

**Environmental Risk Matrix**

Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of Risk	Justification of Magnitude	Risk Management	Residual Risk
Release of particulate matter (dusts) and micro-organisms (bio aerosols)	Atmosphere and then inhalation	Local human population & Site staff	Harm to human health (respiratory irritation and illness)	Low	High	Medium	Site is in an industrial setting 450m from the nearest residential receptors.  Permitted wastes do not include wastes that solely consist of dusts, powders or loose fibres.	Regular maintenance of all impermeable surfaces  All loads of waste entering and exiting the site will be sheeted or otherwise contained  Speed restrictions on site  All waste to be stored within TS (with the exception of bulky wood)  Visual inspection of dust levels on a daily basis	Low
Release of particulate matter (dusts) and micro-organisms (bio aerosols)	Atmosphere and then deposition	Local human population	Nuisance – dust on cars, clothing etc.	Low	Medium	Low	Site is 18m from the River Taff and 100m from designated ancient woodland.  Permitted wastes do not include wastes that solely consist of dusts, powders or loose fibres	As above	Low

Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of Risk	Justification of Magnitude	Risk Management	Residual Risk
Release of litter	Atmosphere and then deposition	Local human population and livestock	Nuisances, loss of amenity and harm to animal health	Low	Medium	Medium	Local residents are often sensitive to litter. Site is in an industrial setting 450m from the nearest residential receptors. Site is 18m from the River Taff and 100m from designated ancient woodland.	Regular maintenance of perimeter fencing All loads of waste entering and exiting the site will be sheeted or otherwise contained All waste to be stored within TS (with the exception of bulky wood) Loading of waste carried out within building Visual inspection of bales on a daily basis Visual inspection of dust levels on a daily basis Implement litter picking duties as necessary	Low

Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of Risk	Justification of Magnitude	Risk Management	Residual Risk
Mud on Roads	Vehicles leaving site	Local human population and livestock	Nuisances, loss of amenity and road traffic accidents	Medium	Medium	Medium	Local residents are often sensitive to mud on roads. Site is in an industrial setting 450m from the nearest residential receptors. Road safety is important for other estate users.	Regular maintenance of all impermeable surfaces All loads of waste entering and exiting the site will be sheeted or otherwise contained Speed restrictions on site All waste to be stored within TS (with the exception of bulky wood) Use of mechanical road sweeper as necessary.	Low
Odour	Atmosphere and then inhalation	Local human population	Nuisances, loss of amenity	Low	Medium	Low	Local residents are often sensitive to odour.  Site is 450m from the nearest residential receptors.	Malodorous wastes to be transferred directly to landfill Removal of wastes from site as soon as practicable to prevent accumulation Commercial inputs contain minimal putrescible wastes	Low

Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of Risk	Justification of Magnitude	Risk Management	Residual Risk
								<p>waste processed on a rapid turnaround with no material remaining longer than 24 hour usual operation</p> <p>All storage of waste is carried out within the confines of the building (with the exception of bulky wood)</p>	
Noise and vibrations	Atmosphere and ground for vibrations	Local human population	Nuisances, loss of amenity	Low	Medium	Low	<p>Local residents are often sensitive to noise.</p> <p>Site is 450m from the nearest residential receptors.</p>	<p>All waste (with the exception of bulky wood) stored and loaded/unloaded within a building</p> <p>Speed limits for vehicles</p> <p>Regular maintenance of impermeable surfaces to prevent uneven surfaces</p> <p>All plant and machinery to be maintained in accordance with manufacturers specifications</p>	Low
Animals, Pests and insects	Atmosphere and land	Local human population	Nuisances, loss of amenity, harm to health	Medium	Medium	Medium	Permitted wastes may attract scavenging animals which may cause nuisance to local populations and act as disease vectors.	<p>Putrescible waste to be stored within confines of building</p> <p>Waste to be removed on a high turnaround</p> <p>Specialist contractor employed</p>	Very Low

Source	Pathway	Receptor	Harm	Likelihood	Consequence	Magnitude of Risk	Justification of Magnitude	Risk Management	Residual Risk
Spillage of leachate from waste, contaminated rainwater run-off	Direct runoff from site across ground surface via surface water drains	Surface water	Reduction of surface water quality	Low	Medium	Medium	Site is located in a flood risk area	All waste processed within the confines of the building. Concrete impermeable surfaces Visual inspection of bales on a daily basis Regular inspection of drainage system Regular maintenance of drainage system Building drains direct to foul sewer Penstock valves in place to contain contaminated water if required.	Low
		Groundwater	Reduction of ground water quality	Low	Medium	Medium	Both the superficial deposits and the solid geological strata are classified as a Secondary A Aquifers. The site is not within a Groundwater Source Protection Zone.  Site is not located within a groundwater source protection zone	All waste processed within confines of the building. Concrete impermeable surfaces Regular inspection of drainage system Regular maintenance of drainage system	Low

