



Environmental Site Management Plan

Accident Prevention and Management Plan: Beddington STW



Using this standard

This standard is controlled and managed by EMS & Air and Waste Permitting Teams, and a copy is held on SharePoint at the following location: [Environmental Management Systems](#)

If you have any feedback please send this to: airandwaste.permitting@thameswater.co.uk

This standard works in combination with other corporate documents including the Asset Standards, Site Operating Manuals, site Odour Management Plans, Health and Safety Standards, and regulatory permits.

Document Control & Procedures

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0 Document Confidentiality

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1 Glossary of Terms

| TERM | DESCRIPTION |
|-----------|---|
| AD | Anaerobic Digestion |
| CHP | Combined Heat and Power |
| DEFRA | Department for Environment, Food and Rural Affairs |
| EA | Environment Agency |
| EMS | Environmental Management System |
| EPR | Environmental Permitting Regulations |
| FFT | Flow to Full Treatment |
| ICA | Instrumentation Control & Automation |
| IED | Industrial Emissions Directive |
| LNR | Local Nature Reserve |
| LWS | Local Wildlife Site |
| NNR | National Nature Reserve |
| OCU | Odour Control Unit |
| OMC | Operational Management Centre |
| OMP | Odour Management Plan |
| PFT | Picket Fence Thickener |
| PM | Process Manager |
| PS | Pumping Station |
| PST | Primary Settlement Tank |
| Receptors | Sensitive receptors are any fixed buildings or installations where odour annoyance may occur, such as residential homes, schools, hospital, offices, shops or garden centres. Open areas such as playgrounds and public footpaths should also be listed where these are known to have been affected by odour. |
| SAP | Thames Water's enterprise resource and planning system |
| SAC | Special Area of Conservation |
| SCADA | Supervisory Control and Data Acquisition |
| SOM | Site Operating Manual |
| SPA | Special Protection Area |
| SSSI | Site of Special Scientific Interest |
| STW | Sewage Treatment Works |
| TW | Thames Water |
| UWWTD | Urban Waste Water Treatment Directive |

2 Executive Summary

In accordance with the consolidated IED Environmental Permit for Beddington; Waste BAT, specifically BAT1; and associated written management systems, this is the site management plan covering accident prevention and management. Thames Water Utilities Ltd is required to review this plan at least every 4 years, unless there are incidents, operational or managerial changes at the site which would require an earlier review.

The prime function of the sludge treatment facility at Beddington Sewage Treatment Centre is to capture the energy potential from the treatment of sewage sludges. The plant is run 24/7 due to the continuous supply of sewage received at the treatment works either from the surrounding catchment, or via tanker discharge.

This document forms part of the Thames Water Environmental Management System (EMS) for the permitted Sludge Treatment Centre (STC) within Beddington Sewage Treatment Works.

Thames Water is committed to continual environmental improvements, including minimising the risk of accidents both on the site and its operations and in the wider environmental setting. This commitment is delivered through efficient control of processes, capital investments, and environmental training.

This site management plan for accident prevention and management follows relevant guidance produced by the Environment Agency¹ and includes the following sections:

- This plan provides a list of off-site receptors (refer to Section 4.2);
- This plan provides details of the potentially polluting substances located at the site (refer to Section 4.3);
- This plan identifies potential accidents and states the likelihood and consequence of each accident (refer to Section 5);
- This plan states the measures taken to avoid accidents and measures taken to minimise the impacts of accidents on the environment (refer to Section 5);
- This plan outlines the reporting, recording and review steps to be taken should a potentially polluting incident occur (refer to Section 6); and,
- This plan includes reporting forms that should be used in the event of incident occurring (refer to Appendix B).

3 Process Responsibility

The Operational Manager for the site has overall responsibility for reviewing the processes on the site to minimise the risk of accidents and reduce the impact of any such accidents that occur. This document is reviewed 4-yearly, but the review process is ongoing as part of the regular performance monitoring for the site. This plan was prepared in October 2023 and is next scheduled for review in October 2027.

