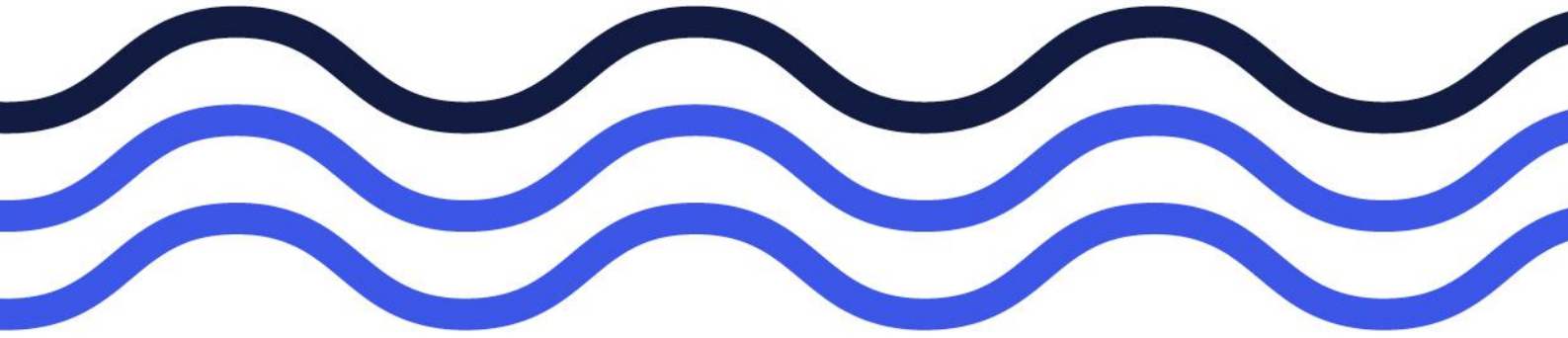
Lundwood Sludge Treatment Facility: Accident Management Plan



YorkshireWater

Document Control

Document Control Ref:	V001
Document Location:	YW IMS (Environment and Waste > Waste and Installations > IED)
Document Custodian:	
Review Period:	Every 4 years or sooner in the event of changes that may impact this plan, including (but not limited to): • Changes to site activities, equipment or management / operational procedures. • An accident or incident on this site, or other similar sites (whether or not these are YW sites) that prompts a review of accident risks, preventive controls and emergency responses measures.

Document Approval

Name	**Name**
Document Owner (Author)	**Document Approval Manager (Tier 3)**

Document Revision History

Version	Date	Revised By	Reviewed By	Amendment Details
1	19/08/2024	David Shaw	Hazel Morgan	New document
2				

Business areas affected by this document
This applies to colleagues that are operating or managing Lundwood STF.

1. Introduction

In accordance with the Environmental Permit for Lundwood Sludge Treatment Facility (STF) (permit reference: EPR/YP3392ZB), this document presents the Accident Management Plan for the permitted facility.

This plan is established to identify, evaluate and prepare for potential incidents or events that could result in:

- Pollution; and / or
- not being able to comply with permit conditions.

This plan for accident prevention and management follows relevant Environment Agency guidance and includes the following sections:

- Overview of management controls (Section 2)
- Identification of relevant sensitive receptors (Section 3).
- Identification of potentially polluting substances held on site (Section 4).
- Identification potential accidents and incidents and assessment of the overall risk posed by these hazards (Section 5).
- The overall risk of each of the hazard is identified on the basis of the likelihood of the event occurring and the environmental consequence of that event, taking account of:
    - Preventive controls in place; and
    - Actions to be taken in the event of the accident / incident occurring.
- Summary of actions to be taken following an accident or incident occurring, including measures to record, investigate and respond to the incident (Section 6).
- List of emergency contacts (Section 7).

2. Overview of relevant management controls and procedures

YW has an established EMS, which is certified to the ISO 14001 standard. The EMS forms part of a wider corporate Integrated Management System (IMS) which also incorporates quality management, health and safety management, asset management, organisational resilience and business continuity requirements. The management system follows an asset life cycle approach, from design through to decommissioning. Corporate level management system processes are in place, which are supplemented by site-specific documented procedures and processes.

YW has developed processes to identify, respond to and control emergency situations that may cause adverse environmental consequences. Spill kits are readily accessible at locations where there is a risk of spillage (e.g. delivery, storage and areas of use). Spill control toolbox talks are provided to staff. This includes information about how to prevent and control pollution incidents from accidental spills of oils, fuels, sludge and chemicals.

Contingency plans help minimise potential environmental impacts; this includes emergencies arising from breakdowns, enforced shutdowns, abnormal circumstances such as flooding as well as major fire and spill/loss of containment events.

The YW Business Continuity Plan is in place to define and prioritise critical business functions, details the immediate response requirements for a critical incident and details strategies and actions to be taken to ensure business continuity. All Bioresources sites, including Lundwood STF, have the capability of remote monitoring and remote operation of key functions. CCTV security cameras are located across the site with monitoring provided 24/7 by the YW Service Delivery Centre. All buildings are alarmed and high-risk equipment is provided with secondary fencing for added security.

3. Sensitive receptors

A summary of sensitive receptors relevant to Lundwood STF is provided in Table 1 below.

