

Appendix 9 - Risk Assessment

Name of Operator:	Dunbia (UK)	Probability of Exposure (Likelihood)		Consequence/Severity		Overall Risk	
Name of Site:	Dunbia (Llanybydder)	Extremely Unlikely to Occur	1	No effect, No detectable odour	1	Very Low	0 - 5
Permit Application Number	EPR/BV9683IH	Unlikely to Occur	2	Faint Odour, barely detectable need to stand still & inhale into wind	2	Low	5 - 10
This risk assessment describes the odour risks from Dunbia (UK) during normal and abnormal conditions. *Receptors have been identified on the maps that are included in Appendix 1 of this report.		Could Occur	3	Moderate Odour, odour distinct & easily detectable.	3	Moderate	10 - 15
		Could Occur Frequently	4	Strong Odour	4	High	15 - 20
		Could Occur Continuously	5	Significant odour, very strong odour and complaints may be received daily from several receptors.	5	Very High	20 - 25

	Odour Source Reference	Hazard	Receptor*	Distance to Closest Receptor	Pathway	Managing the Risk	Probability of Exposure	Consequence/Severity	What is the Overall Risk?
Crate Wash	OS 18	Storage of wash water in a tank. Allowing the water to stagnate could lead to odour.	NR14	40m	Air	The tank is emptied daily by tractor & bowser.	1 - Extremely Unlikely to Occur	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	2 - Very Low
	OS 17	Crate Wash Machine - stagnating water, buildup of ABP particles.	NR14	40m	Air	Crate Wash machine is cleaned out at the end of shift.	1 - Extremely Unlikely to Occur	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	2 - Very Low
	OS 11	Storage of ABP caught in sieve-screen.	NR14	40m	Air	Emptied regularly into the ABP trailers by Transport.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
Waste Storage	OS 11	Storage and collection of general waste at waste collection points and in the skips.	NR14	100m	Air	Dolavs with lids are used to provide collection points at designated areas of the site, these are emptied daily or more frequently if required, are covered when not being filled and are washed out on a regular basis. The general waste skips are covered when not being filled, and are sealed skips.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 11	Failure of general waste skip to be removed on designated day - waste retained for longer than normal so it is further along the decomposition process before leaving site.	NR14	100m	Air	Contact normal waste contractor and determine what the problem is and when they can collect the waste. If it will be collected the next day no further action is required, if more than one day will pass before it will be collected another contractor should be arranged to collect the waste the next day.	3 - Could Occur	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	6 - Low
Effluent Screens & System	OS 4	Build-up of solids on or around screens.	NR25	230m	Air	Regular cleaning and maintenance of screens, build-up from the screens are removed from the collection point regularly each day. Storage of screenings is within a dedicated area with foul drainage allowing regular wash down. The newer screens on site have automatic high-pressure wash systems to prevent build-up.	3 - Could Occur	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	6 - Low
	OS 4	Break down of a screen - Increased loading in the effluent.	NR25	230m	Air	Screens are regularly inspected as part of preventative maintenance schedule, and if they break down will be repaired as quickly as possible. If a screen breaks it will be bypassed and the effluent will continue through the effluent stream. However, because there are multiple screens in-line along the effluent stream the material will still get removed without causing any issues.	3 - Could occur.	1 - No effect, No detectable odour	3 - Low
	OS 4	Failure of a pump within a sump/tank or the ETP - Ability to process effluent slowed or stopped.	NR25	240m	Air	All pumps are regularly checked as part of planned maintenance schedule. Along the effluent steam pumps are installed in a duty/standby setup. Should one fail the other will take over allowing time for repair/replacement. Some spare pumps are also kept on the shelf for rapid resolution of failures.	2 - Unlikely to occur	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	4 - Very Low

