

## Permitting decisions - Refusal

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We have decided to refuse the permit application for United Utilities Burnley Wastewater Treatment Works Sludge Treatment Facility operated by United Utilities Water Limited, application number EPR/HP3509MM/A001 (the Application)

The proposed facility location is Burnley Wastewater Treatment Works Sludge Treatment Facility, Woodend Lane, Off Barden Lane, Burnley, BB12 9DS indicatively shown edged in green on the plan attached at Annex 3 (the Site).

We consider that in reaching this decision we have taken into account all relevant considerations and legal requirements.

### Purpose of this document

This decision document provides a record of the decision making process. It:

- highlights key issues in the determination
- shows how the main relevant factors have been taken into account
- gives reasons for refusal
- shows how we have considered the consultation responses

This decision document should be read in conjunction with the refusal notice.

### Structure of this document

Part A: Administration issues

Part B: Process description

Part C: Reasons for refusal

Annex 1: Application Timeline

Annex 2: Consultation and engagement responses

Annex 3: Map showing location of the proposed Installation and surrounding area

## Part A: Administration Issues

### Legislative background

The Industrial Emissions Directive (IED) entered into force on 6 January 2011 and was transposed into UK law on 27 February 2013<sup>1</sup> by amendments to the Environmental Permitting Regulations 2010 (EPR 2010). The IED recast the Directive on Integrated Pollution Prevention and Control and introduced a revised schedule of industrial activities falling within scope of its permitting requirements. The schedule of waste management activities includes the recovery of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment, but excludes activities covered by the Urban Waste Water Treatment Directive<sup>2</sup> (UWWTD).

The IED seeks to achieve a high level of protection for the environment, taken as a whole, from the harmful effects of industrial activities. It does so by requiring each of the regulated industrial installations to be operated under a permit with conditions based around the use of best available techniques (BAT).

In July 2014, we deferred the need for the Water and Sewerage Companies (WaSCs) to submit permit applications for their facilities to allow for further consideration of whether they were already covered under the UWWTD. All UK environmental regulators subsequently concluded this was not the case, and therefore WaSC facilities fall within the scope of the IED.

On 2 April 2019, we confirmed to the WaSCs operating in England that their sewage sludge anaerobic digestion (AD) facilities needed to comply with the requirements of the IED<sup>3</sup>.

The EPR 2010 set a deadline of 7 July 2015 for newly listed installations such as those for biological treatment of waste for recovery, to obtain an environmental permit. Therefore, the implementation of this aspect of the IED had already been delayed by nearly four years at the point of our confirmation to the WaSCs on 2 April 2019.

We subsequently sought to ensure all sewage sludge AD facilities obtained and operated under an environmental permit in as short a timescale as could reasonably be achieved. We asked the WaSCs to provide a definitive list of all facilities used to carry out biological treatment of sewage sludge. A submission schedule was provided to the WaSCs, allowing applications for these facilities to be submitted to us in 3-month tranches between 1 April 2021 and 1 July 2022. The application for

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<sup>1</sup> Environmental Permitting (England and Wales)(Amendment) Regulations 2013

<sup>2</sup> [Directive 91/271/EEC concerning urban waste water treatment](#)

<sup>3</sup> [Directive 2010/75/EU - Industrial Emissions Directive](#)

the facility at the Site was listed to be submitted in Tranche 1 of this programme of work.

## **The Application**

The Application was scheduled to be submitted by 1 April 2021 and United Utilities Water Limited (“the Applicant”) submitted the Application to us on 11 June 2021.

Although the activity at the Site was not permitted at the time of the Application, it was already operational. The activity applied for, included an AD stationary technical unit (STU) and directly associated activities (DAA), including pre and post-digestion treatment, gas collection and storage, a combined heat and power (CHP) engine and boilers, an emergency flare, raw material storage and process/surface water collection.

The Application was also initially assessed as including the physical treatment of non-hazardous waste, however following further assessment this activity was determined as not required as part of the Application, or in any permit, since all waste would be received prior to the AD process and would be accepted under activity 5.4 A(1)(b)(i).

## **Duly making and consultation**

We did not have enough information to confirm duly made status of the Application<sup>4</sup> as initially submitted. A not duly made letter<sup>5</sup> was sent to the Applicant on 26 June 2021 outlining further information required to allow the Application process to continue to determination stage. We requested the Applicant submit the following additional information by 12 July 2021:

- Increase of the Application charge to include the assessment of a Bio-Aerosol Risk assessment.
- Confirmation of the National Grid Reference of the Site.
- Updated Site drainage plan.
- Completion and submission of a Bioaerosol risk assessment.

The Applicant responded to our request on 12 July 2021, with a payment of £1,241 being made on 15 July 2021.

Following further discussion with the Applicant, we agreed to confirm the Application as having been duly made on 15 July 2021.

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<sup>4</sup> Section 6.4 of [Environmental permitting: Core guidance \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/94444/environmental-permitting-core-guidance.pdf)

<sup>5</sup> Appendix 1: Not duly made letter dated 26<sup>th</sup> June 2021

On 2 September 2021, the internal and external engagement/consultation process on the Application commenced.

### **Information requests**

The determination of the Application has been protracted due to incomplete and insufficient responses from the Applicant to requests for further information and repeated Applicant requests for extensions of time to reply to Schedule 5 Notices. At the point of refusal, it is our view that insufficient information has been provided in support of the Application to enable any permit to be issued.

We requested information from the Applicant on several occasions during the determination process. This was requested through two Schedule 5 Notices (sent on 30 July 2021 (Schedule 5 Notice 1) and 8 December 2021 (Schedule 5 Notice 2)) and one less formal request for information sent on 2 December 2021 (together 'the Information Requests').

Following the response received to Schedule 5 Notice 1 we wrote to the Applicant on 5 November 2021 expressing our concerns regarding the lack of detail, their short notice requests for extensions of time to respond and deferring the provision of information in answer to questions without our prior agreement.

Following responses received to the Information Requests we sent a subsequent letter dated 15 February 2022 (the Final Opportunity Letter) to the Applicant, giving them a final opportunity to provide the information we considered necessary to be able to make a fully considered determination of the Application.

The Final Opportunity Letter requested the information which we considered had not been responded to or required further clarification following the Information Requests and outlined our concerns with deficiencies in the information provided by the Applicant in key areas of the Application. It repeated 19 questions from Schedule 5 Notice 1, and 8 questions from Schedule 5 Notice 2. The key issues for the Applicant to respond to included:

- Odour Management Planning.
- Compliance with BAT Conclusions 19c and 19d in relation to containment and secondary containment.
- Compliance with BAT Conclusions 3, 6, and 7 in relation to the characterisation and identification of indirect emissions (wastewater) to water returned to the wastewater treatment works.
- Waste pre-acceptance and waste acceptance.

In the Final Opportunity Letter we gave the Applicant a response deadline of 18 March 2022, stating that after this deadline, we would continue to determine the Application on the basis of the information we had, and that we would not be making further requests for information.

We have included in Annex 1 a timeline in chronological order for the Information Requests. This timeline also outlines the Applicant's responses and multiple requests for extensions of time to reply.

## **Summary**

Despite having had ample opportunity to do so we do not consider that the Applicant has satisfactorily responded to all the issues we have raised in relation to the Application for the reasons set out in more details in Part C below.

We also consider that if we had continued to provide further opportunities to the Applicant to address the identified deficiencies, we would still need to request a significant amount of additional information and potentially re-consult. This is due to the significant revisions required to the submitted management plans and further information required to be provided in relation to containment and odour.

In our view, the information provided in the Application, the responses to the Information Requests and the Final Opportunity Letter did not demonstrate that the proposal in the Application meets BAT nor proposed suitable alternative measures to provide at least the same level of environmental protection as is provided at existing permitted sites.

We consider that we have afforded the Applicant numerous opportunities to provide further information to a satisfactory standard so as to enable us to make a properly informed determination of the Application. This information has not been forthcoming. We consider that we have offered a greater degree of flexibility and advice to the Applicant than would normally be given to applicants during a determination of this nature.

We have determined the Application based on the information provided by the Applicant and consequently, we have decided to refuse the Application.

## **Part B: Process description**

### **Location**

The Site is located approximately 2.5 km north of Burnley town centre within a meander of the River Calder, which is 90 m to the west and 85 m to the southeast. (see the Plan at Annex 3). The surrounding area is agricultural, with some domestic and farm properties within 500 metres. The National Grid Reference for the site is SD 82740 35225.

There are several statutory and non-statutory habitats sites within the applicable screening distances from the Site. Screening distances for emissions to air are set out in our guidance [Air emissions risk assessment for your environmental permit - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit), and are identified as 10km for Special Protection Areas (SPA), Special Areas of Conservation (SACs) and Ramsar sites (protected wetlands) and 2km for Sites of Special Scientific Interest (SSSIs) and local nature

sites. Under our guidance [Risk assessments for your environmental permit - GOV.UK \(www.gov.uk\)](http://www.gov.uk) protected sites and species should also be identified to ensure that the proposed activity will not cause damage.

As part of the Application, the following habitat sites were identified to be applicable within the relevant screening distances.

- Special Areas of Conservation (SAC)
  - South Pennine Moor – 6,600m away
- Special Protection Area (SPA)
  - Pennine Moors Phase 2 – 6,600m away
- 11 Local wildlife sites (within 2km from the Site)
- 5 Ancient Woodland sites (within 2km from the Site)
- 3 Protected species
- 2 Protected Habitats

### **Proposed treatment operations**

The purpose of the Application is to enable acceptance of up to 630,720 wet tonnes per year of indigenous (produced at the adjacent Waste Water Treatment Works (WwTW)) and imported raw sludge. This Site can only lawfully undertake the activities applied for in accordance with a permit issued under the Environmental Permitting Regulations 2016 (EPR2016), however, the Site does not currently have a permit in place to undertake them. However, as detailed in Part A above, the operations set out in the Application are already being undertaken on the Site, and as such we have written in the present tense.

