ACCIDENTS AND THEIR CONSEQUENCES RISK ASSESSMENT

1.0 Introduction

1.1 A risk assessment has been undertaken to determine if any accident or emergency situations at associated with the proposed paint blending and stripping operations to be carried out at Nantycaws HCI Transfer and Treatment Facility may have an effect on any receptors located within close proximity of the facility operations.

1.2 **Table 1** includes a list of the receptors that have been identified through a desktop assessment of the locality.

1.3 Risks have been considered during the operational phases of both the proposed paint blending and stripping operations.

1.4 The sites consolidated Accident Management Plan will be updated to include the proposed paint blending and stripping operations during the first year of operation. The Accident Management Plan will then be regularly reviewed and updated, if deemed necessary. Incidents and near misses will be recorded and investigated, and remedial and preventative measures will be undertaken in accordance with the accident management plan and the site management plan.

Table 1: Identified potential receptors within 500m of the facility.

Receptor Name	Type of Receptor	Approximate nearest distance from the paint blending and stripping operations	Direction from the paint blending and stripping operations
Nantycaws Waste Management Facility (including the HWRC)	Public use and Commercial	Adjacent	N/W
Llety-dau-filwr	Residential	235m	SE
Bronhaford, Falcondale and Avalon	Residential	275m-290m	S/SE
Ty Hen	Residential	460m	NW
Nantycaws Fuel Station	Commercial	450m	N
A48 Dual Carriageway	Public Highway	390m	N
Small tributary of the Afon-y-Bantwen	Surface Water	230m	SE
Agricultural Land	Agricultural	50m – 500m	N,S,E, NW
Public Highway	Public Highway	320m – 480m	E/NE, N/NW

1.5 The assessment of risks from the facility arising from fugitive emissions have been considered with reference to the following guidance documents:

- H1 Environmental Risk Assessment Part 1: Simple assessment of environmental risk for accidents, odour, noise and fugitive emissions.

2.0 Methodology

2.1 The scoring methodology employed in the H1 Guidance is used as a framework for assessing the risk from various accident scenarios identified. The scoring system attributes a nominal score to the likelihood and consequence of an identified scenario, and then uses a matrix to identify whether the risk is acceptable. The scoring system is outlined below.

Likelihood categories

Category	Description	Score
Extremely unlikely	Incident occurs between once per 100 years and once every 1000 years	1
Very unlikely	Incident occurs between once per 50 years and once every 100 years	2
Unlikely	Incident occurs between once per 10 years and once every 50 years	3
Somewhat unlikely	Incident occurs between once per 5 years and once every 10 years	4
Fairly probable	Incident occurs between once per year and once every 5 years	5
Probable	Incident occurs at least once per year	6

Consequence categories

Category	Description	Score
Minor	• nuisance on site only (no off-site effects) • no outside complaint	1
Noticeable	• noticeable nuisance off-site e.g. discernible odours • minor breach of Permitted emission limits, but no environmental harm • one or two complaints from the public	2
Significant	• severe and sustained nuisance, e.g. strong offensive odours or noise disturbance • major breach of Permitted emissions limits with possibility of prosecution • numerous public complaints	3
Severe	• hospital treatment required • public warning and off-site emergency plan invoked • hazardous substance releases into water course with ½ mile effect	4
Major	• evacuation of local populace • temporary disabling and hospitalisation • serious toxic effect on beneficial or protected species • widespread but not persistent damage to land • significant fish kill over 5 mile range	5
Catastrophic	• major airborne release with serious offsite effects • site shutdown • serious contamination of groundwater or watercourse with extensive loss of aquatic life	6

Risk assessment matrix

Likelihood	**Consequence**					
	Minor	Noticeable	Significant	Severe	Major	Catastrophic
Extremely unlikely	1	2	3	4	5	6
Very unlikely	2	4	6	8	10	12
Unlikely	3	6	9	12	15	18
Somewhat unlikely	4	8	12	16	20	24
Fairly probable	5	10	15	20	25	30
Probable	6	12	18	24	32	36

Risk scores

Magnitude of risk	**Score**
Acceptable	6 or less
Acceptable if reduced as much as reasonably practical	8 to 12
Unacceptable	15 or more