Table 1: Sensitive Receptors to site

Receptor type	Receptor description and distance
Human	
Residential housing – North	Nearest residential property located approximately 100m to the north of the installation boundary.
Residential housing – East	Nearest residential property located >1km to the east of the installation boundary.
Residential housing – South	Nearest residential property located approximately 800m to the south of the installation boundary.
Residential housing – West	Nearest residential property located approximately 230m to the west of the installation boundary.
Public amenity areas	There are a number of public footpaths adjacent to the boundary of the WwTW, including the Trans Pennine Trail which is located approximately 225m to the west of the installation boundary at its nearest point. Dearne Valley Park is located approximately 275m to the west of the installation boundary at its nearest point.
Schools	There are 6 schools within approximately 2km of the installation. The nearest of these is 825m to the west.
Hospitals/healthcare facilities	There is one hospital located approximately 2km to the southwest of the installation boundary.
Industrial/commercial sites	There are a small number of industrial/commercial sites located within close proximity of the installation. This includes industrial premises located on land directed adjacent to the digesters, approximately 10m to the north. In addition, a farm is located approximately 75m to the north of the cake pad area.
Ecological	
Habitat sites – statutory designations	Dearne Valley Wetlands SSSI is located approximately 1.6km to the north and Stairfoot Brickworks SSSIs is located approximately 1.9km to the south of the installation boundary. There are no internationally designated sites (e.g. SAC, SPA, Ramsar) within 10km of the installation.

Habitat sites – local sites and non statutory designations	There are a number of other designated habitat sites within 2km of the installation boundary. This includes: • Sunny Bank, House Carr and Storrs Wood Local Wildlife Sites (LWS) and ancient woodland (AW), part of which directly adjoins the site to the north. • Stairfoot Disused Railway LWS 525m to the southwest. • Cliff Woods 1km to the west. • Carlton Marsh LWS 1.7km to the north. • Pearsons Wood AW 850m to the southeast. • Storrs Wood AW 1.2km to the east.
Protected species	Possible presence of protected species on or off sites.
Environment – Other	
Global/regional atmosphere	Regional and global atmosphere.
Ground/groundwater	Underlying groundwater classed as a Secondary A aquifer; groundwater vulnerability is classed as high; the installation is not located within a Source Protection Zone but is located within the River Dearne Nitrate Vulnerable Zone.
Surface water	An un-named drainage ditch is located directly to the south of the installation boundary. The River Dearne is located beyond this to the south. Likely hydraulic continuity between underlying groundwater and the river.

4. Inventory of potentially polluting materials

In assessing potential accidents and incidents consideration has been given to the potentially polluting substances held on site, including review of their properties, toxicity and the volume stored. 0 details the raw materials stored on site, 0 details the sludge, sludge cake and process liquors stored on site and 0 details the waste materials stored on site.

Table 2: Raw Materials Associated with the Facility and their Potential to Pollute

Substance (Contaminants)	Use	State	Storage Arrangements	Toxicity/ Fate/ Mobility
Polymer (bulk storage of liquid coagulant)	Coagulant used for thickening undigested sludge and to assist in the dewatering process for digested sludge	Liquid	1m^3 IBCs stored in designated area (external, bunded). It is pumped directly to an internal bulk tank (10m^3 capacity) and mix tank (5m^3 capacity) for dilution and dosing to drum thickeners.	Polluting to soil and watercourses in the event of a spillage/loss
Polymer (powder)	Diluted coagulant used to aid digested sludge dewatering	Solid	750kg bags in dedicated hopper room within centrifuge building. The powder is mixed and then diluted, in an 'aging tank' and a 'stock tank' (each c.6m^3 capacity) and introduced to the sludge at the centrifuges via a series of pumps.	Polluting if mobilised to watercourses in the event of a spillage/loss
Antifoam	Digester antifoaming agent	Liquid	Storage of small containers (20 litres) on hardstanding within digester compound, applied via separate dosing unit and associated pipework.	Polluting to soil and watercourses in the event of a spillage/loss
Water treatment chemicals	Boiler treatment	Liquid and solid	Brought to site by contractors for periodic maintenance. Limited storage on site within digester compound (on hardstanding in a bunded area).	Polluting to soil and watercourses in the event of a spillage/loss
Glycol	Antifreeze for use in CHP equipment	Liquid		
Biogas	Generated and stored within the AD	Gas	Each digester is equipped within a membrane gas holder (c.700m^3 capacity x2). Transferred directly for use in the CHP and/or boiler or to the flare.	Volatile and unlikely to pollute watercourses or land in the event of escape
Gas oil	Stand-by boiler fuel	Liquid	Integrally bunded steel tank of 35,000 litre capacity.	Polluting to soil and watercourses in the event of a spillage/loss
Lubricating oil	For use in CHP and other equipment	Liquid	Small intermediary containers (20 litre) stored within designated areas on hardstanding.	Polluting to soil and watercourses in the event of a spillage/loss

Substance (Contaminants)	Use	State	Storage Arrangements	Toxicity/ Fate/ Mobility
Diesel	Fuelling of off-road vehicles	Liquid	Integrally bunded steel tank, 1,000 litre capacity, located on hardstanding outside of the installation area.	Polluting to soil and watercourses in the event of a spillage/loss

Table 3: Bulk Storage of Sludge, Sludge Cake and Process Liquors and their Potential to Pollute