4 Accident Prevention

In accordance with Thames Water's health and safety obligations and commitments, the STC is to be operated in a manner designed to reduce the risk of accidents to staff, the site and the wider environment.

¹ Guidance 'Develop a management system: environmental permits' published 1st February 2016, last updated 4th August 2021.

As part of the design process for any new plant or equipment on site, a HAZOP review is undertaken to ensure that the risk of accidents and their impacts is reduced through design. The site has been assessed under DSEAR and appropriate zoning applied, with clear signage indicating the zones.

Regular maintenance of the installation, is carried out in accordance with the sites preventative maintenance programme, and the SOM. This ensures that the failures of plant are minimised over time and early remedial action implemented for any identified faults noted during maintenance.

4.1 Spill Prevention

The site is equipped with a number of spill kits and drain covers, located close to chemical and oil storage areas and tanks. Staff are trained in the use of these items to minimise the impact of spillages and risks to the works of chemicals or oils entering the site drainage system.

4.2 Off Site Receptors

The site is located within an industrial and commercial area between the towns of Carshalton (to the west) and Croydon (to the east) in the London Borough of Sutton. Immediately to the east of the site is the B272 road and then a large industrial/commercial estate. To the south are former sludge lagoons associated with the STW and residential properties. To the south-west and west are open green spaces of Beddington Park and Beddington Farmlands (a landfill site) and to the north is the Beddington Energy from Waste facility. The nearest residential receptors are approximately 130m to the east of the STC on the boundary of the wider STW.

A surface water body which is a small stream, Oily Brook, can be found approximately 20 m to the west of the installation and flows into the River Wandle which is approximately 420 m south of the installation.

Most of the STW and STC is within a Flood Zone 1, indicating that there is a low probability of river flooding (<1:1000 annual probability of flooding). However, assets within the STC including the digested sludge dewatering area and parts of the cake barn area are within a Flood Zone 2 indicating an increased risk of flooding, with between a 1 in 100 and 1 in 1,000 annual probability of river flooding.

Beddington STC is located is within an Air Quality Management Area (AQMA). The London Borough of Sutton has declared the Sutton AQMA for the whole of the Borough for both nitrogen dioxide NO₂ – 1-hour and Annual Mean, and for Particulate Matter PM₁₀ – Annual and 24-Hour Mean.

The site is not within a Source Protection Zone (SPZ).

There are five statutory designated habitat sites within the relevant distances of the site. The closest site is Wilderness Island Local Nature Reserve (LNR) which can be found approximately 1,300 m south-west of the site. Three further LNRs, The Spinney, Carshalton, Spencer Road Wetlands and Wandle Valley Wetland are found within 2 km of the site. A SAC, Wimbledon Common, is 7.8 km north-west of the site. There are 17 non-statutory designated local wildlife sites (LWS) within 2 km of the site, the closest of which is Beddington Park/Beddington Farmlands which include the area of the installation.

There are no Ramsar sites, SPAs or MPAs within 10 km of the site and no SSSIs or Ancient Woodland within 2 km of the site.

Designated site review

| Site Name | Designation | Direction from site | Distance from site |
|------------------|-------------|---------------------|--------------------|
| Wimbledon Common | SAC | North-west | 7,800 m |

| | | | |
|---|------------------|------------|-----------------------|
| Wilderness Island | LNR | South-west | 1,300 m |
| The Spinney, Carshalton | LNR | West | 1,600 m |
| Spencer Road Wetlands | LNR | North-west | 1,750 m |
| Wandle Valley Wetland | LNR | North-west | 1,900 m |
| n/a | MPA | | |
| n/a | Ramsar | | |
| n/a | SPA | | |
| n/a | SSSI | | |
| n/a | Ancient Woodland | | |
| List of Local Wildlife Sites | | | |
| Caraway Place Pond Bandon Hill Cemetery Carshalton Ponds, The Grove and All Saints Churchyard Beddington Farmlands Beddington Park The Spinney (Nightingale Road Bird Sanctuary) St Mary's Court Wildflower Area, Bute Road Queen Elizabeth Walk Duppas Hill Waddon Ponds Wandle Park Upper River Wandle Therapia Lane Rough Mill Green Land north of Goat Road Croydon Cemetery complex Mitcham Common | | | All sites <2,000 m |