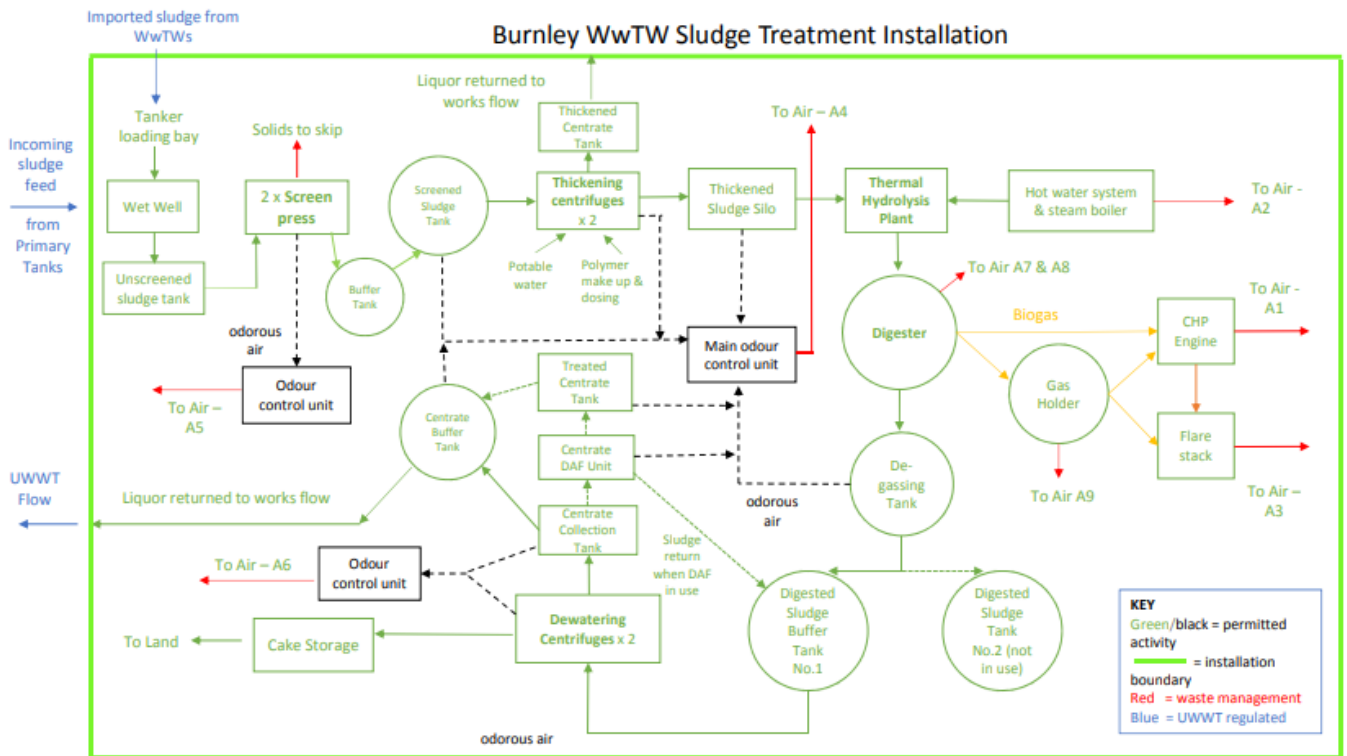
Indigenous and imported sludge is screened and thickened on Site. Following screening, the sludge is treated on Site by a centrifuge process to thicken the sludge by removing water (known as centrate). The centrate is then returned to the inlet of the adjacent WwTW for full treatment (this can be either a direct discharge or via a dissolved air flotation (DAF) plant for solids removal). The centrifuged sludge is then batch fed into a thermal hydrolysis plant. The thermal hydrolysis process sterilises the sludge and reduces its viscosity. Steam and heat are provided by a dedicated steam boiler and a CHP engine.

From the thermal hydrolysis plant, the sludge is cooled and fed into a digester tank where it undergoes AD. The current operational capacity of the digester is 90,000 tonnes per year in one digester. The sludge is treated on site by a further centrifuge process to remove water, producing a sludge cake that is spread to land.

Biogas produced during the AD process is combusted in a CHP engine. Excess biogas generated in the digester is stored on site in a gas holder.

All liquid process wastes that are returned to the adjacent WwTW, are discharged through an enclosed drainage system.

**Figure 1 – Burnley WwTW Sludge Treatment Installation**



Source – Installation activity process flow received 18 March 2022.

## Part C: Reasons for Refusal

### Decision

The Application is refused. The primary reasons for refusal are:

- The Applicant has not satisfactorily demonstrated they are using BAT to prevent, or where that is not practicable, reduce diffuse emissions to air, in particular of dust, organic compounds and odour in relation to the containment, collection and treatment of diffuse emissions through techniques such as:
  - The storage, treating and handling of waste material that may generate diffuse emissions in enclosed equipment.
  - Collecting and directing diffuse emissions to an appropriate abatement system.
- The Applicant has not satisfactorily demonstrated they are using BAT to prevent, or where that is not practicable, reduce emissions to soil and water in relation to:
  - The provision of impermeable surfaces.
  - The provision of techniques to reduce likelihood and impact of overflows and failures from tanks and vessels.
  - The design and maintenance provisions to allow detection and repair of leaks.

Secondary containment, and the containment of diffuse emissions are the primary reasons for reaching the decision to refuse the Application. On the basis of the information provided we do not consider it appropriate to grant a permit. We do not consider it possible to resolve the identified deficiencies by using improvement conditions, pre-operational conditions, or compliance visits/checks.

We take this viewpoint as the Applicant has not demonstrated the use of BAT or proposed suitable at least equivalent alternatives. Where alternatives have been proposed they are vague and non-committal with proposed timescales for implementation by 2026 that are unacceptable. We have provided further explanation for our decisions in relation to the use of improvement conditions, pre-operational conditions, or compliance visits/checks as part of our explanation below.

We may set improvement conditions where there is sufficient information in an application to determine it, but we require an applicant to examine some issues further or take steps which it cannot reasonably be expected to take before a permit is issued. It is inappropriate to set improvement conditions to obtain information that should be assessed during the application determination stage.



There are other aspects of the Application we considered have not been satisfactorily addressed by the Applicant during determination. However, had we considered it to be possible for a permit to have been granted, we consider it may have been possible and appropriate to resolve these issues using improvement conditions, pre-operational conditions, or compliance visits/checks, as explained later on in this document.

### **How we reached our decision**

In determining the BAT for the Site, we primarily used the following guidance documents:

- Waste Treatment BAT Conclusions as described in the Commission Implementing Decision (the BAT Conclusions)
- BAT Reference Document for Waste Treatment (the BREF)
- Containment systems for the prevention of pollution – Secondary, tertiary and other measures for industrial and commercial premises, dated 2014 (“CIRIA C736”)

Further guidance used included:

- H4 Odour Management – how to comply with your environmental permit
- Appropriate measures for the biological treatment of waste
- Anaerobic Digestion and Bioresources Association (ADBA) Tool
- EPR 6.09 sector guidance note. How to comply with your environmental permit for intensive farming. Appendix 9: Producing a proposal for covering slurry stores

### **Control of Diffuse Emissions to Air from open tanks**

Emissions to air in relation to feedstock controls, storage, ineffective processing and or ineffective abatement systems can cause pollution. The control of diffuse emissions to air is a fundamental principle in pollution prevention at industrial sites and waste management facilities. The containment and collection of diffuse emissions is considered to be BAT for the waste treatment sector and is a standard requirement of an environmental permit.

The Site stores and treats significant volumes of sludge and liquids that have the potential to cause pollution through the release of diffuse emissions if systems are not effectively implemented to ensure adequate containment and/or abatement.

### **BAT Conclusion 14 requirements**

BAT Conclusion 14 of the BREF for Waste Treatment states:

“In order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of the techniques....”, as listed in the BAT Conclusion.

An extract from the appropriate techniques listed in BAT Conclusion 14 for the prevention, or where that is not practicable, the reduction of diffuse emissions to air from open tanks is set out in Table 1 below.

**Table 1: BAT Conclusion 14 relevant techniques**

Technique		Description	Applicability
d	Containment, collection and treatment of diffuse emissions	<p>This includes techniques such as:</p> <ul style="list-style-type: none"> <li>• storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment (e.g. conveyor belts);</li> <li>• maintaining the enclosed equipment or buildings under an adequate pressure;</li> <li>• collecting and directing the emissions to an appropriate abatement system, via an air extraction system and/or air suction systems close to the emission sources</li> </ul>	<p>The use of enclosed equipment or buildings may be restricted by safety considerations such as the risk of explosion or oxygen depletion. The use of enclosed equipment or buildings may also be constrained by the volume of waste.</p>

The Applicant did not submit proposals or provide any evidence explaining why such proposals were unnecessary or inapplicable in relation to the containment, collection and treatment of diffuse emissions from open tanks on the Site. In the absence of any sufficient justification to the contrary we consider the techniques listed in BAT Conclusion 14d to be appropriate techniques to demonstrate BAT to prevent or, where that is not practicable, to reduce diffuse emissions to air.

In response to the Final Opportunity Letter the Applicant increased the proposed permit boundary to include the Unscreened Sludge Tank and Centrate Collection Tank which had been omitted from the previous submission. On assessment of these tanks, it was noted that the Unscreened Sludge Tank was open which contradicted the Applicants previous statements in the Application support document dated June 2021, that “All treatment tanks and pipework are enclosed”.