Material	Nature of material	Storage Arrangements	Nominal capacity (m^3)
Raw sludge (un-thickened)	Liquid	Incoming underground pipes from WwTW	-
		Sludge feed to thickener building (above ground)	150
Screened sludge	Liquid	Sludge feed to thickener tanks (below ground)	-
		Thickener Feed Tanks, No.1 and No.2, steel construction, covered, c.2019	2 x 1,589
		Sludge feed to drum thickeners (above and below ground)	-
		Drum thickeners and associated mixing/feed pipework	-
Thickened sludge	Liquid	Thickened sludge feed from drum thickeners to digester feed tank (below ground)	-
		Digester feed tank, concrete construction, covered, c. 2008	712
Sludge within digesters	Liquid	Sludge feed to digesters (below ground)	-
		Digesters x 2, concrete, covered, constructed c.1962 (asset refurbishment 2015).	2 x 2,056
Digested sludge	Liquid	Sludge feed to digested sludge storage tanks (above ground)	-
		Digested sludge storage tanks, concrete, uncovered, construction date unknown.	2 x 880
		Sludge feed to centrifuges (below ground)	-
Thickening/dewatering liquor	Liquid	Liquor return from drum thickeners (via liquor sump) to WwTW (below ground)	-
		Liquor return from centrifuges to liquor balance tanks (below ground)	-
		Liquor balance tanks, steel construction, covered, construction date known	2 x 250

		Liquor return from liquor tank to WwTW (below ground)	-
Cake	Solid	Concrete pad Cake volumes are managed in line with HACCP requirements, having regard to good housekeeping to minimise drag out and maximise containment on engineered surfaces.	(max. capacity) 12,750 tonnes
Run-off from concrete pad	Liquid	Return pipework (to WwTW)	-

Table 4: Process Wastes and Potential to Pollute

Waste Type	Nature of material	Storage Arrangements	Storage and Disposal Method
Sludge screenings	Non-hazardous	Stored within skips on hardstanding at waste import, prior to collection by approved waste contractors	Collected by approved waste contractor for off-site disposal
Waste oil	Hazardous	Stored in small containers (<50 litres) within bunded areas/containers before removal by maintenance contractors	Collected by approved waste contractor for off-site disposal
General waste	Non-hazardous	Dedicated skips and smaller containers, located on hardstanding at designated points within the installation	Collected by approved waste contractor for off-site disposal
Metals	Non-hazardous	Stored within a skip in designated area prior to removal	Collected by approved waste contractor for off-site disposal
Empty IBCs and intermediary containers	Hazardous	Stored in designated location within the installation prior to removal	Collected by approved waste contractor for off-site disposal
Oil contaminated absorbents	Hazardous	Dedicated containers (20 litre drum) within digester areas outside of the installation boundary	Collected by approved waste contractor for off-site disposal
Oil filters	Hazardous	Dedicated container (20 litre drum) within digester areas	Collected by approved waste contractor for off-site disposal
Antifreeze	Hazardous	Removed from site when servicing requires (in small containers, <50 litres)	Collected by approved waste contractor for off-site disposal

5. Accident Management Plan

The potential for accidental releases resulting from the activities proposed in this variation application are identified and assessed in Table 5 below. This includes a summary of measures in place to manage/reduce accident risks. Refer to Appendix 1 for the scoring mechanism.

