occurred.	2	2
Operator error	Air Water Land	Staff Public	3	3	6	The combustion control system will minimise the likelihood and consequences of operator error. The operator will provide appropriate training to all involved in site operation. A technically competent person will be available on site at all times. There will be strict compliance with the facility management system.	5	1.2
Site Security Breach resulting in vandalism/ plant damage/accidental releases	Air Water Land	Staff Public Surface or ground water	3	3	9	The site will be secured by a perimeter fence and lockable gates. Access will only be available via a secure entrance requiring reporting to the site reception.	5	1.8

Hazard event			Risk Assessment			Controls and mitigation	Mitigation factor	Residual risk
Event	Pathway	Receptor	Frequency	Consequence	Risk			
Equipment or plant fire (e.g. cabling faults)	Air Water	Staff Surface or ground water	3	3	9	Plant and equipment will be designed in accordance with relevant design and fabrication standards. Preventative plant and equipment maintenance will include regulator inspection and maintenance regimes. Local fire extinguishers will be provided.	5	1.8