As stated in BAT Conclusion 14d, we recognise that the use of enclosed equipment or buildings may be restricted by safety considerations, such as the risk of explosion or oxygen depletion, but the Applicant must justify the use of techniques that are not BAT and demonstrate that the proposed alternative techniques will adequately control the pollution risk to a standard at least equivalent to BAT. To demonstrate this, the Applicant will either have to prove there is no risk or that suitable and sufficient measures are, or will be, in place. The Applicant has not demonstrated how they would prevent or, where that is not practicable, reduce diffuse emissions to air in line with BAT requirements or proposed suitably at least equivalent alternative measures for open tanks.

The Applicant has not submitted proposals to comply with BAT Conclusion 14d for the Unscreened Sludge Tank. They did not demonstrate how they would store, treat and handle unscreened sludge that may generate diffuse emissions in enclosed equipment (it is proposed to be stored in an open tank), or provide an appropriate alternative at least equivalent level of protection. We do not consider that the Applicant has demonstrated that the risk posed by the diffuse emissions from open tanks will be controlled by suitable techniques, which are identified in BAT Conclusion 14d as:

- Storing, treating and handling waste and material that may generate diffuse emissions in enclosed buildings and/or enclosed equipment
- Maintaining enclosed equipment or buildings under an adequate pressure
- Collecting and directing emissions to an appropriate abatement system, via an air extraction system and/or air suction systems close to the emission sources

In fact, waste and material that may generate diffuse emissions is proposed to be stored in an open tank outside of any building. No proposals are made to maintain the tank under any kind of pressure and no collection, direction and abatement system close to the emission sources is in place or proposed.

We do not have sufficient information to assess and have not been provided with proposals on which we could impose, an improvement condition. Whilst it may be possible to use an improvement condition to allow time for BAT to be achieved, we need to be satisfied it will be achieved. It is not suitable or appropriate to use improvement conditions as an opportunity for an applicant to work out how they will demonstrate BAT after an application has been consulted on and determined.

For a pre-operational condition, we need to be satisfied in principle, in advance of operation that the proposals are BAT even if some of the fine detail can be provided later. As explained earlier, the facility is already operational so a pre-operational condition for the existing open tanks cannot be imposed.

## **Containment**

Containment is a fundamental principle in pollution prevention at industrial sites and waste management facilities. We assess containment provisions when determining permit applications. Secondary containment is BAT for the waste treatment sector and is a standard requirement of an environmental permit. This section of the decision document explains why we do not consider that the Applicant has demonstrated the use of BAT in relation to containment. The Applicant attempted to consider alternatives to BAT requirements for secondary containment, however, the information submitted provided further evidence demonstrating that without effective secondary containment infrastructure, there could be significant pollution at sensitive receiving environments, in particular the River Calder.

The Site stores and treats significant volumes of sludge and liquids that have the potential to cause pollution to the environment, in particular, land and water

receptors. The Site is co-located with a WwTW within a meander of the River Calder, which is 90 m to the west and 85 m to the southeast. The surrounding area is agricultural, with some domestic and farm properties within 500 metres. The Site is an existing operation and has little in the way of secondary containment provision. Impermeable and permeable surfacing in place across the Site would provide little protection to receptors in the event of a loss of containment, and underground and partially submerged tanks on Site have no leak detection measures in place.

The most likely receptors that we consider could be impacted by a loss of containment include groundwater (aquifers), watercourses, conservation designations (SSSI, SAC, SPA, Ramsar, protected habitats and protected species), the adjacent WwTW and human receptors such as nearby residential and commercial premises.

Given the number, significance, and complexity of the WaSC sludge AD facilities that are being required to be permitted as a result of the implementation of the IED, we provided WaSCs (including the Applicant) with additional support and advice, including two workshops specifically about secondary containment on what an applicant should have regard to when assessing their facilities. We consider that the advice, and timescales afforded to the WaSCs (including the Applicant) to submit supporting information, is above and beyond that which would typically be given to applicants for environmental permits generally.

For existing operational plant and infrastructure, we have required that an assessment of the current operational facilities be undertaken in line with CIRIA C736 requirements, with alternative proposals submitted to provide at least an equivalent level of environmental protection for assets which do not or cannot meet indicative BAT. For new plant and infrastructure, we require applicants to design infrastructure and plant to meet BAT requirements taking into account relevant guidance such as CIRIA C736. Therefore, new plant and infrastructure should be compliant with BAT from the date of permit issue.

We advised the WaSCs (including the Applicant) to provide two main components of assessment to demonstrate and identify the class of containment ('class of containment' is defined in CIRIA C736) required for:

- the existing plant and infrastructure, and where this class was not met for existing plant and infrastructure, provide measures to provide an at least equivalent level of environmental protection for identified receptors
- new plant and infrastructure

The two components are:

- Containment assessment against the recommendations of CIRIA C736 guidance - Containment systems for the prevention of pollution: Secondary, tertiary and other measures for industrial and commercial premises. This guidance is widely recognised as the industry standard for containment systems.

- Completion of the ADBA tool to identify sources, pathways and receptors, and risks.

We also advised that a spill modelling assessment needed to be provided to support this, which could demonstrate the effectiveness of current containment measures and any identified improvements.

We advised the WaSCs (including the Applicant) of the requirements of containment assessments on multiple occasions, including:

- At a workshop held by Water UK in February 2020 (Water UK members are UK water and wastewater service suppliers for England, Scotland, Wales and Northern Ireland, the Applicant is a member of Water UK) – Presentation Title: Permitting Overview – Including section on containment – Surfacing, bunding and capacity, presented by a Senior Permitting Officer – Environment Agency National Permitting Service – Installations.
- Written advice sent in March 2021 by the Environment Agency including.
  - Specific sector pre-application advice note.
  - BAT gap analysis template tool.
- Presentation on 14 July 2021, delivered to Water UK, Titled: IED Permitting TaF + Spill Modelling. Attended by the Applicant, in which spill modelling was specifically discussed, along with a reiteration of application requirements. Spill modelling seminar presented by David Cole – Member of the Project Steering Group of CIRIA C736.

The details requested in the Information Requests specific to this Application are in addition to the general information and guidance provided to WaSCs (including the Applicant) on the usual requirements for applications referred to above.

There are also various additional references to containment in guidance that is widely disseminated in the industry including:

- Waste Treatment BAT Conclusions.
- [Environmental permitting guidance on the control of emissions \(gov.uk\)](#).
- How to comply with your environmental permit. Additional guidance for: Anaerobic Digestion Reference LIT 8737 Report version 1.0 dated November 2013.
- [Appropriate measures for the biological treatment of waste](#) – consultation document and response comments.
- [Emissions control - Non-hazardous and inert waste: appropriate measures for permitted facilities](#) - This is not directly applicable to biological treatment but will be replicated in the appropriate measures as mentioned in the above bullet point.

- SR2021 No 10: anaerobic digestion of non-hazardous sludge at a waste water treatment works, including the use of the resultant biogas. This specifically applies to sludge AD facilities.

### BAT Conclusion 19 requirements

BAT Conclusion 19 of the BREF for Waste Treatment states:

“In order to optimise water consumption, to reduce the volume of wastewater generated and to prevent or, where that is not practicable, to reduce emissions to soil and water, BAT is to use an appropriate combination of the techniques...”, as listed in the BAT Conclusion.

The appropriate techniques for the prevention, or where that is not practicable, the reduction of emissions to soil and water from primary risks identified as tank failure, leakage, and the transfer and handling of wastes and raw materials are listed in an extract set out in Table 2 below.

**Table 2: BAT Conclusion 19 relevant techniques**

Technique		Description	Applicability
c	Impermeable surface	Depending on the risks posed by the waste in terms of soil and/or water contamination, the surface of the whole waste treatment area (e.g. waste reception, handling, storage, treatment and dispatch areas) is made impermeable to the liquids concerned.	Generally applicable.
d	Techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels	Depending on the risks posed by the liquids contained in tanks and vessels in terms of soil and/or water contamination, this includes techniques such as: <ul style="list-style-type: none"> <li>• overflow detectors;</li> <li>• overflow pipes that are directed to a contained drainage system (i.e. the relevant secondary containment or other vessel);</li> <li>• tanks for liquids that are located in a suitable secondary containment; the volume is normally sized to accommodate the loss of containment of the largest tank within the secondary containment;</li> <li>• isolation of tanks, vessels and secondary containment (e.g. closing of valves);</li> </ul>	Generally applicable.
h	Design and maintenance provisions to allow detection and repair of leaks	Regular monitoring for potential leakages is risk-based, and, when necessary, equipment is repaired. The use of underground components is minimised. When underground components are used and depending on the risks posed by the waste contained in those components in terms of soil and/or water contamination, secondary	The use of above-ground components is generally applicable to new plants. It may be limited

		containment of underground components is put in place.	<p>however by the risk of freezing.</p> <p>The installation of secondary containment may be limited in the case of existing plants.</p>
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## CIRIA C736

CIRIA C736 is considered the industry standard of choice and is based on the source-pathway-receptor approach to risk assessment. It provides a clear methodology for demonstrating BAT, appropriate measures and compliance with permit conditions.

It is applicable for identifying and managing the risk of storing substances which may be hazardous to the environment and applies to everything from small commercial premises to large chemical facilities. It primarily considers the potential consequences of tank failure and provides a risk assessment methodology to support a classification system for containment, providing different levels of performance for different risks. The aim is to break the pathway between source and receptor.

The guidance provides containment options and examples of good practice, but it is not prescriptive and there may be circumstances where it could be appropriate to use other methods where at least an equivalent level of environmental protection is provided.

Due to the nature of sewage sludge, cake or liquor, it is clear that this would be considered to be both a short and long-term hazard to the environment if released. Given the locations of sites that deal with these materials generally, it is reasonable to conclude that any major tank failure at an individual site has the potential to cause significant damage to sensitive receptors.