Table 5: Potential accidental releases and associated risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Site Wide - general						
Flooding leading to damage to site processes and/or mobilisation of polluting materials	Ground / groundwater / surface waters	Floodwaters / Infiltration	**Preventative controls** • Flood risk review undertaken. Core STF assets, including sludge tanks and digesters are not within flood zones. The flood map shows that a small area of the lower cake pad is in Flood Zone 2, with a risk of flooding between 1 in 100 years and 1 in 1000 years. • Materials used in sludge treatment such as polymer are stored outside of flood zone. • Vulnerable Asset Protection Plan specifically details flooding actions including how river levels should be monitored and what actions are required. **In the event of an incident/accident** • Initiate site emergency plan. • Remove mobile fuel/ chemical sources away from flood risk, if appropriate and safe to do so.	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Flooding due to drain blockages and/or excessive rainfall causing localised on-site surface water flooding leading to damage to site processes and/or mobilisation of polluting materials	Ground / groundwater / surface waters	Floodwaters / Infiltration	**Preventative controls** • Drains are monitored for blockages and cleaned as required. • Materials are stored in appropriately sealed containers (preferably bulk or semi-bulk), or proprietary secondary containment cabinets, such that the risk of contents being mobilised or containers being washed away in a flood event is low. • Vulnerable Asset Protection Plan specifically details flooding actions. • Planned maintenance / inspection of site drainage systems. **In the event of an incident/accident** • Initiate site emergency plan. • Remove mobile fuel/ chemical sources away from flood risk, if appropriate and safe to do so.	Unlikely	Mild	Low risk
Fire	Nearby human receptors Local air quality and global climate impacts	Air Overland runoff / infiltration / drainage systems	**Preventative controls** • Regular maintenance of equipment; LDAR programme in place. • Fire alarms are fitted in CHP/boiler rooms. • DSEAR assessment has been completed for site and only appropriate ATEX rated equipment may be used in high-risk areas.	Highly unlikely	Severe	Moderate/ low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
	Ground / groundwater / surface waters		• Access controls in place for digester compound and portable gas monitor use required when inside compound. • Site does not treat combustible wastes. Sludge is wet. • Gas slam shut valves on biogas feeds to the CHP / boiler. • Gas and fire detection in the boiler/CHP rooms, and other key AD plant areas. • Lightning protection provided for biogas storage. **In the event of an incident/accident** • Follow site emergency procedure. • Hydrants connected to a final effluent supply can be used by the fire service. • Excess biogas created by the site will be burnt through the flare.			
Failure to contain firewater following fire / explosion event leading to localised on site surface water flooding leading to damage to site processes and/or	Ground / groundwater / surface waters	Floodwaters / Infiltration	**Preventative controls** • Site drainage collects and returns surface/yard water to WwTW for treatment. Roofwater from certain buildings is discharged to soakaway (infiltration drainage) (W1 and W2). Other drainage areas require further investigation or repair (if they represent a pathway to ground) (see Proposed Improvement Programme Item 2).	Highly unlikely	Medium	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
mobilisation of polluting materials			• Site drainage systems, hardstanding, sumps, storm tanks etc will minimise flow of firewater to receptors. **In the event of an incident/accident** • Initiate site emergency procedure.			
Excessively low temperatures leading to blockages or damage to pipework, valves or equipment and unplanned release of gas with fire / explosions risks and/or release of potentially polluting liquids	Nearby human receptors Local air quality and global climate impacts Ground / groundwater / surface waters	Air Overland runoff / infiltration / drainage systems	**Preventative controls** • 'Winterisation' procedures. • Bunding provided to environmentally critical plant and equipment. • Current YW technical standards include trace heating for vulnerable pipework. **In the event of an incident/accident** • Isolate systems as appropriate and initiate fire, spill and emergency response procedures, cleaning up spill and disposal of wastes appropriately. • Carry out repairs (as required).	Unlikely	Mild	Low risk
Generalised or localised power failure leading to failure of pumps / control systems and escape of sludge and/or biogas	Nearby human receptors Local air quality and global climate impacts	Air Overland runoff / infiltration / drainage systems	**Preventative controls** • Process for recovering from power failure has been planned and recorded. • In the event of power failure, sludge transfers will stop but this will not affect security of containment e.g., tanks will not overflow. **In the event of an incident/accident** • Halt sludge imports to site.	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
	Ground / groundwater / surface waters		• Confirm backup power supply is online. • Confirm that all systems are operating normally.			
Vandalism / site security failure leading to unplanned release of gas with fire / explosions risks and/or release of potentially polluting liquids (chemicals, oils, sludges)	Nearby human receptors Local air quality and global climate impacts Ground / groundwater / surface waters	Air Overland runoff / infiltration / drainage systems	**Preventative controls** • High level of security on site with 24 hr security monitoring, secure entry gate systems and locked cabs and control units. • In addition to perimeter fencing around site, key digestion equipment sits within a separate fenced area. • Storage containers bunded. **In the event of an incident/accident** • Isolate systems as appropriate and initiate fire, spill and emergency response procedures, cleaning up spill and disposal of wastes appropriately. • Carry out repairs (as required). • Review security measures on site.	Highly unlikely	Mild	Negligible risk
Cyber security incident which leads to unauthorised site access and unplanned release of gas with fire / explosions risks	Nearby human receptors Local air quality and global climate impacts Ground / groundwater / surface waters	Air Overland runoff / infiltration / drainage systems	**Preventative controls** • YW operates an information security management system to provide cyber security protection and response. • High level of security on site with 24 hr security monitoring, secure entry gate systems and locked cabs and control units. • Storage containers bunded. **In the event of an incident/accident**	Highly unlikely	Mild	Negligible risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
and/or release of potentially polluting liquids (chemicals, oils, sludges)			• Isolate systems as appropriate and initiate fire, spill and emergency response procedures, cleaning up spill and disposal of wastes appropriately. • Carry out repairs (as required). • Review cyber security measures.			
Failure of chemical or oil containment due to deterioration of storage containers, pipework or valves leading to spillage	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • All oil storage and waste oil storage tanks are fully bunded (using either fixed or mobile bunds). • Tank and pipework inspections undertaken as part of routine maintenance. • Operational procedures for refilling oil and chemical storage tanks. Spill kit to be available at tanks. • Any oil spilt around engines during maintenance will be cleaned up and disposed of appropriately. **In the event of an incident/accident** • Isolate systems as appropriate and initiate spill response procedure, cleaning up spill and disposal of wastes appropriately. • Carry out repairs (as required). • Review systems to prevent recurrence.	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Failure of chemical or oil containment during delivery	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • Delivery procedures inc. supervision by site staff, check on space available in receiving tank. • Storage containers bunded. • Site drainage collects and returns most surface/yard water to WwTW for treatment. Roofwater from certain buildings is discharged to soakaway (infiltration drainage) (W1 and W2). Other drainage areas require further investigation or repair (if they represent a pathway to ground) (see Proposed Improvement Programme Item 2). **In the event of an incident/accident** • Follow incident plan.	Unlikely	Mild	Low risk
Vehicle impact leading to loss of pressurised gas and explosion / fire risk or loss of liquid containment (chemicals, oils, sludges)	Nearby human receptors Contribution to local air pollution and global warming Ground / groundwater / surface waters	Air	**Preventative controls** • Site speed limits in place to reduce chance and consequence of collision. • Tanker discharge point and access to this area are controlled by manned security point at main site entrance. • Key areas including barriers to prevent collision with equipment. • Key digestion assets including digestion tanks are set back from road and surrounded by a fence.	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
			• Site drainage collects and returns most surface/yard water to WwTW for treatment. Roofwater from certain buildings is discharged to soakaway (infiltration drainage) (W1 and W2). Other drainage areas require further investigation or repair (if they represent a pathway to ground) (see Proposed Improvement Programme Item 2). **In the event of an incident/accident** • Isolate systems as appropriate and initiate fire, spill and emergency response procedures, cleaning up spill and disposal of wastes appropriately. • Carry out repairs (as required)			
Lack of water (i.e. in event of final effluent supply pipe / potable water burst)	Nearby human receptors	Air	• Investigate course of issue • Arrange repair • Investigate potential alternative if repair can't be undertaken • Consider closing site to imports	Likely	Medium	Moderate / Low risk
Excessive noise from plant or equipment e.g., due to equipment deterioration or failure	Nearby human receptors	Air	**Preventative controls** • Procurement controls mean plant are selected to comply with relevant noise limits. • Regular maintenance completed to ensure equipment operates within normal noise parameters. • Acoustic enclosures / controls on some noise generating plan (e.g. compressors)	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
			In the event of an incident/accident • Investigate cause and implement preventive measures, which may include system maintenance interventions.			
Site wide - sludge pipework, tanks, valves						
Spillage of sludge during transfer / handling activities	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • Staff training on system operation. • Hardstanding in key/high risk areas. • Site drainage collects and returns most surface/yard water to WwTW for treatment. Roofwater from certain buildings is discharged to soakaway (infiltration drainage) (W1 and W2). Other drainage areas require further investigation or repair (if they represent a pathway to ground) (see Proposed Improvement Programme Item 2). **In the event of an incident/accident** • Isolate systems as appropriate and initiate spill response procedure, cleaning up spill and disposal of wastes appropriately.	Likely	Minor / negligible	Low risk
Failure (cracks, splitting) of underground pipework (e.g. fuel, chemicals,	Ground / groundwater / surface waters	Infiltration	**Preventative controls** • Existing underground pipework will be periodically surveyed using in-pipe crack detection technology. • Where new pipework at the site has to be underground, the containment provision will	Unlikely	Medium	Moderate / Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
sludge, site drains)			be risk assessed and appropriate design specification implemented, which may include secondary containment and leak detection. **In the event of an incident/accident** • Damaged pipe will be isolated. • Spill management procedure will be followed. • Repairs to damaged pipework will be arranged.			