4.3 Stored Substances

Site tank inventory

| Tank Purpose | Number | Operational Volume (m ³) | Construction |
|----------------------------|--------|--------------------------------------|--------------|
| Primary Sludge Buffer Tank | 1 | 443 | Steel |

| | | | |
|-------------------------------|---|--------------------|----------|
| Sludge Import Tank | 1 | 157 | Steel |
| Thickened Sludge Buffer Tank | 1 | 471 | Steel |
| Primary Digester Tank | 3 | 5,700 (1,900 each) | Concrete |
| Overflow Tanks | 2 | 50 (25 each) | Plastic |
| Secondary Digester Tank | 2 | 3,800 (1,900 each) | Concrete |
| Sludge Buffer Tank | 1 | 312 | Steel |
| Emergency Sludge Storage Tank | 1 | 2,750 | Steel |
| Liquor Buffer Tank | 1 | 350 | Steel |
| Digested Sludge Poly Silo | 1 | 24 tonnes | Steel |
| Diesel Tank | 2 | 100,000 litres | Steel |

5 Assessment

Risk Matrix and Terminology for Accident for Risk Assessment

| Likelihood ↓ | Consequence | | |
|--------------|-------------|--------|--------|
| | Low | Medium | High |
| Low | Low | Low | Medium |
| Medium | Low | Medium | High |
| High | Medium | High | High |

Classification of Likelihood

| Classification | Definition |
|----------------|------------|
|----------------|------------|

| | |
|---------------|---|
| Low | Probability of an event is low and likely only to occur in the long-term (a yearly basis or less frequent). |
| Medium | It is probable that an event will occur periodically in the medium-term (twice yearly basis). |
| High | An event is very likely to occur in the short-term (monthly or weekly basis) and is almost inevitable over the long-term OR there is evidence at the receptor of harm or pollution. |

Classification of Consequences

| Classification | Definition |
|-----------------------|--|
| Low | Impact is low or a minor, short-term nuisance. Minor release to a non-sensitive receptor or pollution of water course. Non-permanent health effects to human health (easily prevented by appropriate use of PPE). Minor surface damage to a building, structure, service or the environment which can be repaired immediately. |
| Medium | Impact is noticeable in the short to medium-term. Large release impacting on the receiving media which kills flora and fauna and requires remediation. Nuisance causing non-permanent health effects to human health. Damage to buildings, structures and services which prevents use in the short-term and/or requires a specialist repair. |
| High | Impact is significant, wide-ranging and long-lasting effect. Has either a chronic or acute impact on human health. Very large release that has a major impact on flora and fauna which may be very difficult to remediate. Significant damage to a single or multiple building, structure and service which prevents use over a long-term and may require complete replacement. May cause a long-term impact or contribute towards a global issue due to releases of greenhouse gases. |