Where CIRIA C736 measures are not considered to be relevant or appropriate for a specific facility, an explanation should be provided using a risk-based approach. For existing facilities where measures cannot easily be achieved, we expect alternative measures to be proposed which achieve at least an equivalent standard to provide the same level of environmental protection. It should be recognised however that CIRIA C736 includes specific guidance for operators who need to implement secondary containment provisions at existing facilities.

Newly built facilities and assets should be designed and built to CIRIA C736 report recommendations or to at least an equivalent approved standard. Newly built facilities and assets not designed and built to CIRIA C736 report recommendations, or to at least an equivalent standard would not be considered to provide suitable

primary and secondary containment, and as such would not comply with BAT. Existing facilities may be unlikely to be compliant with CIRIA C736 due to the viability of retrofitting to meet the recommendations. However, the same containment assessments are still required, and improvements should be proposed to demonstrate at least equivalent appropriate measures of environmental protection.

### **ADBA tool and guidance**

The ADBA tool and guidance have been specifically designed as a guide for secondary containment for anaerobic digestion. The guide states “Both the guide and the classification tool draw upon the principles and methodologies within CIRIA C736. The principles within CIRIA C736 are generally accepted as good practice in the design and construction of containment systems. The principles of CIRIA C736 are distilled into this accessible guide, which attempts to draw out the parts relevant to the AD sector.”

The tool itself is clearly set out to provide an inventory of sources, pathways and receptors and aligns with the containment system class types in CIRIA C736. It provides risk ratings and allows mitigation measures to be considered.

### **Alternative assessment methods**

Where our guidance refers to CIRIA C736 it also allows for the use of other at least equivalent approved standards. This provides operators/applicants with the flexibility of using other standards, but they must offer at least the same level of environmental protection.

Where CIRIA C736 and ADBA tool assessments, or at least equivalent approved standards, are not provided, it is difficult or impossible to satisfactorily assess permit applications for compliance with BAT, appropriate measures, or an environmental permit.

### **Summary Application information**

The Applicant did not submit appropriate proposals or provide any evidence explaining why containment and secondary containment proposals were unnecessary in the Application to meet BAT Conclusion 19 or equivalent. This is specifically in relation to the prevention or where that is not practicable the reduction of emissions to soil and water from primary risks identified as asset/tank failure, leaks, and the transfer and handling of wastes and raw materials in line with BAT requirements. In the absence of any sufficient justification to the contrary we consider techniques in BAT Conclusions 19c, 19d and 19h to be an appropriate combination of techniques in this case to demonstrate BAT to prevent pollution of soil and water.

We requested information about this in Schedule 5 Notice 1 through questions 32, 33, and 36 and Schedule 5 Notice 2 through questions 16 and 18. The questions were as follows:



- Q32 - The provision of a site plan showing areas of impermeable and permeable surfaces.
- Q33 - A request to explain how leak detection and maintenance would be carried out for underground tanks and pipes to ensure that contamination to groundwater and soil would be managed.
- Q36 - The provision of a risk assessment, and analysis of containment measures on site in line with CIRIA C736 guidance, requesting where guidance could not be met, the proposal of alternative measures that would achieve the same level of environmental protection.
- Q16 – Confirmation that the cake storage pad complies with CIRIA C736 requirements, and how joints are sealed to stop pollution.
- Q18 – Information on underground tanks and pipework, including maintenance schedules, the last inspection and results, and how leak detection is carried out.

We again requested information on 2 December 2021 by e-mail in relation to question 32 and 36 of Schedule 5 Notice 1 as the information submitted by the Applicant had not addressed the questions we had raised.

We provided the Applicant a final opportunity to provide the information requested in the Final Opportunity Letter, in which we stated that after the response deadline in that letter (18 March 2022), we would continue to determine the Application on the basis of the information we had received by then.

The Applicant has been given multiple opportunities to provide the requested information over an extended period. Table 3 below summarises the information submitted by the Applicant during the determination in relation to containment.

**Table 3 – Requests and responses to questions in relation to BAT Conclusion 19**

Originally requested	Question	Response/document provided	Date provided
Schedule 5 Notice 1, dated: 30/07/21	Q32 – Permeable and impermeable surfacing	IED – Site Surveys and Permitting Burnley WwTW Site Surfacing plan.	18/03/2022
Schedule 5 Notice 1, dated: 30/07/21	Q33 – Leak detection and maintenance of underground tanks	Applicant provided a part response advising that further information would be submitted as part of the containment assessment report provided in response to question 36 of Schedule 5 Notice 1. On assessment of this report, this	20/10/2021

		question had not been addressed.	
Schedule 5 Notice 1, dated: 30/07/21	Q36 – Containment	EQRA for Burnley Wastewater Treatment works, Ref: 331001867R4 D1, dated; November 2021. (25 pages)	30/11/2021
		ADBA Containment Classification Tool	21/01/2022
		EQRA for Burnley Wastewater Treatment works, Ref: 331001867R5, dated; March 2022. (197 pages)	18/03/2022
		Secondary Containment Modelling Assessment, revision 1, dated; 18/05/2022	27/05/2022
		Written response addressing issues raised in letter dated 15/02/2022.	18/03/2022
Schedule 5 Notice 2, dated: 08/12/2021	Q16 – Cake storage pad	Advising that the applicant considers that the cake pad is designed to CIRIA C736	21/01/2022
Schedule 5 Notice 2, dated: 08/12/2021	Q18 – Underground tanks and pipework	Written response referring to CIRIA C736 assessment report.	21/01/2022

## Our assessment

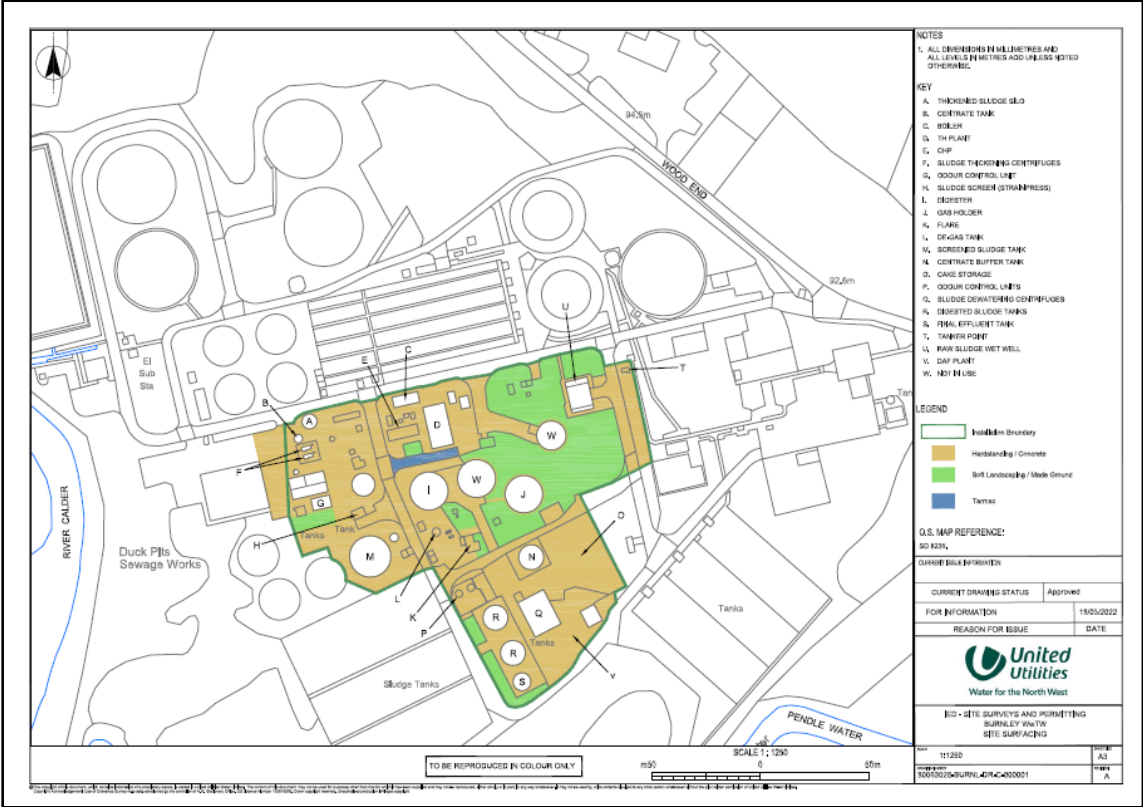
### BAT Conclusion 19c – Impermeable surfacing

We consider that the Applicant has not demonstrated how they would meet the requirements of BAT Conclusion 19c. Nor have they, in the alternative, demonstrated either that this BAT requirement is not applicable, or provided suitable alternative measures that would provide at least the same level of environmental protection for emissions to soil and water from key risks. These were identified by the Applicant in table 11 of the Application Support Document as failure of transfer pipework on the installation and loss of containment of tanks / vessels. BAT Conclusion 19c is generally applicable to all sites including existing sites.

Impermeable surfacing is required in operational areas to prevent soil and water contamination. The Applicant stated in their Application Support Document dated June 2021 that “The majority of the installation area is hard surfaced so that it is impermeable. However, as is common on such sites there are also some gravelled areas which are more vulnerable to spillages”. The Site surfacing plan identified

areas within the proposed permitted boundary that are “Hardstanding / concrete”, “Soft Landscaping / made ground” or “Tarmac” which were not identified as impermeable.

**Figure 2 – Site Surfacing Plan**



Source – IED – Site Surveys and permitting Burnley WwTW Site surfacing received 18/03/2022

The Applicant identified within the Secondary Containment Modelling Assessment (18 May 2022) that “spills may pool and flow to permeable and impermeable areas of the STC (Sludge Treatment Centre)”. We consider that due to the nature of sewage sludge, cake or liquor, this would be considered a short and long-term hazard to the environment if released.

