**Appendix 7d**
**Env Risk Assessment for Phase 2 WWTP area**

| 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 | Assessment of water and land pollution risk for Phase 2 WWTP with an increase in treatment for processing 2 million birds/week. The existing earth bund around the WWTP area is being retained and a new concrete bund installed inside it. Overall risk score shown in Part 6 relates to worst case scenarios - major leak of bulk raw wastewater tank or major leak of chemical storage tank. 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**<br>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 wastewater volumes - extension to WWTP for discharge to river, replacement of primary tank, additional primary tank, new MBR plant & new sludge dewatering plant. Raw effluent sump of xm3 capacity, 2 x 1500 m3 primary tanks for raw wastewater with high COD, ammonia, phosphorous and suspended solids content. Cleaning chemicals used at the processing plant are biodegradable as is the raw wastewater. Primary tanks operated at not greater than 60% capacity (900m3) but could reach max level if controls fail. Divert tank for use in abnormal events has capacity of 1500 m3. DAF plant capacity 200m3. Anoxic tank 250m3 and aerator tank 1780m3. MBR plant 250m3 but not a significant risk of pollution as undergone secondary treatment by then. Bulk storage tanks of water treatment chemicals - ferric chloride and caustic ( 25m3 capacity each). Non dewatered sludge tank as standby only 190m3. | | |
| **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. Chemicals used for WWTP will double. WWTP sludge volumes rate to reduce with dewatering. 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 within WWTP area.<br>Partial or full loss of containment of raw wastewater tank or other bulk tank of partially treated wastewater or non-dewatered sludge.<br>Partial or full loss of containment of chemicals used at the WWTP.<br>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.<br>Spillages during delivery / offloading of chemicals and sludge transfers. | | |

| **2. Identify the possible pathways from the hazard / aspect source.**<br>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: | WWTP odours from primary tanks and sump, sludge tank transfers and DAF plant. Not assessed further here as only assessing water and land contamination risks. | | |
| **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. | | |
| **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. | | |

| **3. Identify receptors or anything else that could be affected if the hazard is released / occurs.**<br>Refer to Appendices 1 – 4 of our Emergency Response Plan<br>App 1: Site plan showing permit - installation boundary & emissions points<br>App 2: Figure 1: Installation location map & environmental receptors<br>Figure 2: Residential receptors and prevailing wind<br>Figure 3: Residential receptors key<br>App 3: Figure 1: Habitats sites within 1km map<br>Figure 2: Habitats sites within 1km details<br>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 is SAC - SAC Management Plan & Phosphorous standard | | |

| **4. What control measures are to be used to prevent an impact?**<br>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.<br>SAC management plan P target met in downstream stretch of river and assessments of W1 discharge P impact satisfactory.<br>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.<br>In event of bacterial die off effluent would be tankered away until plant reseeded and back within emission limits.<br>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.<br>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.<br>The areas at risk of land contamination within the WWTP area will be concreted / kerbed to prevent any ingress should spills occur.<br>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.<br>Level controls fitted on existing and on new / replacement tanks.<br>Existing primary tank is corroded on upper layer above internal lining and operational level but is being replaced for Phase 2.<br>WWTP discharge point to river is protected by kerbing.<br>DAF plant and sludge dewatering plant to be housed inside new building and contained.<br>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.<br>Borehole, headworks chamber and capped off trial pits protected by:<br>• no storage of hazardous chemicals within 50m;<br>• no livestock access / site perimeter secure<br>• warning signage;<br>• raised kerbing / drainage to prevent surface water inflow;<br>• appropriate lining with casing material and grouted to prevent ingress of shallow subsurface and/ or surface water.<br>• headworks / chamber sealed to prevent water / pests ingress<br>• no abandoned wells and observation boreholes capped, fenced and protected |

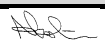
| | | |
|---|---|---|
| **5. Aspect impact summary**: What are the potential consequences or impacts (tick all appropriate boxes) | ☐ Air pollution | ☐ Noise |
| | ☑ Borehole contamination | ☐ Odour |
| | ☑ Emission limit breach | ☐ Other licence breach |
| | ☑ EMS non-conformance | ☐ Pests |
| | ☐ Fire | ☐ 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?**<br>State what you'll do to control risks if they're too high | ☐ Yes | ☑ No |
| If yes, give details: | Additonal WWTP concrete bund and hardstandings to CIRIA Class 2 standard and refurbished primary tank is planned for Phase 2. | |
| **6f. Repeat the impact assessment based on the additional controls you have identified.**<br>Is the overall risk now acceptable? | ☑ Yes | ☐ No |

| Approval / Person(s) completing document | | | | |
|---|---|---|---|---|
| **Risk assessor(s)**<br>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**<br>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 |