The following categorisation of risk has been developed and the terminology adopted as follows:

| Term | Definition |
|---------------|--|
| Low | A level of harm is possible although this may not be noticeable to a receptor and would be a short-term event without lasting effects. Level of harm can be reduced using industry best practice and appropriate management techniques. |
| Medium | A level of harm may arise to a receptor which is noticeable although not long-lasting and may require some remedial actions in order to prevent re-occurrences. |
| High | A level of harm is likely to arise to a receptor that is severe causing significant harm to human health or the environment without appropriate remedial and mitigation measures being implemented. Remedial works to infrastructure and processes is required in the long-term. |

| Activity/Hazard | Environmental Impact (Pathway-Receptor) | Likelihood | Consequence | Risk | Risk Management | Residual Risk |
|--|---|------------|-------------|--------|---|---------------|
| Major fire and/or explosion causing the release of polluting materials to air, water or land. | <p>Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population</p> <p>Emissions to ground and ground water of digestate contaminating soil and/or groundwater. Run-off from site polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality.</p> <p>Injury to staff, fire fighters or arsonists/vandals.</p> | Low | High | Medium | <p>Follow site Incident Response Plan and inform relevant authorities.</p> <p>Management systems requires DSEAR assessment which is adhered to by site operations.</p> <p>Designated ATEX zones on site and lightning protection system in place around biogas holders. Fire alarm systems installed and maintained.</p> <p>Biogas contained within a closed system and monitored for safety and subject to a LDAR plan. Automatic cut off valve to biogas supply to stop biogas flows, electric temperature sensor, pressure monitors, flame arrestors, etc.</p> <p>Warning signs clearly displayed and staff wear gas alarms to alert to the presence of biogas. All visitors subject to site inductions and accompanied. Permit-to-work system in place.</p> <p>Preventative maintenance programme and maintenance plans are in place in order to maintain equipment effectively.</p> <p>Smoking only permitted in designated areas of site.</p> | Low |
| Minor fire causing the release of polluting | Emissions to air and dispersion leading to inhalation by local | Low | Medium | Low | Follow site Incident Response Plan and inform relevant authorities. | Low |

| | | | | | | |
|---|--|------------|---------------|------------|---|------------|
| <p>materials to air, water or land</p> | <p>human receptors. Respiratory irritation, illness and nuisance to local population</p> <p>Emissions to ground and ground water of digestate contaminating soil and/or groundwater. Run-off from site polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality.</p> <p>Injury to staff, fire fighters or arsonists/vandals.</p> | | | | <p>Management systems requires DSEAR assessment which is adhered to by site operations.</p> <p>Designated ATEX zones on site and lightning protection system in place around biogas holders. Fire alarm systems installed and maintained.</p> <p>Biogas contained within a closed system and monitored for safety. Automatic cut off valve to biogas supply to stop biogas flows, electric temperature sensor, pressure monitors, flame arrestors, etc.</p> <p>Warning signs clearly displayed and staff wear gas alarms to alert to the presence of biogas. All visitors subject to site inductions and accompanied. Permit-to-work system in place.</p> <p>Preventative maintenance programme and maintenance plans are in place in order to maintain equipment effectively.</p> <p>Smoking only permitted in designated areas of site.</p> | |
| <p>Failure to contain firefighting water</p> | <p>Emissions to ground and ground water of contaminated firefighting water entering soil and/or groundwater. Run-off from site to surface water courses.</p> <p>Harm to aquatic flora and fauna.</p> <p>Chronic effect on water quality</p> | <p>Low</p> | <p>Medium</p> | <p>Low</p> | <p>Likelihood of firefighting water being generated is low as the risk of fire is low.</p> <p>Follow site Incident Response Plan and inform relevant authorities.</p> <p>Site drainage returns to works inlet providing containment and treatment process for fire water.</p> | <p>Low</p> |