Effluent Plant	OS 4	Effluent tanks approach capacity as ETP recirculates having not treated effluent to correct standard.	NR25	230m	Air	The treatment regimen will be adjust as required to bring the effluent qualitative level back within acceptance levels. If quality is sufficient effluent may be discharged to sewer, alternatively effluent could be removed by tanker to another waste water treatment works. However, in any non-calamity failure there will be ample time from the point of failure before the ETP is at capacity so that the issue can be identified and adjustments / repairs be made. The pumping stations along the ETP line have two pumps should one fail, and handheld probes are also used should any of the mounted probes fail.	1 - Extremely Unlikely to Occur	3 - Moderate odour (Odour distinct & easily detected)	3 - Very Low
	OS 2	T5 balance tank - Sediment build-up, blockages of pumps, tank reaching capacity.	NR25	275n	Air	Screens and catchpots are used on the production floor to prevent meat scraps/fat from entering the drainage system, as well as the effluent going through a drum screen before entering T5. Effluent within the tank is kept continually mixed by mixers and is aerated to reduce the risk of odour generation from an anaerobic environment. The level of effluent within the tank is controlled by sensors and allows 'balancing' of the effluent i.e. that the quality of effluent going to the ETP is much more consistant and so is more easily treated. The T5 tank has ample capacity that can be used should there be any issue requiring the effluent be held temporarily in the tank. The tank will never over fill and the ETP operator will be alerted to a high-level alarm.	2 - Unlikely to Occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 12	Manure/slurry build up in the truck wash area.	NR25	290m	Air	The truck wash area is frequently washed down and is angled to assist drainage preventing an amount of material building up that could cause an odour.	1 - Extremely Unlikely	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	2 - Very Low
	OS 3	Spell Tank pump sump for pumping effluent - buildup of solids or blockage leading to odour.	NR25	240m	Air	There is regular maintenance of all pumps at site, and cleaning of pump sumps to remove solids build-up. Screens and catch pots are used on the production floor to prevent meat scraps/fats from entering the drainage system. Effluent is kept in suspension/pumped to prevent it becoming septic and it does not remain in pump pits for extended periods of time.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 4	Rotary screen and collection of screenings - Build up of solids on screen and in storage area below screen.	NR25	270m	Air	This screen is part of a preventative maintenance schedule and periodically is automatically cleaned by high pressure water spray and washwater is contained within the effluent system. Screenings from the rotary screen are removed frequently and the area used to collect the screenings drains to foul and is washed down on a regular basis.	2 - Unlikely to occur	3 - Moderate Odour, odour distinct & easily detectable.	6 - Low
	OS 8	Flotation Units - Seperation of water and sludge.	NR25	230m	Air	The flotation units are part of a planned preventative maintenance schedule and are also part of a cleaning schedule. The flotation units are located within the ETP building, and effluent will only remain within the flotation units for a short period of time. This is the means by which the suspended solids loading of the effluent is removed. Sludge rises to the surface and is scrapped off continuously and is then pumped to the sludge tank.	4 - Could Occur Frequently	3 - Moderate Odour, odour distinct & easily detectable.	12 - Moderate
	OS 9	T4 pump sump adjacent to the lairage (sump for pumping effluent) buildup of solids or blockage leading to odour.	NR25	240m	Air	There is regular maintenance of all pumps at site, and cleaning of pump sumps to remove solids build-up. Screens and catch pots are used on the production floor to prevent meat scraps/fats from entering the drainage system. Effluent is kept in suspension/pumped to prevent it becoming septic and it does not remain in pump pits for extended periods of time.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low