The Applicant advised further in the Secondary Containment Modelling Assessment (18 May 2022) that “United Utilities considers that in the case of Burnley STC, a sludge spill onto an unmade grass or gravel area will be avoided wherever possible however in some cases it could form part of an acceptable control option” outlining factors that the Applicant had used to base this decision on which included:

- Engineering standards and ongoing maintenance plans to ensure that asset health issues associated with tanks are rare, and if they were to occur, are dealt with promptly.
- Catastrophic failure of a tank, or multiple tanks, is a high consequence but extremely rare event.
- The site is either manned, or when not, monitored by the Integrated Control Centre on a 24/7 basis using SCADA and critical process alarms. A

significant spill would be identified quickly, and the spill management procedure initiated, ensuring a rapid clean up. SCADA controls would also, via a number of surrogate metrics, such as level monitoring, transfer, pump and valve status, provide rapid process control indications of certain loss of containment scenarios.

- A fleet of sludge tankers across the region which could form part of operational response to sludge spills.
- Increasing the area of hard standing would reduce rainwater dispersal through infiltration and increase the amount of rainwater flow collected and returned to the WwTW through surface water drainage.
- Large amounts of concrete involved would incur high capital and carbon costs, impacting United Utilities specific aim of achieving net zero carbon emissions by 2030.
- The site geology is underlain by deposits including 5-0 m of Glacial Till above 3-4 m of gravels. At the surface are 4-5 m of a range of superficial deposits including Made Ground, Gravel, Sand and Clay/Silt. The bedrock is the Lower Pennine Lower Coal Measures

We disagree that the factors outlined above would provide an equivalent level of environmental protection to the provision of impermeable surfacing as outlined in BAT Conclusion 19c (provision of impermeable surfacing). Information provided was vague and did not demonstrate how the proposals would mitigate any impact in the event of catastrophic failure. In particular, while the Applicant proposed the use of a fleet of sludge tankers, it was not clear how this would minimise any environmental impact, no firm procedures for these emergency tankers and no further details were provided in relation to the maintenance plans proposed to minimise the risk of tank failure.

It will be noted that the Applicant advised that large amounts of concrete would incur high capital cost and impact the Applicant's aim of achieving net zero. However, the Applicant did not provide any evidence of, or otherwise demonstrate the carbon impact, or consider alternatives to the use of concrete for impermeable surfacing. Unless the applicability criteria states otherwise, the BAT is usually considered to be affordable across the industry sector as a whole for both newly built plant and a "typical" existing plant. A cost benefit analysis in relation to impermeable surfacing would not be appropriate in relation to the Application as it is only relevant in cases which may qualify for a derogation (or deviation) from BAT, Associated Emission Levels (AEL). In any event cost alone is not a valid reason for seeking a deviation from BAT AELs and so is of even less relevance to other aspects of BAT. The Applicant specified the site geology as a potential factor in not providing impermeable surfacing but did not carry out a risk assessment to demonstrate that the impact of any spillage would be within the relevant environmental standards, or in concentrations that are the same as the natural background levels in the groundwater. As such no evidence was provided to support the Applicant submission that this should be considered as a factor in providing at least equivalent environmental protection to an impermeable surfacing in line with BAT Conclusion 19c.

The Applicant proposed no solutions for areas of permeable surfacing to prevent the contamination of soil and water in line with BAT requirements.

The Applicant did not make any proposals to implement impermeable surfacing across the proposed operational areas which include waste reception, handling/transfer, storage treatment and despatch areas. Nor did the Applicant demonstrate that suitable alternative options had been explored.

We consider that the risks posed by the waste and raw materials stored on Site in terms of potential soil and or water contamination are significant enough to require that these storage areas are made impermeable to the liquids concerned in line with BAT Conclusion 19c requirements or that alternative protection to at least an equivalent standard is provided. No such proposals were made.

We do not have sufficient information to assess, and have not been provided with suitable proposals on which we could implement, an improvement condition. Whilst it may be possible to use an improvement condition to allow time for BAT to be achieved, we need to be satisfied it will be achieved. It is not suitable or appropriate to use improvement conditions as an opportunity for an applicant to work out how they will demonstrate BAT after an application had been consulted on and determined.

For a pre-operational condition, we need to be satisfied in principle, in advance of operation that the proposals are BAT, even if some of the fine detail can be provided later. As explained earlier, the facility is already operational, so a pre-operational condition cannot be imposed.

We therefore consider that the Applicant has failed to demonstrate their proposals regarding the provision of impermeable surfaces are BAT or would be within a reasonable time were we to grant the Application.

### **BAT Conclusion 19d – Overflows and failures**

We consider that the Applicant has not satisfactorily demonstrated how they would meet the requirements of BAT Conclusion 19d, in relation to the provision of techniques to reduce the likelihood and impact of overflows and failures from tanks and vessels, nor proposed suitable alternative measures providing at least equivalent levels of protection.

With regards to the secondary containment aspect of BAT, the Applicant provided a 'Secondary Containment Modelling Assessment' dated: 18/05/2022, an ADBA tool received 21/01/2022, and an Environmental Quantitative Risk Assessment (EQRA) dated March 2022.

We consider that:

- The EQRA report is not an equivalent to a CIRIA C736 assessment and does not demonstrate BAT.
- The spill modelling and proposed improvements are incomplete and inadequate.
- The ADBA tool is incomplete and inadequate.

Our permits include standard permit conditions regarding the control of emissions, which require that:

“All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.”

As explained in earlier sections of this document, the facility is already operational. We therefore consider that, taking into account the containment information provided, the Applicant would have been immediately in breach of this condition were we to grant a permit.

#### Spill modelling and improvements

The Applicant provided spill modelling, which was conducted for seven higher risk tanks identified in Table 4 below, which is grouped into 6 areas.

**Table 4 – Applicants identified high risk tanks**

Group	Tanks	Total Capacity (M <sup>3</sup> )	Description	Leak detection system present	Secondary containment in place	Overflow protection in place
1	Digester No. 1	2,500	Above ground concrete tanks	No	No	Tank is self-contained / has lid
	Digester No. 2	0 (not operational)		No	No	Tank is self-contained / has lid
2	Screened Sludge Tank	1,150	Above ground concrete tank	No	No	Tank is self-contained / has lid
3	Digested Sludge Tank No. 1	763	Above ground glass fused to steel	No	Yes <sup>[1]</sup>	Tank is self-contained / has lid

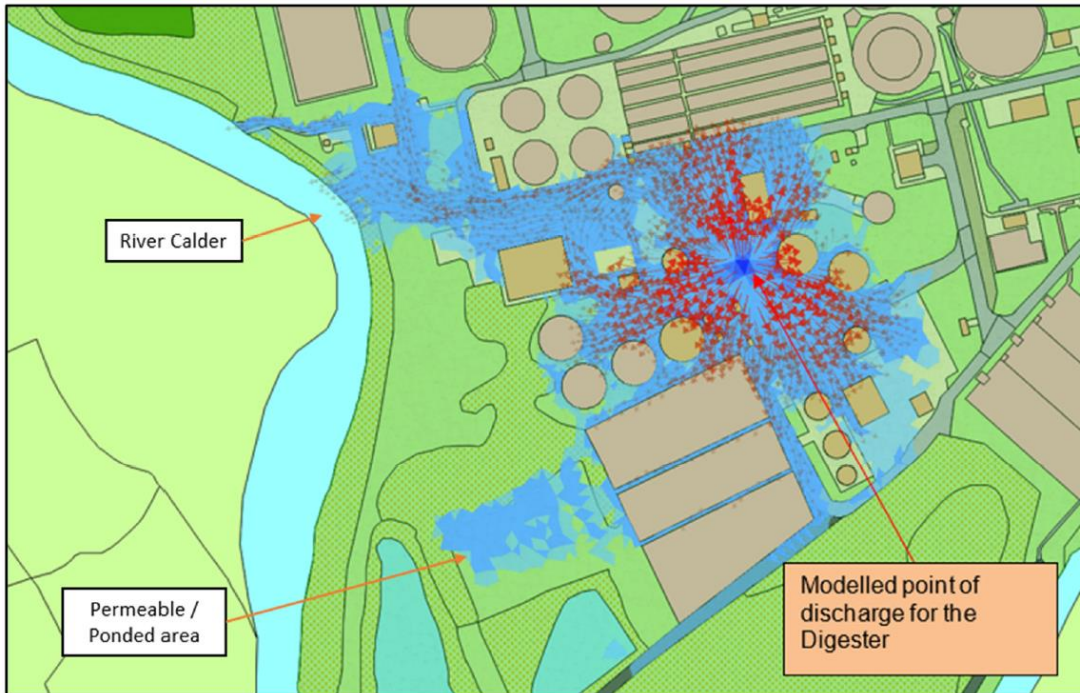
	Digested Sludge Tank No. 2	763	Above ground glass fused to steel	No	Yes <sup>[1]</sup>	Tank is self-contained / has lid
4	Thickened Sludge Silo	343	Above ground glass reinforced steel	No	Yes <sup>[1]</sup>	Tank is self-contained / has lid
5	Thickening Centrate Storage Tank	200	Above ground glass reinforced steel tank	No	No	Tank is self-contained / has lid
6	Dewatering Centrate Buffer Tank	217	Above ground glass fused to steel tank	No	No	Tank is self-contained / has lid
Note [1] – Applicant advised as part of the EQRA (March 2022) Appendix C EQRA Workbooks that effective secondary containment was in place. No explanation, type, or class of containment in line with CIRIA C736 was provided for the tank identified.						

The modelling illustrates that in the event of a catastrophic failure of the assessed tanks, with the current infrastructure, waste could spread to permeable ground, breach the permit boundary, and potentially impact the adjacent WwTW and identified receptors, including the River Calder and permeable / ponded area receptors. Figures 3, 4, 5, 6, 7, 8 and 9 below are taken from the report.