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|---|--|-----|------|--------|--|-----|
| | | | | | Arrange for off-site tankering of firefighting water, if required. | |
| Accidental explosion of biogas | <p>Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population.</p> <p>Injury to staff, fire fighters or arsonists/vandals.</p> <p>Pollution of water or land</p> | Low | High | Medium | <p>Follow site Incident Response Plan and inform relevant authorities.</p> <p>Management systems requires DSEAR assessment which is adhered to by site operations.</p> <p>Designated ATEX zones on site and lightning protection system in place around biogas holders. Fire alarm systems installed and maintained.</p> <p>Biogas contained within a closed system and monitored for safety. Automatic cut off valve to biogas supply to stop biogas flows, electric temperature sensor, pressure monitors, flame arrestors, etc. Lightning protection system installed</p> <p>Likelihood reduced by availability of multiple on site uses of biogas (CHP engines, boilers and standby biogas flares) and use of pressure release valves as a safety measure.</p> | Low |
| Significant leak of biogas to atmosphere | <p>Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population.</p> <p>Global warming potential of greenhouse gases.</p> | Low | High | Medium | <p>Site assets are protected by physical means to prevent vehicle strike and exposed pipework is guarded.</p> <p>Regular proactive and preventative maintenance, including a LDAR plan, and regular visual checks.</p> <p>PRVs are present to avoid overpressurisation of biogas system.</p> | Low |

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|---|--|---------------|---------------|-------------|--|---------------|
| <p>Leaks of emission to air, but principally NOx.</p> | <p>Emissions to air and dispersion leading to harm to protected nature conservation sites – SSSIs, SAC and SPA.</p> <p>Harm to protected site through toxic contamination, nutrient enrichment, disturbance etc.</p> | <p>Medium</p> | <p>High</p> | <p>High</p> | <p>Site is located within an AQMA that has been declared for nitrogen dioxide and PM.</p> <p>There are no SSSIs, SPAs or Ramsar sites within the relevant distances of the site but there is one SAC, Wimbledon Common, 7.8 km north-west of the site. LNRs and LWSs can be found within 2 km of the site, the closest being Wilderness Island LNR approx. 1.3 km to the south-west.</p> <p>Previous emissions modelling submitted shows that deposition and impacts on habitats sites are acceptable from an air quality perspective. There are no changes to emissions sources with this variation.</p> <p>Site operations will be subject to emission limits under current Regulations with infrastructure designed to minimise uncontrolled releases. Checks, monitoring and preventative maintenance will further minimise fugitive emissions</p> | <p>Medium</p> |
| <p>Spillage of raw materials during (e.g. diesel, polymer) during use, transfer and disposal operations.</p> | <p>Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses.</p> <p>Harm to aquatic flora and fauna.</p> <p>Chronic effect on water quality</p> | <p>Low</p> | <p>Medium</p> | <p>Low</p> | <p>The installation lies outside of any Groundwater Source Protection Zones (SPZ).</p> <p>Raw materials are stored on made ground, within bunded containers/silos or on bunds to contain spillages of 110% of the volume. Raw materials within the STC are stored away from water courses, which are more than 250 m outside of the installation boundary.</p> <p>Regular inspections for leaks and damage, with remedial action as required. Contents of bunds are regularly checked during environmental audits and</p> | <p>Low</p> |

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|---|--|------------|------------|------------|---|------------|
| | | | | | <p>after periods of heavy rainfall and emptied as required.</p> <p>In event of a spillage, follow site spillage response plan and inform relevant site personnel. COSHH data sheets available.</p> <p>Deliveries to site are made by approved suppliers. Use of raw materials is carried out by trained personnel or automatically controlled processes.</p> <p>In the event of a minor spillage, spill kits are provided around the site which can be used to contain a spillage and direct it towards site drainage if suitable. Site drainage returns to works inlet providing treatment process for suitable materials or arrange off-site tankering of waste, if required.</p> | |
| <p>Spillage of sludges or liquid during tanker transfer operations e.g. pipework leaks</p> | <p>Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses.</p> <p>Harm to aquatic flora and fauna.</p> <p>Chronic effect on water quality</p> | <p>Low</p> | <p>Low</p> | <p>Low</p> | <p>All pipework is standardised, including tanker couplings. Tanker offloading area for the inlet is of concrete construction with kerbing, bunding and drainage to prevent release to ground.</p> <p>In event of a spillage, follow site spillage response plan and inform relevant site personnel and relevant authorities.</p> <p>Spill kits are provided around the site which can be used to contain a spillage and direct it towards site drainage. Site drainage returns to works inlet providing treatment process for sludge or arrange off-site tankering of waste to another site.</p> | <p>Low</p> |