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Minor failure of sludge storage tanks / digester tanks e.g., tank overtopping, pipework leaks	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • High level probes to prevent overfilling of tanks. • Tanks also have emergency overspill facility connected to site drainage (discharged back to WwTW) as last line of defence. • Trace heating is provided to tank level gauges to prevent freezing and reduce the risk of false readings. • Site is monitored on a daily basis. • Infrastructure maintenance and inspections. • Protective measures as for sludge spillage. • Site drainage collects and returns most surface/yard water to WwTW for treatment. Roofwater from certain buildings is discharged to soakaway (infiltration drainage) (W1 and W2). Other drainage areas require further investigation or repair (if they represent a pathway to ground) (see Proposed Improvement Programme Item 2). • Refer to Secondary Containment Report for details of risk assessment **In the event of an incident/accident** • Isolate systems as appropriate and initiate spill response procedure, cleaning up spill and disposal of wastes appropriately. • Arrange repairs.	Likely	Minor / negligible	Minor risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Major failure of digester or other sludge storage tank or associated pipework leading to large scale sludge loss/spillage	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • Design and construction of assets is governed by relevant YW technical standards to ensure it is fit for purpose. • Infrastructure maintenance and inspections. • Existing and planned bunding / secondary containment (Refer to Secondary Containment Report). • Site drainage collects and returns most surface/yard water to WwTW for treatment. Roofwater from certain buildings is discharged to soakaway (infiltration drainage) (W1 and W2). Other drainage areas require further investigation or repair (if they represent a pathway to ground) (see Proposed Improvement Programme Item 2). **In the event of an incident/accident** • Cancel all sludge deliveries to site. • Isolate systems as appropriate and initiate spill response procedure, cleaning up spill and disposal of wastes appropriately.	Highly unlikely	Severe	Moderate / Low risk
Biogas pipework, valves, vents						
Failure of biogas pipework, valves and biogas holder (corrosion,	Nearby human receptors	Air	**Preventative controls** • Design and construction of pipework is governed by relevant YW technical standards to ensure it is fit for purpose.	Unlikely	Minor / negligible	Negligible risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
cracks, material defects etc) leading to **minor** release of biogas and slight fire / explosion risk	Local air quality and global climate impacts		• Most biogas pipework operates at low pressures. • Pipework/gas holders protected from excessive pressure by pressure relief valves. • Pipework is above ground where possible to facilitate inspection and maintenance. • Maintenance schedule defined as part of LDAR strategy at site. • Requirements around use of ATEX rated equipment control risk of leak leading to fire/explosion. **In the event of an incident/accident** • Consider need to isolate pipework. • Consider need to initiate emergency response procedures. • Arrange repair to affected asset.			
Failure of biogas pipework, valves and biogas holder (corrosion, cracks, material defects etc) leading to **major** release of biogas and fire/ explosion risk	Nearby human receptors Local air quality and global climate impacts	Air	**Preventative controls** • Design and construction of pipework is governed by relevant YW technical standards to ensure it is fit for purpose. • Most biogas pipework operates at low pressures. Pipework/gas holders protected from excessive pressure by pressure relief valves. • Pipework is above ground where possible to facilitate inspection and maintenance.	Highly Unlikely	Medium	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
			• Maintenance schedule defined as part of LDAR strategy at site. • Standard operational H&S requires staff to wear personal gas monitors at all times, these will detect large scale leakage from pipes. (PPE and personal gas detectors represent the final layer of protection from a safety perspective and are not relied upon for detection). **In the event of an incident/accident** • Immediately follow safety control mechanisms in place to isolate pipework / equipment. • Consider need to initiate emergency response procedures.			