2.2 The identification of the hazards and the risk assessment process is documented in **Table 2**.

Table 2: Accidents and emergencies risk assessment matrix

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Spillage during delivery or dispatch of waste materials.	Run-off, absorption to ground and airborne	Land, site personnel, site users, and local population.	Somewhat Unlikely	4	Significant	3	**12**	Acceptable if reduced as much as reasonably practical.	1. All operations will be closely monitored to allow immediate deployment of mitigation measures (spill kits and absorbent materials) in the event of a spillage. 2. All wastes will be stored in their original packaging/repackaged pots internally. The facility will be site upon suitably engineered areas of impermeable concrete. All treatment operations are conducted within a suitably adapted steel container, with permeable side for passive ventilation purposes. 3. Vehicles for dispatch will not be overfilled and will be supervised during loading. 4. All vehicles hauling waste will be sheeted or enclosed.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Damage to storage facilities for incoming waste pending treatment /transfer.	Run-off, absorption to ground and wider site drainage network, airborne.	Land, groundwater, and surface water, wider waste management facility	Somewhat Unlikely	4	Significant	3	**12**	Acceptable.	1. All storage operations will be conducted internally. Treatment activities will be undertaken within an adapted steel container with passive ventilation through permeable side walls. The paint stripping operation is an entirely enclosed process. The facility will be sited upon on impermeable concrete which has low infiltration capabilities. Drainage will be connected to the existing approved drainage system for the wider HCI WTFF site. Any minor spillages will be removed utilising appropriate absorbent materials. 2. Storage areas will be checked to ensure required capacity is available and that they remain in suitable condition and are fit for purpose. 3. Any repairs will be affected as soon as possible. Mitigation measures will be undertaken immediately if there is a possibility of pollution. 4. Good housekeeping will be promoted in order to keep waste confined to storage areas.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Major fire or explosion.	Airborne	Site personnel, adjacent site users, local population and air quality.	Very Unlikely	2	Severe	4	**8**	Acceptable if reduced as much as reasonably practicable.	1. No fires are permitted on site. 2. Immediate action will be taken to extinguish all fires if safe to do so. 3. Equipment will be operated in accordance with manufacturers and company guidelines and procedures. 4. Firefighting equipment will be available and maintained, and site operators will be trained in their correct use. 5. All paints will be stored in sealed containers.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Failure to contain firewater.	Run-off, absorption to ground and wider site drains.	Land, groundwater, water abstractions and surface water.	Very Unlikely	2	Significant	3	**6**	Acceptable.	1. Drainage on site is isolated from the surrounding environment via the use of kerbed impermeable concrete and sealed drainage system. This will enable the containment of any potentially contaminated firewater arising's. 2. Firewater falls on impermeable surfaces which connects to the existing approved HCI WTTF drainage network. 3. In the unlikely event of all firewater will be contained on site with suitable containment controls emplaced as necessary e.g. use of drain mats 4. Firewater falling on surfaces will be contained as above and removed from site as appropriate. 5. Stocks of firewater containment equipment (including mats) will be maintained on the wider Nantycaws waste management site.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Flooding.	Saturation of ground, rising groundwater levels and via site drainage.	Land (agricultural and residential), surface waters, drainage systems.	Very Unlikely	2	Significant	3	**6**	Acceptable.	1. The site lies outside the floodplain and outside any recognized flood zones. There is a less than 0.1% (1 in 1,000) chance of flooding occurring each year. 2. Site and general informal drainage will be checked frequently to ensure it is in good condition and free from ponding. 3. Any ponding of surface water found will be removed immediately, or where this is not possible as soon as it is practical.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Loss of power/utilities	Airborne.	Local population, land, surface water, groundwater and water abstractions.	Somewhat Unlikely	4	Minor	1	**4**	Acceptable.	1. For periods where loss of power to the treatment equipment is experienced, operations will either be suspended or back up generation utilised. 2. If power/water is lost for a sufficiently long period of time where it has the potential to affect ancillary functions outside of the main operations (e.g. weighbridge, alternative means of power generation/water supply will be sought).

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Vandalism/ breach in security.	Over land.	Site personnel, site users, plant and equipment.	Somewhat unlikely.	4	Noticeable.	2	**8**	Acceptable if reduced as much as reasonably practicable.	1. Paint blending and stripping operations are surrounded by palisade fencing. 2. Wider Nantycaws site is has a combination of steel palisade fencing and in places landscape hedgerows. 3. The paint blending and stripping facility will be kept secure when not in use. 4. Security fencing and gates are inspected daily by operations staff. Maintenance and repair will carried out as necessary.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Operator error.	Airborne and over land.	Local and distant human population, surface water, groundwater and water abstractions,	Somewhat Unlikely	4	Minor.	1	**4**	Acceptable.	1. Technically competent people will oversee the management of activities of the site, in accordance with the fit and proper person requirements. 2. Training (including refresher training) will be given to all site staff on the environmental permit, health and safety and incident response.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Emissions from equipment due to abnormal conditions.	Airborne and over land.	Local human population, land, surface water, groundwater and water abstractions.	Somewhat unlikely	4	Noticeable	2	**8**	Acceptable if reduced as much as reasonably practicable.	1. All machinery used on site will be operated and maintained in accordance with manufacturers' recommendations; 2. All operational areas underlain with a suitable concrete surface with kerbing. 3. All machinery will be subject to regular checks and maintenance.

Hazard	Pathway	Receptor	Likelihood	Score	Consequence	Score	Overall score	Acceptability of risk	Justification for acceptability (description of risk management measures)
Inadequate waste acceptance procedures.	Transported by vehicle.	Site operatives and site users.	Unlikely	3	Significant	3	**9**	Acceptable if minimised as much as reasonably practicable.	1. All wastes will undergo an acceptance procedure in accordance with Duty of Care Requirements as part of acceptance at the wider HCI WTTF operations. 2. All operatives on site will have knowledge of the Environmental Permit and on the types of waste accepted and prohibited at the site. 3. Accompanying paperwork will be scrutinised to ensure the details are correct and all fields are completed. 4. All waste loads will be visually inspected during deposit in the waste reception areas. 5. Any non-conforming wastes will be segregated as soon as possible and stored in the quarantine area awaiting removal off site.

3.0 Conclusions

3.1 All risks have been categorised as either ‘acceptable’ or ‘acceptable if reduced as much as reasonably practicable’. Of the hazards categorised as ‘acceptable if reduced as much as reasonably practicable’ there are a significant number of mitigation measures available that effectively nullify the hazard identified.