| | | | | | | |
|--|--|-----|------|--------|---|-----|
| <p>Spillage of sludges (e.g. sludge, digested sludge) during processing and transfer operations e.g. tank overflowing, pipework leaks</p> | <p>Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses.</p> <p>Harm to aquatic flora and fauna.</p> <p>Chronic effect on water quality</p> | Low | Low | Low | <p>Processing and transfer operations of waste materials is largely an automatic process controlled by the Process Controllers and parameters set within the SCADA system.</p> <p>Storage and digestion tanks are fitted with sensors linked to SCADA to monitor levels within a tank and can inhibit additional pumping if high alarms activate.</p> <p>Preventative maintenance programme and maintenance plans are in place in order to maintain equipment effectively and minimise the risk of spillages.</p> <p>In event of a spillage, follow site spillage response plan and inform relevant site personnel and relevant authorities.</p> <p>Spill kits are provided around the site which can be used to contain a spillage and direct it towards site drainage.</p> <p>Site drainage returns to works inlet providing treatment process for sludge or arrange off-site tankering of waste to another site. Sludge is relatively viscous and not highly mobile.</p> | Low |
| <p>Failure of sludge storage tanks / digester tanks</p> | <p>Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses.</p> | Low | High | Medium | <p>Follow site Incident Response Plan and inform relevant authorities.</p> <p>Regular infrastructure inspections for tanks and pipework and planned preventive maintenance</p> | Low |

| | | | | | | |
|--|---|------------|-------------|---------------|---|------------|
| | <p>Harm to aquatic flora and fauna.</p> <p>Chronic effect on water quality.</p> | | | | <p>system in place. Regular visual inspections for tanks and pipework and reactive maintenance.</p> <p>In-line flow monitoring in key locations and tank level monitoring would identify losses and enable a quick response. There is unmade ground surrounding the primary and secondary digesters. Spillages to unmade ground are removed as soon as possible to minimise infiltration. Spillages to made ground connect to the site drainage system, which returns to the head of the works for treatment.</p> <p>Sludge is relatively viscous and not highly mobile limiting the distance it can spread in a short time period.</p> | |
| <p>All on-site hazards: machinery</p> | <p>Direct physical contact with human population and /or livestock after gaining unauthorised access to the installation</p> <p>Bodily injury</p> | <p>Low</p> | <p>High</p> | <p>Medium</p> | <p>Direct physical contact is minimised by activity being carried out within enclosed digesters</p> <p>Site activities are managed and operated in accordance with a management system. Site physical security measures to prevent unauthorised access include perimeter fence, CCTV and access control to prevent unauthorised access.</p> <p>Assets are protected by various physical means including fencing, kerbing and bollards to prevent vehicle strikes.</p> <p>Site has a traffic management system to minimise the need to reverse. Use of banksmen as appropriate.</p> <p>Vehicles equipped with reversing alarms.</p> | <p>Low</p> |