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Breakdown or other damage to on site gas consumers e.g. CHP/boiler leading to disposal of biogas without energy recovery	Nearby human receptors Local air quality and global climate impacts	Air	**Preventative controls** • Site is designed to minimise risk of uncontrolled release to air. • Operational and maintenance controls in place to ensure reliability of equipment and minimise requirement to send biogas to flare. • There is one CHP engine and two boilers with biogas firing capability, controlling requirement to flare. YW is also committed to reviewing CHP provision (refer to Proposed Improvement Programme Item 1). **In the event of an incident/accident** • Any remaining capacity on on-site gas storage will fill. • Once gas storage is full flare will operate, ensuring proper combustion of biogas. • If flare fails, gas will vent through PRVs to prevent damage to site gas system.	Unlikely	Mild	Low risk
Failure of flare leading to release of unburnt biogas to atmosphere	Local air quality and global climate impacts	Air	**Preventative controls** • Flare burns biogas in a controlled way to reduce environmental harm. • Operational and maintenance controls in place to minimise requirement to send biogas to flare. • Flare has control system that ensures ignition e.g., flame detection.	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
			• Maintenance programme in place to ensure that flare is always in good operational condition. **In the event of an incident/accident** • Raise urgent maintenance request for repairs to flare. • If flare fails, valve will automatically shut down flow of gas to flare. • Once all site gas containment is full, pressure will release through PRVs to prevent damage to equipment and uncontrolled release of biogas.			
Incorrect setting or damage to emergency pressure relief valves leads to premature release of gas or valve fails to reseat after release leading to uncontrolled release of biogas to atmosphere	Local air quality and global climate impacts	Air	**Preventative controls** • Inspection and maintenance of PRVs carried out on a routine basis to ensure they are set and operate correctly. • Checks on PRVs part of normal operational routine. • Over-pressure alarms in control system will alert site staff to incidents that could trigger PRV release. **In the event of an incident/accident** • Follow management procedures to ensure that the valves are re-seated/pressure setting adjusted rapidly and without putting staff at risk.	Unlikely	Minor / negligible	Negligible risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Digester foaming blocks gas lines, leading to release of biogas and/or foam through PRVs	Local air quality and global climate impacts	Air	**Preventative controls** • Feed rate to digesters is controlled to prevent organic overloading. • Digester mixing is regularly assessed as part of operational checks to ensure that it is functioning effectively. • Feedstock assessment ensures that nature and quality of feedstock is understood. • Final effluent spray / Anti-foam system is fitted to digesters to control foaming. **In the event of an incident/accident** • Follow site procedures for dealing with foaming. • Investigate cause and implement preventive measures. • Ensure that PRVs are not blocked with foam and operating correctly to protect tanks. • Ensure PRVs reseat once pressure in headspace returns to normal levels.	Unlikely	Mild	Low risk
Digester grit build-up, leading to reduced working volumes and inefficient digestion, leading to wear on mixing and heating	Nearby human receptors Ground	Overland runoff / infiltration / drainage systems	**Preventative controls** • Digester mixing is regularly assessed as part of operational checks to ensure that it is functioning effectively. • Digester clean up required approximately every 10 years by trained professionals. **In the event of an incident/accident** • Clear up any spills and blockages.	Unlikely	Minor/negligible	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
equipment, including pump and pipe blockages.			• Ensure all valves are operating correctly. • Ensure mixers and pumps are operating correctly.			
Spillage / loss of containment of liquids	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • Checks on condensate traps and valves are part of regular operational routine. • Condensate runs to site drainage for treatment. • Digester operation is controlled to minimise risk of foaming, which could lead to blockages on condensate system. **In the event of an incident/accident** • Clear up any spills. • Ensure all valves are operating correctly.	Unlikely	Minor / negligible	Negligible risk
Sludge treatment processes						
Import of sludge which does not meet waste acceptance criteria leading to disruption to sludge treatment processes	Ground	Spread to land as part of disposal	**Preventative controls** • YW control all sites supplying sludge to the STF. Only YW sewage waste is imported to Lundwood STF, this has a consistent composition and comes from carefully controlled treatment processes. • JRP – WaSP system records the dry solids, volume and origin of every import brought to site.	Unlikely	Minor / negligible	Negligible risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
			• Site operators and tanker drivers are trained to identify problem sludges and divert them to alternative sites for treatment. **In the event of an incident/accident** • Digester health will be investigated to understand cause of problem and best route to resolution. • Digestate being removed from digesters will be subject to enhanced monitoring to ensure that there is no environmental risk. Note this is also a HACCP requirement. • Where relevant the Environment Agency will be alerted that a problem has occurred. • The root cause of the problem will be investigated and procedures updated in order to minimise reoccurrence.			
Failure/blockage of sludge screening facility leading to spillage and excess odour emissions	Ground Air	Overland runoff / infiltration / drainage systems Odour to air	**Preventative controls** • Design and construction controls ensure equipment is correctly specified for task. • Maintenance to ensure reliable operation of equipment. • Imports are from YW sites which gives control over content/ • Hardstanding around import facility prevents spills travelling to land. • Site drainage will collect spills and return to WwTW for treatment.	Likely	Minor / negligible	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
			In the event of an incident/accident • Stop imports. • Clean up spill. • Unblock screens.			
Sludge contamination leading to inhibition of microbial activity / process disruption and insufficient digestion and build up of H_2S and CO_2	Ground Local air quality and global climate impacts	Spread to land as part of disposal Air	**Preventative controls** • Management controls to identify potentially problematic sludges at source. • All sludge imports are from YW sites where sludge characteristics are considered stable. • Contamination levels would need to be very severe to significantly impact digestion processes due to the very large digester volume. **In the event of an incident/accident** • Assess digester content to decide best route to normal digester health. • Sample cake prior to export from site to confirm it is safe to spread to land. • Review acceptance procedures.	Highly Unlikely	Medium	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
Excessive feeding of digester leads to reduced retention time and failure to meet pathogen kill requirements	Ground / groundwater / surface waters	Spread to land as part of disposal	**Preventative controls** • Staff training • Digesters have a maximum feed interlock ensuring that a set daily feed volume cannot be exceeded. This limit has been calculated to ensure digester stability and environmental safety. • HACCP monitoring. **In the event of an incident/accident** • Turn off digester feed. • Stop additional sludge imports until normal operational situation returns.	Highly Unlikely	Medium	Low risk
Failure of dewatering process leading to discharge to cake pad of cake with high water content	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • Liquid runoff from sludge cake pad collected and directed to WwTW for treatment. System has large storage and handling capacity. **In the event of an incident/accident** • Switch off centrifuge and identify cause of problem.	Unlikely	Minor/negligible	Negligible risk
Temporary cessation of land spreading e.g. due to extreme weather conditions, leading to build	Local air quality and global climate impacts	Air	**Preventative controls** • Cake storage is on a pad, which under normal circumstances, has spare capacity. • Additional storage is available at nearby YW sites. **In the event of an incident/accident** • Monitor available storage on cake pad and reduce/stop sludge imports as required.	Likely	Minor/negligible	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
up of digested sludge cake			• Divert sludge imports to alternative YW sites for storage.			
Very warm weather leading to increase in odour generation from sludge cake	Local air quality	Air	**Preventative controls** • Under normal circumstances only digested sludge is stored on cake pad under standard operating conditions. This has less odour potential than untreated sludge. • Only likely to happen during a prolonged of extreme weather event. **In the event of an incident/accident** • Initial response would be to review operating times and avoid cake generation during problematic weather events, considering both temperature and wind. • If this was not sufficient, YW would look to remove cake from site and store elsewhere.	Likely	Minor/negligible	Low risk
Odour control unit						
Failure of components within odour extraction and treatment systems leading to release of partially treated or untreated	Nearby human receptors Local air quality and global climate impacts	Air	**Preventative controls** • Regular operational checks on systems and process monitoring at OCU. • Inspection and maintenance schedule to ensure reliability of extraction and treatment system. **In the event of an incident/accident**	Unlikely	Mild	Low risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
odorous emissions to air			• Follow operational procedures to minimise generation of emissions until system is repaired.			
Failure of media within odour treatment system leading to release of partially treated or untreated, odorous emissions to air	Nearby human receptors Local air quality and global climate impacts	Air	**Preventative controls** • Regular operational checks and process monitoring at OCU. • Inspection and maintenance schedule to ensure reliability of extraction and treatment system. **In the event of an incident/accident** • Follow operational procedures to minimise generation of emissions until system is repaired.	Unlikely	Mild	Low risk
Contamination of ground/groundwater following accidental spillage of exhausted odour control media	Ground / groundwater / surface waters	Overland runoff / infiltration / drainage systems	**Preventative controls** • Operational controls in place for removal and disposal of exhausted media. • Area surrounding odour control unit, including areas where maintenance activities are undertaken are covered by hardstanding and surface water drainage is connected to the head of the works. • Only appropriately licenced operators used to remove waste from site. **In the event of an incident/accident** • Contain media to prevent pollution. • Arrange clean up and safe disposal of media as soon as is practicable.	Unlikely	Minor/negligible	Negligible risk