OS 15	Anoxic tank - Storage and treatment of effluent.	NR25	230m	Air	The tank is kept continuously mixed with below surface mixers. The treatment in this tank and so by default the generation of odour is controlled by closely monitoring and controlling the pH of the influent to this tank. As pH controls the reaction it also controls the generation of odour. There is an inline pH probe linked to the SCADA system and an emergency alarm for high or low pH. pH to this tank is also manually monitored in the daily sampling that occurs. The tank will never over fill and the ETP operator will be alerted to a high-level alarm.	2 - Unlikely to occur	3 - Moderate Odour, odour distinct & easily detectable.	6 - Low
OS 7	Aeration tank -Storage and treatment of effluent.	NR25	230m	Air	The tank is aerated through fine bubble submerged aeration reducing aerosol effect. The oxygen level in this tank is carefully monitored by a probe and automatic alarm sounds if the oxygen level is too low. There is also a manual check of the oxygen level in this tank on a daily basis. There are two blowers so one is available as a back-up. The other blower will automatically switch on if the first blower fails to come on when required, and an alarm will sound to alert the ETP Operator to a problem with the first blower. The tank will never over fill and the ETP operator will be alerted to a high-level alarm.	2 - Unlikely to occur	3 - Moderate Odour, odour distinct & easily detectable.	6 - Low
OS 7, 15, 16	pH of effluent too high or too low affecting the treatment process.	NR25	230m	Air	The pH dosing pumps and points are part of a preventative maintenance schedule which involves manual checks. pH is measured and balanced as the effluent goes into DAF 1. The pH probe in the influent to the anoxic tank alarms when the pH falls outside the optimum range. A manual sample is completed every day and pH checked. The T5 balance tank assists here as it minimises inconsistencies in the effluent.	1 - Extremely Unlikely to Occur	3 - Moderate Odour, odour distinct & easily detectable.	3 - Low
OS 16	Sludge tank - Storage of sludge.	NR25	230m	Air	This tank is enclosed and is emptied continuously using the screw press.	2 - Unlikely to occur	4 - Strong Odour	8 - Low
OS 10	Screw Press - Dewatering of sludge.	NR25	230m	Air	The screw press is fully enclosed within the ETP. The machine is regularly serviced and maintained as part of a preventative maintenance system. It is also self-cleaning with high pressure water jets internally operating intermittently to prevent a buildup of material.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
OS 10	Screw Press Breakdown	NR25	230m	Air	The screw press is part of a preventative maintenance schedule involving manual checks. It will be repaired as soon as possible, during the period it is out of service it and the storage area below it will be cleaned. Sludge will be tankered away for disposal off site if necessary.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
OS 8	Insufficient chemicals available to run ETP - effluent retained for site longer than normal.	NR25	230m	Air	Bulk storage tanks have been installed giving ample time to plan for, and order, the next chemical delivery. Discharge to sewer if effluent quality is such that this is permissible. If not tankers will be arranged to remove effluent to another waste water treatment works.	1 - Extremely Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	3 - Very Low
OS 11	Sludge Cake Storage.	NR25	230m	Air	The sludge cake trailer is fully enclosed within a dedicated section of the ETP, and the trailer will be covered prior to removal from site. The area in which the trailer is located drains to foul and will be washed down on a regular basis. Sludge cake is removed on a regular basis so the material is still 'fresh'.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low

