Appendix 12 - Env Risk Assessment for Phase 2

maelor FOODS

Bespoke Environmental Impact Assessment Record Form	
Date of assessment: (dd/mm/yy)	13.02.2023
Brief description of activity / process being assessed - e.g. repair to chemical scrubber after collision damage OR proposed relocation of waste storage area	Phase 2 - increase in throughput to 2 million birds/week. See also updated Env Impact Assessment Register for Phase 2 which covers assessments for each identified aspect. Overall risk score shown in Part 6 relates to worst case scenarios - major ammonia leak causing injury / death or major contamination of water supply aquifer. Normal operations are low risk.

Area / location of activity being assessed: (tick all appropriate boxes)

☑ Animal by-products	☑ Effluent treatment plant	☑ Raw material / chemicals
☑ Boilers	☑ Evisceration	☑ Sewage treatment plant
☑ Chemical scrubber	☑ Kill / bleed	☑ Transport
☑ Chilling	☑ Lairage	☑ Vehicle wash
☑ Cleaning	☑ Module wash	☑ Waste storage
☑ Defeather	☑ Offices / canteen	☑ Utilities
☑ Drainage	☑ Portioning plant	☑ Yard

1. Identify any hazard sources For each risk that applies, identify each actual or possible hazard. Consider potential hazards or aspects associated with the activities being undertaken, including abnormal or accidental scenarios. For each hazard source answer the following questions.			
1a. Are any hazardous, odorous, noisy, dusty or polluting materials being used?		☑ Yes	☐ No
If yes, give details:	Doubling of live bird vehicles - low-level odour intensity associated with the birds and faecal deposits during transit from farms. Noise from extra vehicle movements. New module wash. Defeather / scald is most odorous process stage - extracted to scrubber. Additional chilling plant - noise potential. Doubling of wastewater volumes - extension to WWTP for discharge to river, replacement of primary tank, additional primary tank, new MBR plant & new sludge dewatering plant. Doubling of ABP arisings - building extracted to scrubber to control odour. Daily collections of ABPs. Sewage flow into STP to increase with more staff on site.		
1b. Are resources (energy, water, raw materials) used in large amounts by the activity under consideration?		☑ Yes	☐ No
If yes, give details:	Water and energy consumption expected to double but rate per bird is likely to be same or better than under Phase 1 (already leading in the Sector) with some heat recovery designed into Phase 2. Chemicals used for cleaning and abatement plants will double. WWTP sludge volumes rate to reduce with dewatering. Other waste arisings to double but storage facilities the same. Sludge volumes/transfers to reduce. More deliveries and handling of raw materials. No additional storage facilities required or chemicals or waste arisings.		
1c. Could any polluting matter or emission occur potentially, including in an unplanned scenario?		☑ Yes	☐ No
If yes, give details:	Water / land pollution due to spills / contaminated site drainage Partial or full loss of containment of raw wastewater tank or other bulk tank of partially treated wastewater or non-dewatered sludge. Partial or full loss of containment of chemicals used at the WWTP. Large spillage of blood or firewater from factory fire overloading WWTP and causing deterioration in biological treatment, leading to out of consent final discharge to river. Spillages during delivery / offloading of chemicals and sludge transfers.Odour – live bird deliveries, process areas, WWTP, ABP storage & handling, abatement plant Noise – fans, pumps, condensers, compressors, HGV movements Water pollution – site drainage and WWTP discharge to river Air emissions – combustion gases from boilers - 1 extra boiler for 2nd Aeroscalder and increased use of modules on existing boilers Fugitive releases of refrigerants from refrigeration plant in abnormal events		