What harm can be caused and who can be harmed			Managing the risk	Assessing the risk (after preventative controls)		
Hazard	**Receptor**	**Pathway**	**Risk management**	**Probability of exposure**	**Environmental Consequence**	**What is the overall risk?**
What has the potential to cause harm?	**What is at risk? What do I wish to protect?**	**How can the hazard get to the receptor?**	**What measures will you take to reduce the risk? If it occurs – who is responsible for what?**	**How likely is this contact?**	**What is the harm that can be caused?**	**What is the risk that still remains?**
CHPs, Boiler and other gas consumers						
Excessive emissions to air from boilers and CHP e.g., due to equipment failure, poor performance or malfunction leading to incomplete or inefficient combustion	Nearby human receptors Local air quality and global climate impacts	Air	**Preventative controls** • Planned preventative maintenance in place for equipment to ensure assets continue to meet original specification on emissions. • Site operational knowledge supported through contracts with specialist providers. **In the event of an incident/accident** • Investigate cause and implement preventive measures, which may include system maintenance interventions.	Unlikely	Mild	Low risk

Risk Assessment Methodology

The risk assessment methodology employed for the accident management plan is summarised in Tables A to D below.

The overall risk rating for each of the identified risk scenarios is determined on the basis of the probability of the scenario occurring (the probability/likelihood score) and the environmental consequence(s) if the scenario were to occur (the consequence score). The probability and consequence categories used in this methodology are provided in Tables A and B below.