### Figure 3 – Group 1 – Digester

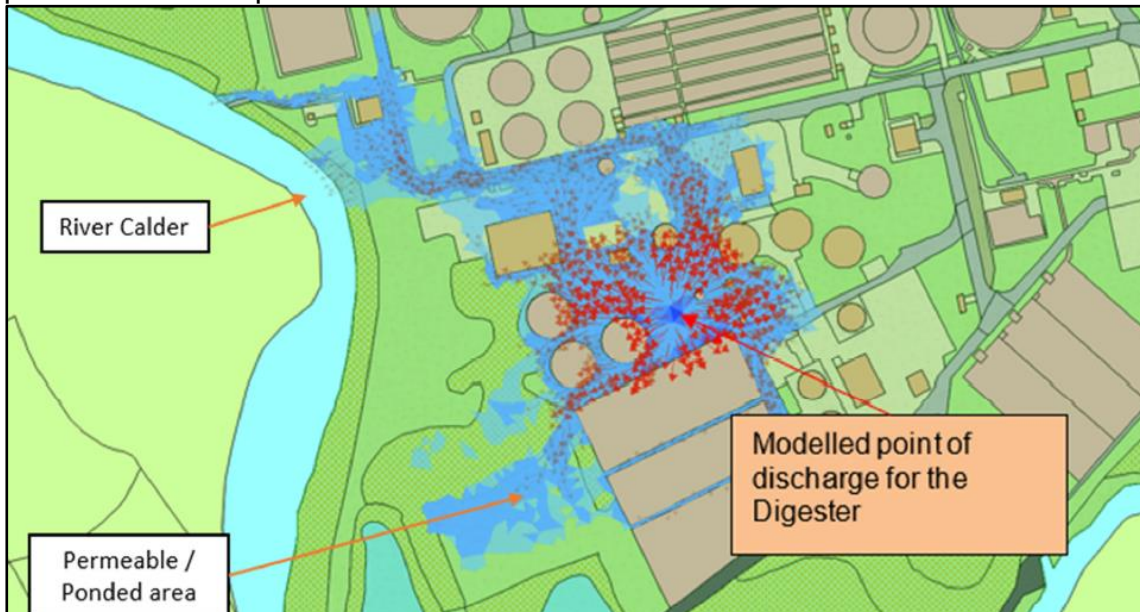
The simulation indicates that a catastrophic failure from the digester tank reaches the River Calder and permeable /ponded area receptors.



Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure: 7: Burnley STC predicted flow paths following Digester Tank Burst)

### Figure 4 – Group 2 – Screened Sludge Tank

The results of this simulation show in the event of a catastrophic failure that the flow from the screened sludge tank reaches the River Calder and permeable / ponded area receptors.

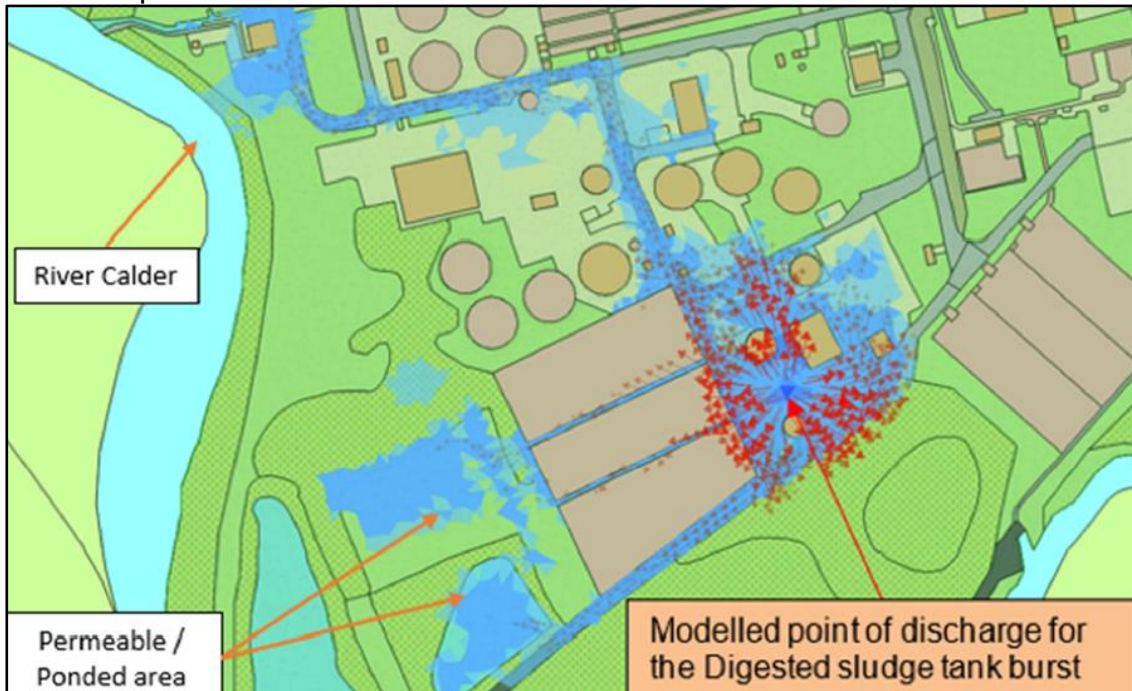


Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure: 9: Burnley STC predicted flow paths following Screened Sludge Tank Burst)



### Figure 5 – Group 3 – Digested Sludge Tank

The results of this simulation show a catastrophic failure would result in the flow from the digested sludge tank reaching the River Calder and permeable / ponded area receptors.



Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure 11: Burnley STC predicted flow paths following Digested Sludge Tank Burst)

### Figure 6 – Group 4 – Thickened Sludge Silo

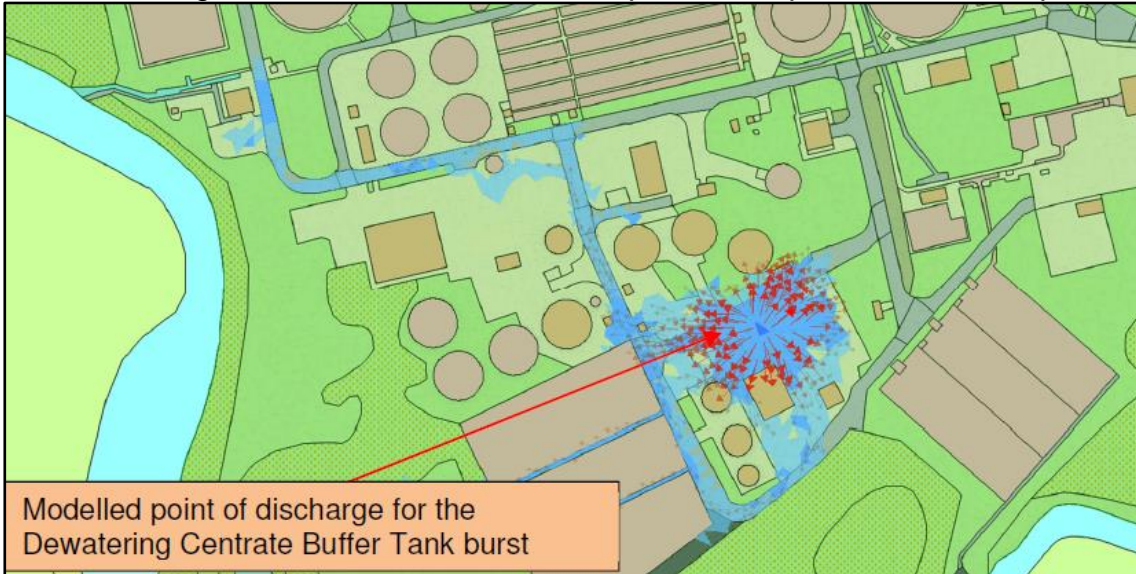
The results from the simulation show that in the event of a catastrophic failure flow from the thickened sludge silo tank reaches the River Calder and permeable/ponded area receptors.



Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure 13: Burnley STC predicted flow paths following Thickened Sludge Silo Burst)

### Figure 7 – Group 5 – Dewatering Centrate Buffer Tank

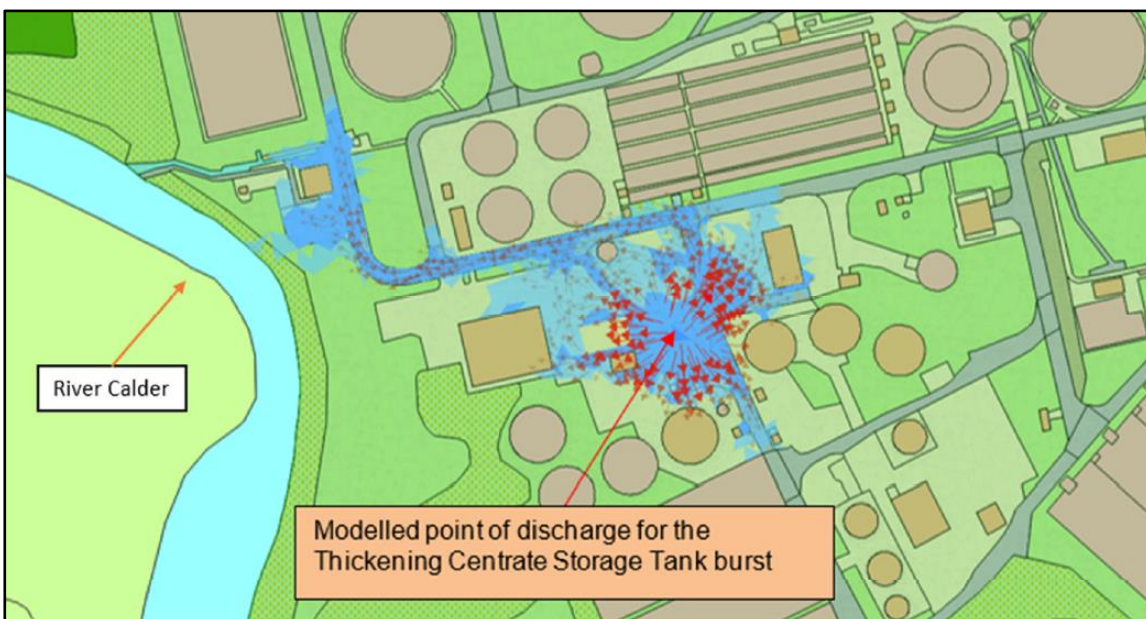
The results of this simulation show in the event of a catastrophic failure, flow from the dewatering centrate buffer tank reaches permeable/ponded area receptors.



Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure 15: Burnley STC predicted flow paths following Dewatering Centrate Buffer Tank Burst).

### Figure 8 – Group 6 – Thickening Storage Tank

The results from the simulation show that in the event of a catastrophic failure flow from the thickening centrate storage tank reaches permeable/ponded area receptors and the River Calder receptor.



Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure 16: Burnley STC predicted flow paths following Thickening Centrate Storage Tank Burst).

The Applicant did not include all relevant above ground tanks in the Secondary Containment Modelling Assessment. Relevant Tanks in CIRIA C736 are identified as tanks that store substances which may be flammable/combustible or hazardous to the environment. Relevant above ground tanks identified by the Applicant in the EQRA that could not be identified in the Secondary Containment Modelling Assessment have been identified in Table 5 below.

**Table 5 – Tanks identified as not included in Secondary Containment Modelling Assessment.**

<b>Tanks</b>	<b>Volume</b>	<b>Description</b>
Unscreened Sludge Tank	Between 10m <sup>3</sup> and 100m <sup>3</sup>	Above ground steel tank
Screened Sludge Buffer Tank	Between 1m <sup>3</sup> and 10m <sup>3</sup>	Above ground steel tank
Thickening Centrate collection tank	8m <sup>3</sup>	Above ground plastic tank
Thermal Hydrolysis plant and associated assets. (including Sludge cooler, TH Pulper Tank, 4 x TH reactor tanks, TH flash tank, degassing tank)	Not advised	Above ground
Dewatering Centrate collection Tank	Between 1m <sup>3</sup> and 10m <sup>3</sup>	Above ground fibreglass / plastic tank
DAF treated centrate collection tank	Between 1m <sup>3</sup> and 10m <sup>3</sup>	Above ground fibreglass / plastic tank

The Applicant also identified overground and buried “Pipework Assets”, and “Other Assets” as part of the EQRA assessment, with some pipework being identified as “Not BAT – Further investigation required”. The Applicant proposed no measures to undertake this investigation, to undertake any necessary works to bring the identified pipework up to BAT requirements or proposed any timescales to achieve this.

The Applicant identified within the EQRA that some tanks were fitted with overflow protection and identified that other tanks were “Self-contained / has a lid”. BAT Conclusion 19 identifies overflow detectors as a suitable technique. We do not consider that a lid on a tank would provide the same level of protection as an overflow detector. We identified that 17 of the tanks did not have overflow detectors installed.

The containment proposals identified for groups 1 – 6 did not address all potential scenarios such as jetting through the rupture or corrosion of a tank wall, which in CIRIA C736 requires that this should be taken into consideration in bund wall heights and distance from the tank.

It is noted that as part of the EQRA, the Applicant advised that for some tanks, effective secondary containment was present, however no information on what class

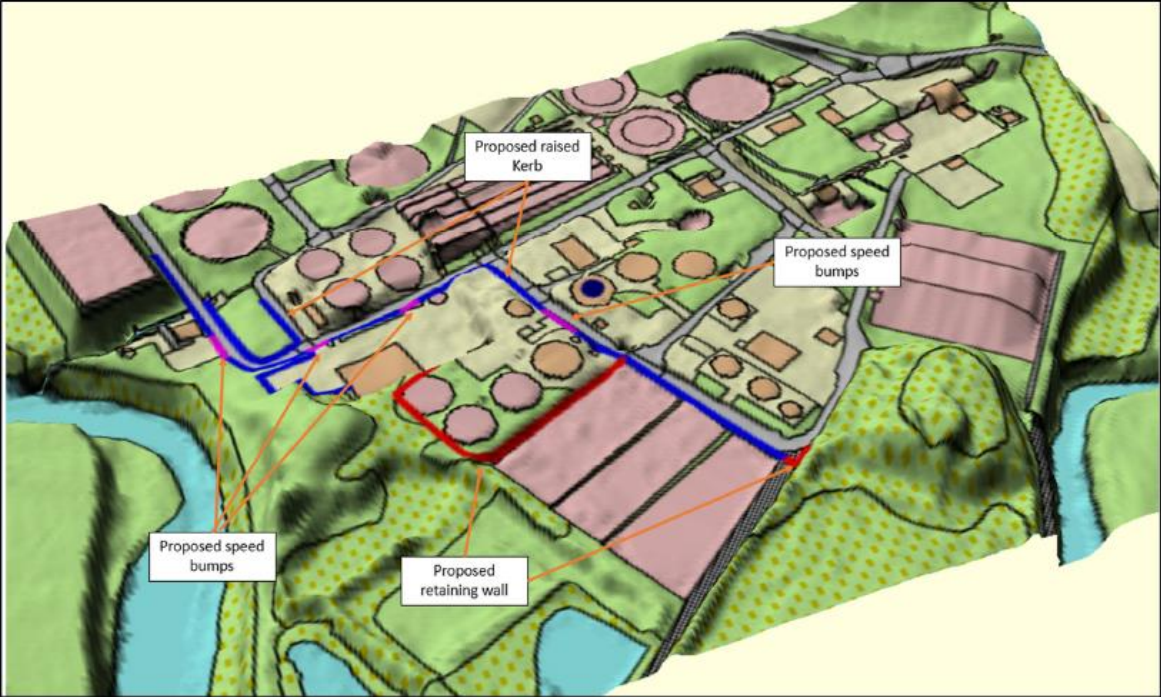


of containment in line with CIRIA C736 was provided, and as such we could not determine whether containment was suitable. An example of this included the Thickened Sludge Silo which was specified as an “Above ground glass reinforced steel tank” and in Appendix C of the EQRA as “Yes” to having effective secondary containment. No evidence to substantiate this was provided, and no information was provided on the type or class of containment in place.

For the seven tanks modelled, the Applicant did outline proposals for secondary containment which they grouped into 6 main areas of the Site. However, the proposals provided were vague, did not include all relevant tanks, did not demonstrate that containment capacities would be suitable for the volumes required to be contained and stated that identified solutions would contain spillages “wherever possible”, which is unacceptable.

For Groups 1 to 6, the Applicant proposed mitigation measures including raised kerbing, speed bumps and 1 metre pre-cast concrete retaining walls to contain spillages within the impermeable areas “wherever possible”.

**Figure 9 – Applicants proposed containment solution**



Source: Secondary Containment Modelling Assessment Dated 18/05/2022 - (Figure 20: Proposed Mitigation Measures 3D)

On assessment of this solution the “*proposed pre-cast concrete retaining wall*” (identified as a red line on figure 9 above), would have contained a spill within areas identified in the site surfacing as “Soft Landscaping / Made ground” which have not been identified as impermeable surfaces. No calculations were provided to demonstrate that the solutions proposed would allow for the containment of 110% of the largest tank, or 25% of the total volume of the tanks, and no spill modelling

has been undertaken to demonstrate and confirm the impacts of a tank failure following the implementation of the proposed site improvements identified.

The proposals lack the detail required for us to adequately assess improvements, they do not explain or provide information on existing containment in place, they do not address failures in tanks included and not included in the spill modelling, and they have not been run through the spill modelling to show the impact following implementation or installation of the solutions/improvements.

The information provided in the Application submissions did not satisfactorily demonstrate that the Applicant had adequately considered how they will meet BAT for tanks in relation to the provision of suitable secondary containment or proposed suitable alternative measures that would provide at least the same level of environmental protection. The Secondary Containment Modelling Assessment report did not identify suitable secondary containment in place to mitigate spillages, leaks, and tank failures.

#### Initial EQRA<sup>6</sup>

The EQRA submitted on 30 November 2021 was in draft format, did not include identified appendices, and set out an alternative approach to CIRIA C736. On assessment we did not consider that it provided an equivalent approved standard to CIRIA C736, and we advised the Applicant on 2 December 2021 that their response did not address questions 32 and 36 in Schedule 5 Notice 1. We again communicated this to the Applicant in the Final Opportunity Letter, outlining that we had found significant deficiencies in the EQRA assessment against CIRIA C736 standards, and directly conflicting information against the ADBA assessment provided.

#### Final EQRA

The Applicant submitted a revised EQRA on 18 May 2022. The assessment was intended to propose an alternative assessment method to CIRIA C736 and included a lengthy report with conflicting information and conclusions when compared with the ADBA tool and the Secondary Containment Modelling assessment previously provided. This made it difficult to assess key aspects of the Application which we have identified below.

The EQRA stated that it was based on a source, pathway, receptor model following the principles of:

- The Anaerobic Digestion and Bioresources Association (ADBA) report: Secondary Containment at AD Plants: An Industry Guide, 2016.

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<sup>6</sup> Environmental Quantitative Risk Assessment for Burnley Wastewater Treatment Works, Dated November 2021

- The Construction Industry Research and Information Association (CIRIA) C736 report: Containment Systems for the Prevention of Pollution, 2014.

The EQRA section of the report provided an alternative method to CIRIA C736 for the classification of containment, allocating a 'BAT or BAT equivalent status' or "Not BAT – further investigation required" for assets according to the perceived likelihood of fugitive emissions to cause harm to controlled waters, through the allocation of a 'Risk of Harm' score.