2. Identify the possible pathways from the hazard / aspect source. This could be from normal operation or if an incident or failure in a control measure occurs		
2a. Could there be a release to air? – either from a point source (chimney or vent) or fugitive (non point source), e.g. fumes, dust, odour, noise, greenhouse gases (carbon emissions)	☑ Yes	☐ No
If yes, give details:	Air recirculated around process areas and lairage so no emission points. Short duration, low potential for fugitive emissions of dust / odour from lairage when doors opened for vehicle access. Emissions to air from module / vehicle wash area extraction point measured in Mar 2022 and very low in odour. Scald, defeather and ABP storage building extracted to chemical scrubber with 2nd scrubber added to handle additional volume under Phase 2 – stacks disperse emissions. Assessed by dispersion modelling and shown to have low offsite impact when operating effectively. Boiler exhaust emissions to air – assessed by dispersion modelling and trivial. WWTP odours - primary tanks covered and extracted to new chemical scrubber. Building housing new sludge dewatering plant and DAF plant with extraction to new scrubber. WWTP area odour impact assessed by dispersion modelling and shown to have acceptable impact if controls are effective. Chiller plant uses ammonia as refrigerant – potential for worker / neighbours to be exposed to toxic release in an emergency scenario of a major leak. Refrigerants used in other chilling units have zero ozone depleting potential (outside scope of Ozone Depleting Substances Regulations) but come under F Gas Regs due to high GWP so fugitive releases must be prevented / minimised.	
2b. Could there be a release to water or land? – via the site drains, yard or floor, e.g. spill of liquid, blood - Refer to the Site Drainage Plan.	☑ Yes	☐ No
If yes, give details:	Wastewater from process and cleaning stages directed to WWTP for treatment and discharge to river. Increase in discharge volume from WWTP to river. Contamination of site drainage within WWTP area due to spills and / or run off onto unmade ground and soaking into ground - could migrate downwards into aquifer and contaminate water supply borehole to factory or laterally to nearby surface water drains feeding into River Dee. Contamination could arise form loss of containment from a bulk tank of untreated / partly treated wastewater or chemical storage tank or spillages of sludge during transfer. Improved spill control / containment around chemical scrubbers area to prevent leaks entering surface drains, double skinned chemical tanks. STP has capacity to handle higher sewage volume but outlet to be diverted to WWTP as precaution.	
2c. Could a waste be created by the activity? e.g. spoiled product, damaged packaging, spill clean up	☑ Yes	☐ No

If yes, give details:	Primary waste stream is WWTP sludge. Sludge thickening unit installed under Phase 2 to reduce volumes for landspreading. Packaging waste amounts will double – contaminated packaging must be landfilled. Non contaminated packaging recycled. No extra waste storage facilities – more frequent collections. Spillages on production line sent to ABP area or washed into wastewater drains if liquid.

3. Identify receptors or anything else that could be affected if the hazard is released / occurs. Refer to Appendices 1 – 4 of our Emergency Response Plan App 1: Site plan showing permit - installation boundary & emissions points App 2: Figure 1: Installation location map & environmental receptors Figure 2: Residential receptors and prevailing wind Figure 3: Residential receptors key App 3: Figure 1: Habitats sites within 1km map Figure 2: Habitats sites within 1km details App 4: Site drainage plan			
3a. Air (people, farm animals, wildlife, property)		☑ Yes	☐ No
If yes, give details:	Closest residential properties near site entrance on Pickhill Lane		
3b. Water (rivers, streams, ditches)		☑ Yes	☐ No
If yes, give details:	River Dee approx 80m away, small tributary <50m away		
3c. Land (soil, groundwater / water supply borehole)		☑ Yes	☑ No
If yes, give details:	Aquifer - Maelor have water supply borehole(s). Groundwater source protection zone aquifer (Zone III, total catchment). 'Middle Dee Groundwater Management Unit' of the Dee Catchment Abstraction Management Strategy (CAMS).		
3d. Habitats or conservation sites / flora or fauna)		☑ Yes	☐ No
If yes, give details:	River Dee SAC - SAC Core Management Plan Phosphorous standard		