Table A: Classification of Consequences

Classification	Definition
Severe	• Acute risks to human health • Short-term risk of pollution of sensitive water resource (e.g. major spillage into controlled waters) • Impact on controlled waters e.g. large-scale pollution or very high levels of contamination • Catastrophic damage to buildings or property (e.g. explosion causing building collapse) • Ecological system effects – irreversible adverse changes to a protected location. Immediate risks
Medium	• Chronic risks to human health • Pollution of sensitive water resources (e.g. leaching of contaminants into controlled waters) • Ecological system effects – substantial adverse changes to a protected location • Significant damage to buildings, structures and services (e.g. damage rendering a building unsafe to occupy, such as foundation damage)
Mild	• Non-permanent health effects to human health • Pollution of non-sensitive water resources (e.g. pollution of non-classified groundwater) • Damage to buildings, structures and services (e.g. damage rendering a building unsafe to occupy, such as foundation damage) • Substantial damage to non-sensitive environments (unprotected ecosystems e.g. crops)
Minor/Negligible	• Non-permanent health effects to human health (easily prevented by appropriate use of PPE) • Minor pollution to non-sensitive water resources • Minor damage to non-sensitive environments (unprotected ecosystems e.g. crops) • Easily repairable effects of damage to buildings, structures, services or the environment (e.g. discoloration of concrete, loss of plants in a landscaping scene)

Table B: Classification of probability / Likelihood

Classification	Definition
High Likelihood	An event is very likely to occur in the short term, and is almost inevitable over the long term OR there is evidence at the receptor of harm or pollution
Likely	It is probable that an event will occur. It is not inevitable, but possible in the short term and likely over the long term
Unlikely	Circumstances are possible under which an event could occur. It is by no means certain that even over a longer period such an event would take place, and less likely in the short term
Highly Unlikely	Probability is so low that it is close to zero; It is improbable that an event would occur even in the very long term

Table C below provides the matrix used to identify the overall risk category using these consequence and probability categories.

Table C: Risk Matrix and Terminology Used for Risk Assessments

		Consequence			
		Severe	**Medium**	**Mild**	**Minor/Negligible**
Probability (Likelihood)	**High Likelihood**	Very high risk	High risk	Moderate risk	Moderate/Low risk
	Likely	High risk	Moderate risk	Moderate/Low risk	Low risk
	Unlikely	Moderate risk	Moderate/Low risk	Low risk	Negligible risk
	Highly Unlikely	Moderate/Low risk	Low risk	Negligible risk	Negligible risk

The overall risk categories are described in Table D below.

Table D: Description of Risk Categories

Term	Description
Very high risk	Severe harm to a receptor may already be occurring OR a high likelihood that severe harm will arise to a receptor, unless immediate remedial action works / mitigation measures are undertaken.
High risk	Harm is likely to arise to a receptor, and is likely to be severe, unless appropriate remedial actions / mitigation measures are undertaken.

	Remedial works may be required in the short term, but likely to be required over the long term.
Moderate risk	Possible that harm could arise to a receptor but low likelihood that such harm would be severe. Harm is likely to be medium. Some remedial works may be required in the long term.
Moderate / low risk	Possible that harm could arise to a receptor, but where a combination of likelihood and consequence results in a risk that is above low, but is not of sufficient concern to be classified as medium. It can be driven by cases where there is an acute risk which carries a severe consequence, but where the exposure is unlikely.
Low risk	Possible that harm could arise to a receptor. Such harm would at worse normally be mild.
Negligible risk	Low likelihood that harm could arise to a receptor. Such harm unlikely to be any worse than mild.

6. Accident and Incident Response

Accidents and Incidents are managed in accordance with the Incident Management policy and procedures and Emergency Planning manual.

YW utilises the Nintex app to report, record, manage and assess incidents and accidents. This is available on phones and handheld devices of YW staff and provides an auditable record for every incident. Relevant forms used to record accidents are available electronically via this system.

In the event of a significant incident a root cause analysis is conducted. Actions are identified, reported, recorded and communicated to prevent reoccurrence.

Complaints are typically received by YW central Customer Services team, where all complaints are logged on the ICE system. Complaints relevant to Lundwood STF are passed on to the Site Manager for further investigation. The Site Manager is responsible for ensuring that any complaint is investigated and, if found to be justified, that work is undertaken to resolve the issue, including liaising with the relevant regulatory bodies where appropriate. The Customer Service Team ensure an appropriate response to the complainant in a timely manner including, if and as appropriate, detailing the reason behind the issue and the actions taken to resolve the matter.

All complaints information is recorded on the ICE system in order that this can be monitored, reviewed and analysed.

If an incident with potentially significant environmental consequences occurs, YW will notify the Environment Agency without delay, and in accordance with the procedures and requirements specified in the site environmental permit.

7. Emergency contacts

Area	Contact
Lundwood STF Contacts	Site Manager: Mick Flanagan – 07790 617673 Site Optimiser: John Bullivant – 07790 617692
Barnsley Council	01226 787787
Environment Agency	0800 807060

8. Definitions

Definitions of Terms Used:	
Yorkshire Water	Yorkshire Water is used in this document to refer to Yorkshire Water Services Limited and all other subsidiary companies within Kelda Holdings.
Anaerobic Digestion	AD is used to refer to anaerobic digestion. The process which imported waste is subject to at this sewage treatment facility.
CHP	Combined Heat and Power

9. Compliance with this document

Colleagues shall comply with the requirements of this document, in line with the company Conduct Policy.

10. Assurance

Regular monitoring of compliance with these requirements shall be undertaken by the assurance providers documented as part of the Assurance Framework.

Any sampling that is undertaken will be taken in accordance with sampling procedures as documented in the internal guidance document Operator Self-Monitoring, which can be found on the Integrated Management System. Samples must be tested at a UKAS accredited laboratory.

11. Related Documents

N/A