### Normal and Abnormal Operating Conditions

Activity	Control measures	Monitoring frequency	Monitoring procedure and optimum process parameters	Trigger level	Action taken if outside optimum process parameters
<b>NORMAL OPERATION</b>					
Waste delivery and reception	<p>Pre-acceptance criteria / contractual control of quality</p> <p>Visual inspection of incoming waste is completed with clear and communicated acceptance criteria</p>	Every load of incoming waste	<p>A copy of the European Waste Catalogue (EWC) codes as specified by the permit along with a simplified description of acceptable waste is available. Only waste on this list can be accepted and a procedure for dealing with non-conforming waste is in place.</p> <p>Pictorial standards are used and displayed with respect to identification of contamination.</p> <p>Sampling and analysis is completed according to customer requirements.</p> <p>Optimal - pre-acceptance criteria ensures only suitable waste is brought to the facility.</p>	Identification of a non-conforming load	Load assessed on a case by case basis and either prioritised for processing or rejected. A quarantine area is available, demarcated and with signage where loads require decanting for assessment. Feedback provided to waste producer / haulier, discontinuation of contract if necessary.
Tipping in the reception hall bays	Acceptance criteria / contractual control of quality.	Tipping of each load	<p>Every load tipped has visual inspection with clearly defined acceptance criteria. Loader drivers are trained in waste acceptance. Processes are in place to safely manage contamination and non-conforming waste.</p> <p>Optimal - acceptance criteria ensures only suitable waste is accepted at the facility</p>	Identification of a non-conforming load	As above.
Waste storage in transfer station	FIFO system	Constant – ongoing through shift	Visual inspection to ensure the bay with the oldest material is emptied first	Last available storage bay more than half full	If reception storage is reaching capacity, waste deliveries will be

			and additional bays are not allowed to fill completely  Optimal - FIFO achieved		reduced or ceased until the process is back under control
	Max. waste residence time linked to odour potential	Daily	Computerised waste monitoring and tracking system. Optimal - waste residence time below stated maximum.	Waste residence approaching or just exceeding stated maximum	Waste qualitatively assessed for odour emission / potential. Waste dispatch arranged and expedited if required  Residence time reviewed if required
Food waste run-off tank	2000lt sealed and unvented tank prevents odour escape. Sniff testing carried out daily	Daily	Tank is completely sealed and emptied every 5 days or as required and indicated by level alarm. Emptying is by enclosed road tanker vehicle with flexible sealed pipework. Tank is inspected annually and pumps every 6 months in line with manufacturer's recommendation	High level alarm. Sight gauge checked daily	Tanker available for emptying tank in between scheduled 5 day servicing should run off be excessive and high level alarm triggered or observation via sight gauge.
Fugitive emission from vehicle access / egress	Fast acting doors, default to closed apart from delivery and dispatch	Set PPM interval	Inspection checks are completed on roller shutter doors  Operational checks are in place and included in the PPM schedule Doors operate within full range, closing to ground level  Optimal - doors only open for vehicle entry	Door failure (see Abnormal operations)	See Abnormal Operations
	Traffic light system for vehicle entry on site ensuring ensuring multiple arrivals do not result in extended door opening time	Constant – ongoing through shift	Ongoing monitoring by weighbridge operatives  Optimal - vehicles enter site in an orderly manner	Multiple vehicles arrive on site with waste to deposit	Multiple possible causes related to logistics. Review logistics and take appropriate action to minimise recurrence  Diversion of waste inputs to the site

	Agreed delivery schedules	Constant – ongoing through shift	Weighbridge operative monitors vehicles waiting to enter the Facility	Multiple vehicles arrive on site with waste to deposit	As above
Loading of waste for dispatch	Loading carried out internally to the building  Visual checks on all exiting vehicles are completed to ensure no trailing debris  Area is kept clean and tidy	During loading activity	Visual observations by trained staff and supervisors. Minimum requirement that site manager carries out a monthly site walk around  Optimal - no accumulations identified		
WASTE INPUT AND STORAGE					
Tipping of bulky wood in external bay	Acceptance criteria / contractual control of quality.	Tipping of each load	As above	Identification of a non-conforming load	Load assessed on a case by case basis and either prioritised for processing or rejected. A quarantine area is available, demarcated and with signage where loads require decanting for assessment. Feedback provided to waste producer / haulier, discontinuation of contract if necessary.
Waste storage in external bay	As per internal bay plus:  Only waste with no odour potential is stored externally.	Constant – ongoing through shift  Implemented as part of site design	Waste acceptance and storage procedures  Optimal - waste stored externally does not cause odour off site	Identification of non conforming load / un expected odour	Investigate source and prioritise for processing or disposal / recovery to a suitably licensed facility

### Abnormal Events

Abnormal event	Recovery steps
Excessive Influx of waste	Contracted regular inputs and pre acceptance checks for all waste streams in place. In the event of waste diversion from another facility the site will continue to operate within the limits of its environmental permit and increase outgoing loads as necessary.