4. What control measures are to be used to prevent an impact? How will a release be prevented or contained so it does not reach a receptor?	
Give details:	WWTP extended to treat Phase 2 volume of wastewater. Under normal conditions impact on river quality, assessed as satisfactory by WQ modelling based on increased flow and reduced emission limits to maintain the same pollutant load or better. SAC management plan P target met in downstream stretch of river and assessments of W1 discharge P impact satisfactory. In house monitoring of WWTP parameters and discharge quality - process control monitoring on WWTP and treated effluent to warn of deviations from normal levels. Out of spec effluent can be diverted back into balance tank for re-treatment.
	Balance tank and diversion tank to deal with abnormal / high organic discharges to protect the WWTP and prevent shock loading and damage to bacterial treatment. In event of bacterial die off effluent would be tankered away until plant reseeded and back within emission limits. Emergency response plan and procedures to deal with large spillages of blood, chemicals or fuel to prevent them reaching WWTP.
	WWTP operating procedures to be reviewed to cover new configuration and staff trained. Operating procedures for storage and handling of chemicals / spill procedures to prevent / minimise spillages causing pollution.
	Site drainage within WWTP area feeds into raw sump so spillages would be contained within WWTP area and either sent to divert tank for transfer off site / release back into WWTP. The areas at risk of land contamination within the WWTP area will be concreted / kerbed to prevent any ingress should spills occur. Existing earth bund around lower part of WWTP area will be retained and a new concrete bund wall installed inside it, in accordance with CIRIA guidance for Class 2 bund. New bund will provide full containment of largest raw wastewater tank + 10%.
	Double skinned chemical storage tanks at WWTP with level controls. Level controls fitted on existing and on new / replacement tanks. Existing primary tank is corroded on upper layer above internal lining and operational level but is being replaced for Phase 2. WWTP discharge point to river is protected by kerbing. DAF plant and sludge dewatering plant to be housed inside new building and contained. Sludge tank only used as back up in case dewatering plant is offline – less risk of spillages during transfers which will be few and far between.
	Water supply borehole for factory located uphill outside of WWTP area – approx. 25m distance and is protected by kerbing. Borehole, headworks chamber and capped off trial pits protected by: • no storage of hazardous chemicals within 50m; • no livestock access / site perimeter secure • warning signage; • raised kerbing / drainage to prevent surface water inflow; • appropriate lining with casing material and grouted to prevent ingress of shallow subsurface and/ or surface water. • headworks / chamber sealed to prevent water / pests ingress • no abandoned wells and observation boreholes capped, fenced and protected

	Odour - odour management plan - no additional controls needed. Odour – olfactometry survey undertaken to obtain odour concentrations for impact assessment based on dispersion modelling and additional & replacement chemical scrubbers. Odour management plan updated. Chemical scrubber operational parameters monitored, odour surveys in daily site checks. Noise – noise impact assessment undertaken for Phase 2 noise sources and increased HGV movements and mitigation measures proposed/implemented. Noise management plan updated. Highest noise sources attenuated. Air emissions from boiler exhausts – air dispersion modelling undertaken – no impact on Air Quality. Boilers maintained and serviced by boiler supplier. Fugitive releases from refrigeration plant – prevented by planned preventative maintenance. Waste arisings to reduce with WWTP sludge dewatering.

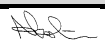
5. Aspect impact summary: What are the potential consequences or impacts (tick all appropriate boxes)	☑ Air pollution	☑ Noise
	☑ Borehole contamination	☑ Odour
	☑ Emission limit breach	☑ Other licence breach
	☑ EMS non-conformance	☑ Pests
	☑ Fire	☑ Resource consumption
	☑ Flood	☑ Spill
	☑ Fugitive release	☑ Waste
	☑ Land pollution	☑ Water pollution

6. Assess risks relevant to the specific activity and check if they're acceptable and can be screened out.
How likely is it to happen and how severe would the impact be?
Refer to Risk Matrix & impact severity guide in EIA procedure

6a. Likelihood of occurrence (L) (1 – 5) *(select score from drop down list)*		2
6b. Impact Severity (I) (1 – 5) *(select score from drop down list)*		5
6c. Overall Risk Score (R) = L x I *(score self populates)*		10
6d. Is the risk acceptable and as low as reasonably practicable? If No, continue to 5e	☑ Yes	☐ No

Low risk	1 – 4	Broadly acceptable level of Risk
Low - medium risk	5 – 9	ALARP Risk is tolerable if risk reduction is impractical disproportionate to cost
Medium - high risk	10 – 14	ALARP Risk is tolerable if is disproportionate to cost
High risk	15 – 19	Unacceptable risk, cannot be justified except in extreme circumstances
Extreme risk	20 - 25	Risk cannot be justified

6e. Are additional controls measures required? State what you'll do to control risks if they're too high	☐ Yes	☑ No
If yes, give details:	Based on additional WWTP concrete bund and hardstandings to CIRIA Class 2 standard and refurbished primary tank planned for Phase 2.	
6f. Repeat the impact assessment based on the additional controls you have identified. Is the overall risk now acceptable?	☐ Yes	☑ No

Approval / Person(s) completing document				
Risk assessor(s) In signing this risk assessment, risk assessors are confirming that they have taken reasonable care in producing this document.				
Assessor(s) details	**Name (print)**	**Signature**	**Job title**	**Date**
	A Kesterson		Consultant	13.02.2023
Manager In signing for acceptance of this risk assessment, managers are confirming that they have reviewed the content, are satisfied that it is representative of the activities or area assessed and that they will implement any new risk control measures identified.				
Manager's details	**Name (print)**	**Signature**	**Job title**	**Date**
	J Colley		Gen'l Manager	13.02.2023