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|--|---|------------|-------------|---------------|--|------------|
| <p>Vandalism causing the release of polluting materials to air (smoke or fumes), water or land.</p> | <p>Emissions to air and dispersion leading to inhalation by local human receptors. Respiratory irritation, illness and nuisance to local population</p> <p>Emissions to ground and ground water of digestate contaminating soil and/or groundwater. Run-off from site polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality.</p> <p>Injury to staff, fire fighters or arsonists/vandals.</p> | <p>Low</p> | <p>High</p> | <p>Medium</p> | <p>Unauthorised access is unlikely to happen and minimised by physical site security measures and effective management systems.</p> <p>Site physical security measures to prevent unauthorised access include perimeter fence, CCTV and access control to prevent unauthorised access.</p> <p>Additional security fences around some assets and other assets are kept within locked containers or buildings. Warning signs are displayed.</p> | <p>Low</p> |
| <p>Flooding from rivers, streams and groundwater</p> | <p>Emissions to surface water course and harm to aquatic flora and fauna. Infiltration to ground and groundwater. Harm to aquatic flora and fauna and chronic effect on water quality.</p> | <p>Low</p> | <p>Low</p> | <p>Low</p> | <p>Most of the STC is within a Flood Zone 1, indicating that there is a low probability of river flooding but there are parts of the STC including parts of the cake barn area within a Flood Zone 2.</p> <p>General wider works designed to minimise risk of localised works flooding due to storm surges.</p> <p>Potentially polluting substances stored within suitable containers and provided with bunds to contain spillages.</p> <p>Follow site Incident Response Plan and inform relevant authorities.</p> | <p>Low</p> |

| | | | | | | |
|---|---|--------|--------|-----|--|-----|
| | | | | | Take appropriate corrective and preventative actions to minimise environmental impact | |
| Flooding due to drain blockages and/or excessive rainfall causing localised on-site surface water flooding | Emissions to surface water course and harm to aquatic flora and fauna. Infiltration to ground and groundwater. Harm to aquatic flora and fauna and chronic effect on water quality. | Medium | Low | Low | <p>Site wide drainage system linked to main sewage works, which includes additional capacity in storm tanks within the works to manage additional flows.</p> <p>Follow site Incident Response Plan and inform relevant authorities.</p> <p>Take appropriate corrective and preventative actions to minimise environmental impact</p> | Low |
| Loss of mains power leading to failure of pumps / control systems and possible leaks and escape of sludge. | Emissions to ground and ground water of materials entering soil and/or groundwater. Run-off of liquids from site to surface water courses. Harm to aquatic flora and fauna. | Low | Medium | Low | <p>Site CHP engine is able to supply electricity to the site using biogas supplies on site. Emergency generators for the whole STW provide back-up power / contingency plans to provide power to critical operations in the event of an electrical outage.</p> <p>Failsafe systems in place to ensure sludge remains in situ in the event of a loss of power and that systems are promptly returned into operation.</p> <p>Site wide drainage system linked to main sewage works in the event of a spillage.</p> | Low |
| Acceptance of non-conforming wastes and wastes that are incompatible with the waste treatment process | Impacts on the normal performance of site treatment processes leading to emissions to ground and ground water contaminating soil and/or groundwater. | Low | Medium | Low | <p>Waste materials subject to waste pre-acceptance checks prior to delivery to site and subject to waste acceptance checks prior to discharge.</p> <p>Site has physical security measures to prevent unauthorised access to the site and all discharge points.</p> | Low |

| | | | | | | |
|--|--|-----|--------|-----|--|-----|
| | Harm to aquatic flora and fauna and chronic effect on water quality. Harm to aquatic flora and fauna | | | | <p>Waste can only be accepted at the site if it is suitable for the biological treatment process.</p> <p>Site processes are monitored automatically with alarms to alert staff in the event of abnormal situations.</p> <p>Staff conduct regular monitoring of all plant and equipment during routine site activities.</p> | |
| Vandalism | Damage to plant or equipment on site due to unauthorized access to the site. | Low | Medium | Low | <p>Site accessed restricted at all times, including electronically controlled gates and fencing. CCTV present at site.</p> <p>During normal operating hours, there is a culture of challenge around non-staff on site</p> | Low |
| Extreme weather conditions leading to abnormal conditions / release of potentially polluting substances | <p>Emissions to air and dispersion leading to inhalation by local human receptors and impacts on local ecological receptors. Respiratory irritation, illness and nuisance to local population. Harm to flora and fauna.</p> <p>Emissions to ground and ground water contaminating soil and/or groundwater. Run-off from site polluting surface water courses. Harm to aquatic flora and fauna and chronic effect on water quality.</p> | Low | Medium | Low | <p>The treatment process can be controlled from off-site locations in the event of the site being inaccessible due to extreme weather e.g. snow, flooding.</p> <p>Storage tanks for potentially polluting substances have been designed to relevant industry standards at the time of construction.</p> <p>Lightning protection is installed at relevant locations to protect assets from lightning strike.</p> <p>Potentially polluting substance are stored in accordance with MSDS requirements and away from sensitive receptors.</p> <p>Follow site Incident Response Plan and inform relevant authorities.</p> | Low |