	Should inputs result in
Equipment Breakdown	<p>A list of spares required and the procedure for re-ordering will be developed as part of Veolia's Management System and will be based on the manufacturers recommendations together with standby equipment for some critical items. There is a stock of critical parts held on site. We also have a contract in place for breakdown diagnostics and repair.</p> <p>If required waste will be diverted in accordance with the alternative outlets identified in the business continuity plan. Veolia has a network of waste facilities across the country including transfer stations, MRFS RDF facilities and ERF's all capable of accepting this material.</p> <p>Reasons for failure will be investigated (in association with supplier/contractor) and maintenance plan revised if necessary.</p> <p>Depending on how quickly the equipment can be repaired, the Competent Person will decide if it is necessary to redirect delivery vehicles already on the facility (not having discharged their loads) and incoming vehicles to other licensed facilities.</p> <p>If required, waste suppliers will be contacted at the earliest opportunity and the situation explained – temporary redirection of delivery vehicles to other facilities might be required.</p>
Door failure	<ul style="list-style-type: none"> <li>- Doors are under regular contractual maintenance in line manufacturers recommendation. In the event of a door failure:</li> <li>- Instigate call of contractual arrangement for door system repair.</li> <li>- Establish lead time and plan actions below accordingly.</li> </ul> <p>Then several options are considered:</p> <ul style="list-style-type: none"> <li>- Critical spares to be kept on quick order</li> <li>- Manual operation of doors via chain system</li> <li>- If repair or manual operation cannot be achieved, diversion of waste vehicles to other Veolia and 3rd party sites</li> </ul>
Fire	In the event of a fire impacting site infrastructure associated with odour control including the fabric of the building and / or abatement systems residual waste would be removed and waste acceptance would be suspended until appropriate controls are in place to resume operations.
Spillage	Competent Person to initiate accident response plan – delivery vehicle made safe. If drivable, remaining material discharged into reception hall or vehicle removed off site. Spilt materials and debris immediately collected and transferred into reception area. Spill area then cleaned and hosed down.

Flood	<p><b>Historical flooding</b> There is no record of historical flooding at the site. NRW record flood extents show historical pluvial flooding within 100m to the north west of the site up to Gwent Road.</p> <p><b>Reservoir flooding</b> The site is at risk of flooding from the Pontsticill (Taf Fechan) reservoir. Reservoir flooding is extremely unlikely to happen. There has been no loss of life in the UK from reservoir flooding since 1925. All large reservoirs must be inspected and supervised by reservoir panel engineers. In the event of reservoir flooding, escape routes from the site are to the University Campus to the north or along the A4054 to the roundabout joining with the A470.</p> <p><b>Fluvial flooding</b> The site is located in a medium risk Flood Zone of the River Taff denoting an annual exceedance probability of between 1% and 3.3%. The location (Nantgarw) benefits from flood defences up to a standard of 30 years i.e. a 3.33% AEP.</p> <p>Relevant staff at the facility are signed up to receive flood warnings and flood alerts from NRW.</p> <p>The retaining bund wall minimises the flood risk and prevents any water ingress to the site from the river flowing back. Waste tanker vehicles will be used to drain the site of any excess water.</p> <p>There is a business continuity plan in place which includes diversion of waste in the event the site is unable to continue operation due to flooding.</p> <p>Should any flooding affect the storage of waste within the building then waste inputs will be diverted to other facilities.</p> <p><b>Pluvial flooding</b> The site is at low risk of surface water flooding (0.1% - 1% AEP) corresponding with localise depressions in topography. It should be noted that surface water flood predictions from LIDAR do not take into account local drainage networks. There has been no historical problems with surface water flooding at the site.</p>
Extreme weather conditions	<p>During periods of hot weather (25oC for 2 or more consecutive days) the turnaround of waste will be increased to ensure waste does not remain on site longer than is necessary.</p> <p>During periods of hot weather (25oC for 2 or more consecutive days) the site manager will instigate an increase in the sniff testing frequency carried out on and off site. Rather than the daily test these will be moved to 3 times per day. Should odour be detected off site the measures within table 4.1 will continue to be followed along with the potential for one or all of the following: an increase in the frequency waste is loaded out of site, an increase in odour suppressant used within the Probe system, deployment of the spare Probe mist air unit, diversion of wastes to other facilities. Once temperatures reduce to normal operation daily sniff tests will resume.</p>

	In periods of snow the site will manage the waste inputs accordingly and cease acceptance should it be impossible for wastes to be collected by bulk vehicle. Roadways and access routes will be maintained and gritted to ensure safe operation of plant and incoming/outgoing vehicles.
Staffing shortage	Contingency measures for staff availability are included within the BCP. Veolia has sufficient resources to redeploy staff from other facilities should this be needed.