ABP Storage	OS 11	Failure of sludge cake and screenings to be removed at designated time - waste retained for longer than normal.	NR25	230m	Air	Contact normal waste contractor and determine what the problem is and when they can collect the waste. If it will be collected the next day no further action is required, if more than one day will pass before it will be collected another contractor should be arranged to collect the waste the next day.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 19	Build up of material at by-products collection areas.	NR25	320m	Air	Dolavs are removed regularly throughout the day and the contents disposed into by-products trailers so material in this area is always 'fresh'. These areas drain to foul and are regularly washed down. The collection in these areas are continuously collected into sealed dolavs. These areas are also roofed and the dolavs used for collection are washed out on a regular basis. Eucalyptus oil is available to spray if necessary to leave a pleasant smell.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 5	Storage of by-products in by-products trailers.	NR25	240m	Air	Trailers are removed on a daily basis, all trailers are sealed and all trailers are covered before removal from site and throughout the day when they are not being filled. Eucalyptus oil is available to spray if necessary to leave a pleasant smell.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 5	Failure of by-products trailers to be removed at the end of the day - waste retained for longer than normal so it is further along the decomposition process before leaving site.	NR25	240m	Air	Contact normal waste contractor and determine what the problem is and when they can collect the waste. If it will be collected the next day no further action is required, if more than one day will pass before it will be collected another contractor should be arranged to collect the waste the next day. Eucalyptus oil is available to spray if necessary to leave a pleasant smell.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 6	Pet food soft offal storage.	NR25	240m	Air	This storage area is fully enclosed within a refrigerated container and the product is stored on ice.	1 - Extremely unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	3 - Very Low
	OS 6	Breakdown of refrigeration system for pet food soft offal container - Product retained at site under ambient temperatures, causing decomposition at a faster rate than normal.	NR25	240m	Air	Soft offal for pet food is stored in dolavs with ice which are then stored in a refrigerated trailer. The length of time required to repair the refrigeration will be determined if longer than a couple of hours an alternative refrigerated container will be used, if longer than 24 hours and an alternative container is not available disposal via animal by-products trailer.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
Skin Shed	OS 14	Skins and Hides processing area - Storage of skins and hides.	NR25	245m	Air	The activity occurs within a designated building that is enclosed. The door to this building remains closed during processing apart from vehicle entrance and egress. As this area drains to foul it is washed down each evening and vented panels on the sides of this building have been replaced by solid panels.	2 - Unlikely to occur	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
Blood Storage	OS 1	Storage and collection of blood - Existing system.	NR25	290m	Air	Blood is collected from site on a frequent basis. Odour abatement is installed on the blood storage tank vents and the blood collection tanker exhaust air expelled from the tanker vents via a carbon trap located on site.	2 - Unlikely to occur.	4 - Strong odour.	8 - Low
	OS 1	Storage and collection of blood - Beef System.	NR25	290m	Air	Blood is collected from site on a frequent basis. Odour abatement is installed on the blood storage tank vents and the blood collection tanker exhaust air expelled from the tanker vents via a carbon trap located on site. The tanks are refrigerated massively reducing any possibility of material degradation leading to odour generation.	1 - Extremely unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	3 - Very Low
	OS 1	Failure of blood to be removed at designated time - blood held on site for longer than normal.	NR25	290m	Air	Contact normal blood contractor and determine what the problem is and when they can collect the blood. If it will be collected the next day no further action is required, if more than one day will pass before it will be collected another contractor should be arrange to collect the blood the next day.	2 - Unlikely to occur.	2 - Faint odour (Barely detectable need to stand still and inhale into wind)	4 - Very Low

Lairage	OS 13	Build up of manure and slurry in the lairage following holding of animals prior to slaughter.	NR25	280m	Air	The lower lairage has automatic scrapers which clean the floor. The area is also washed down daily to prevent buildup of material. This waste and water goes into a trough to be screened and the liquid goes onward to the effluent plant. The upper lairage is a raised slatted floor so the waste can drop through to the floor below. Regular dry cleaning of lairage is carried out as well as washdowns. The storage area below the lairage is cleaned out several times a year.	2 - Unlikely to occur.	3 - Moderate odour (Odour distinct & easily detected)	6 - Low
	OS 13	Cleaning out area under lairage - Removal of animal waste.	NR25	280m	Air	Complete on a still day with little wind, inform NRW in advance so any calls to the complaints line can be informed that the activity will be temporary.	3 - Could occur.	4 - Strong odour.	12 - Moderate
Other	Site	Extended duration of hot stable meteorological conditions.	NR14, NR25	40m, 200m	Air	Weather station located on site with logging facility. Daily weather forecast received from met office. The probability of extended durations of hot stable meteorological conditions is likely, however, the probability of this leading to odourous emissions is unlikely due to all of the above risk management factors being implemented at site. In short, waste will not be allowed to build up in such a way, or stay on site long enough, for the meteorological conditions to accelerate any odour generation.	2 - Unlikely to occur.	4 - Strong odour.	8 - Low