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|--|--|--|--|--|--|--|
| | | | | | Take appropriate corrective and preventative actions to minimise environmental impact. | |
|--|--|--|--|--|--|--|

6 Reporting and Recording

6.1 Reporting

If an incident with potentially significant environmental consequences occurs, TWUL will notify the Environment Agency without delay. TWUL will also inform the Environment Agency should any complaints be received directly to the site as a result of the incident and will advise what remedial measures or actions have been taken to address the issue. Copies of material complaints received will be made available to the Environment Agency for review on request.

Details of the information that should be reported to the Environment Agency are found in the most recent variation of the site's Environmental Permit but is reproduced as Appendix B of this document.

6.2 Recording

The procedure employed by TWUL for recording, investigating and responding to incidents or breaches of the permit is the EPR notification procedure. Notifications must be made to the Environment Agency without delay and within 24 hours of the detection of an accident that has caused, is causing or may cause significant pollution or a breach of a limit specified in the site's Environmental Permit.

In the event of an accident, a Schedule 5 notification is completed following an incident with potentially significant environmental consequences. Relevant information that must be recorded includes:

- Date, time and location of the event;
- Substances involved, including estimated quantities; and
- Immediate measures taken to minimise environmental impacts.

A copy of the Schedule 5 notification form is provided in Appendix B. Part A must be completed within 24 hours of detection of the incident and Part B is completed as soon as practicable.

Records will be made of all incidents with potentially significant environmental consequences that occur at the installation. The associated actions arising will be held on Sharepoint. All records of events with potentially significant environmental consequences and the associated actions arising will be retained as required by the Environmental Permit. Where an incident with potentially significant environmental effects occurs, and the nature of the incident supports further investigation, a post incident review may be required.

6.3 Post-incident Review

Following an incident where potentially significant environmental effects occur, and the nature of the incident warrants it, an investigation will take place to determine both the root cause of the incident and how to prevent the incident reoccurring. The findings of the investigation will be reported to TWUL's management and shared with all relevant employees to enable the incorporation of good practice into future works.

A formal 'event learning' review of all on site processes and procedures will be undertaken by TWUL following any incident with potentially significant environmental consequences, if the processes are determined to be contributory to the cause of the incident. Any changes to processes or procedures required as a result of the formal review will be communicated to TWUL management and employees.

If, as a result of the incident, this Accident Management Plan is subject to revision, it should be updated as part of this post-incident review and communicated to relevant TWUL management and employees.

All safety equipment used to respond to an incident should be checked and replenished as required.

6.4 Contacts

The key emergency contacts in the event of an accident or incident are:

| Contact | Number |
|---|---|
| Thames Water Utilities Limited Customer Services | 08459 200800 |
| Environment Agency | 0800 807060 (incident number) 03708 506506 (normal number) |
| Emergency services | 999 |

Appendix A

Site Specific Key Contacts

| Role | Name | Email address | Phone Number |
|---|------|---------------|--------------|
| Area Operations Manager | | | |
| Site Performance Manager | | | |
| Technically Competent Manager | | | |
| Customer Centre | | | |
| Thames Water Environmental Compliance Manager | | | |
| Thames Water Health and Safety Manager | | | |

Appendix B

Notification Forms

To be inserted from relevant permit document.