The risk of harm score provided that any asset allocated a score of 4.9 or below would be considered 'BAT or BAT equivalent', with a zero-score allocation if no source-pathway-receptor linkage was identified. On assessment of this approach, we could see no justification that a score of 4.9 or below would provide at least the same level of environmental protection as CIRIA C736.

Further concerns were identified within the scoring allocation with examples including:

- Scores could only be allocated for tanks up to 1000m<sup>3</sup>, with all tanks above this capacity being allocated the same score.
- Statutory habitats were scored based on the number of habitats, we could see no consideration of the habitat type, location, proximity or sensitivity being taken into account in the score allocation.
- Scores for specific areas were allocated based on a decimal point approach. E.g., a score of 0.2 was allocated for each statutory habitat identified up to 0.6 (three or more), where no further score allocation could be provided.
- Risk of harm score was based on the Total Leak Likelihood x Total Pathway rating x Total receptor rating. Due to the allocation of decimal point scores as identified above this could potentially reduce risk scores with no justification provided.
- Some assets were allocated a risk of harm score of 0 as the Applicant determined that the source-pathway-receptor linkage had been broken. This included the Digested Sludge Tanks No.s 1 and 2 which were allocated a score of 0 for leak likelihood. The report identified that effective secondary containment was in place, but no explanation of what this included was provided, and no class of containment in line with CIRIA C736 was given. This score directly conflicted with the spill modelling report which showed that a tank failure would leave the Site boundary, cross permeable ground, and enter the River Calder.

CIRIA C736 guidance is considered the industry standard of choice and is based on the source-pathway-receptor approach to risk assessment, providing a clear methodology for demonstrating BAT, appropriate measures and compliance with

permit conditions. The ADBA classification tool draws upon the principles and methodologies within CIRIA C736 and when compared to the findings of the Applicant's completed EQRA and allocation of 'BAT or BAT equivalent status' for identified assets directly conflicts with the finding of the Applicant's submitted ADBA tool where a minimum of 'Class 2' containment was required. We therefore concluded that the EQRA should not be used as part of the determination process.

We do not consider the Applicant's EQRA report meets the recognised CIRIA C736 standard requirements or demonstrates that they have used a suitable alternative approach that would provide at least the same level of environmental protection. Some key areas of concern have been identified below:

- The findings of the EQRA directly conflict with the findings of the Applicant's ADBA tool and spill modelling assessment which identified that a 'Class 2' containment system was required, as per CIRIA C736. For example, the EQRA allocated a score of 3.1 for the digester and allocated a 'BAT or BAT equivalent' status to the tank. The EQRA advised that no effective secondary containment was in place, with the spill modelling showing in the event of a catastrophic failure, sludge would reach the River Calder, permeable/ ponded area receptors and areas of the WwTW.
- The EQRA stated that the risk to controlled waters from the sludge tanks was insignificant. It was specified that the EQRA was provided to identify compliance in respect to BAT Conclusion 19 in terms of fugitive emissions that may arise from an asset by way of leaks and/or spills, with the Secondary Containment Modelling Assessment provided to address catastrophic failures. The report did not adequately address how regular monitoring of tanks would be carried out, with most tanks being identified as having no leak detection system, or overflow protection system in place. As such we could not identify or understand how the report identified an equivalent standard for tanks assigned a 'BAT or BAT equivalent' status as for tanks that did not have in place overflow detectors.
- The 'risk of harm' score provides that a score of below 4.9 determines the asset is 'BAT or BAT equivalent'. This appears to be an entirely arbitrary threshold. We can see no justification for how a score below 4.9 will provide at least the same level of protection as providing containment in line with BAT requirements.
- A score of zero is provided when no source, pathway, receptor linkage is identified, however not all potential receptors have been included within the EQRA assessment.
- The EQRA provides no details on the existing secondary containment present, apart from a Yes/No answer.

#### ADBA tool

The Applicant provided an ADBA assessment. The report determined that the Site's overall risk rating was medium with 'Class 2' containment required.

The three classes of containment are defined by increasing requirements in terms of design and construction integrity. Class 1 containment systems are provided where the risk of pollution arising from the storage of the inventory is relatively low, whereas class 3 containment systems are provided where this risk is relatively high.

On assessment of the ADBA tool, it did not include all relevant tanks identified in the EQRA report or include all relevant receptors.

As such we could not determine if the risk level determined by the ADBA assessment was suitable for the risk posed.

### Conclusion

We consider that the information submitted to demonstrate compliance with BAT Conclusion 19d is conflicting and incomplete. We have provided multiple opportunities for the Applicant to provide the information requested through the Information Requests.

We consider that the Applicant's proposals to manage potential leaks, overflows or catastrophic failures do not meet BAT or provide an appropriate alternative at least equivalent level of protection. We do not consider that the Applicant has demonstrated that the risk posed by the liquids and sludges contained in the tanks and vessels in terms of soil and/or water contamination will be controlled by suitable techniques, which are identified as the provision of overflow detectors and suitable secondary containment in BAT Conclusion 19d. This requires that site secondary containment should be 110% of the largest tanks or 25% of the aggregated tank volume, whichever is greater, taking into consideration rainfall and firewater, and allowing for suitable freeboard, and that overflow detectors should be provided.

The Applicant did propose timescales for the implementation of containment by 2026. However, the proposal lacked details, do not include all relevant tanks or provide clarity on how a solution would be achieved. We consider that an implementation date of 2026 is inappropriate and unacceptable when full appropriate provision should have been achieved from August 2022, nor is it clear that any containment provided, as proposed, would adequately protect the environment.

As explained previously, we do not consider it appropriate to use improvement conditions or pre-operational conditions to address the issues identified which are fundamental principles of environmental protection. While the Applicant provided a timescale for the implementation of proposals by 30 June 2026, this timescale is not acceptable. In any event, the proposals do not include sufficient information about the implementation of overflow measures, suitable primary containment, or the isolation of tanks, vessels and secondary containment to demonstrate that they could be considered BAT.

As such we do not have sufficient information to assess, and have not been provided with suitable proposals on which we could implement, an improvement condition.



Whilst it may be possible to use an improvement condition to allow time for BAT to be achieved, we need to be satisfied it will be achieved. It is not appropriate to use improvement conditions as an opportunity for an applicant to work out how they will demonstrate BAT after an application had been consulted on and determined.

For a pre-operational condition, we need to be satisfied in principle, in advance of operation, that the proposals are BAT even if some of the fine detail can be provided later. As explained earlier, the facility is already operational so a pre-operational condition for the existing operations cannot be imposed.

**BAT Conclusion 19h – detection and repair of leaks**

We consider that the Applicant has not satisfactorily demonstrated how they would meet the requirements of BAT Conclusion 19h in relation to design and maintenance in order to satisfactorily be able to detect and repair leaks. The Applicant did not propose suitable alternative measures providing at least equivalent environmental protection. The Applicant has identified several partially submerged and fully submerged tanks identified in Table 6 below.

**Table 6 – Partially submerged and fully submerged tanks.**

Tanks	Description
Raw Sludge Wet Well	Wholly buried
Site Drainage Pumping Station	Wholly buried
Imported Sludge to Raw Sludge Wet	Wholly buried
Raw Sludge to Raw Sludge Wet Well	Partially buried
Raw Sludge Wet Well to Unscreened Tank	Wholly buried
Unscreened Tank to Strain Presses	Wholly Buried
Screened Sludge Buffer Tank to Screened Tank	Wholly Buried
Sludge Cooler to Digesters	Wholly buried
Degassing Tank to Digested Sludge Tank	Wholly Buried
Digester Recirculation Pipework	Wholly Buried
Thickening Centrate Storage Tank to Head of Works	Partially Buried
Dewatering Centrate Collection Tank to Centrate DAF Unit	Wholly Buried
Dewatering Centrate Buffer Tank to Head of Works	Partially Buried

We requested information on how leak detection and maintenance would be carried out in question 33 of Schedule 5 Notice 1, and question 18 of Schedule 5 Notice 2, and again in the Final Opportunity Letter. The Applicant advised that “Process control monitoring is used to assess tank and sludge pipework integrity and identify any losses from the treatment process. Flow meter readings are displayed and monitored continuously via the site SCADA system under the supervision of the Process Controller, or other trained person designated by the Production Manager, and that site inspection tours are carried out daily and monthly and that the tours would include a visual inspection of asset integrity, where possible, and general ground conditions with evidence of leaks or ground contamination initiating further investigations or remedial actions.

We consider that the approach proposed by the Applicant would not provide a robust system to identify potential leaks. No trigger points for investigation were provided for flow measurements, and it was unclear how visual inspections would be carried out for tanks that could not be seen. Potential evidence to identify leaks relies on the impact of the leak being visually detectable.

The EQRA in Appendix C, EQRA workbooks identified that the “wholly buried” tanks did not have leak detection in place. While BAT advises that “regular monitoring for potential leaks is risk-based, the Applicant did not demonstrate or provide sufficient evidence for us to determine that the risk posed by leaks/spills from these tanks would be an acceptable risk.

As stated in BAT Conclusion 19h, we recognise that the ability to install secondary containment may be limited in the case of existing plant, but site-specific limitations need to be justified and it needs to be adequately demonstrated that any risk will be sufficiently and appropriately controlled by suitable alternative measures. Demonstrating this will either require the Applicant to show there is no risk, or that they have or will have suitable alternative measures in place. However, the Applicant has not demonstrated how they would regularly monitor for potential leaks in line with BAT requirements and has not proposed suitable alternative measures.

We do not consider that the Applicant has demonstrated that the risks posed by the liquids contained in above ground tanks and the underground tanks and vessels in terms of soil and/or water contamination will be controlled by suitable techniques to minimise the environmental risk from leaks. Nor do we consider that BAT has been met or suitable alternative at least equivalent provisions proposed through the use of suitable design measures and maintenance procedures to detect and repair leaks to provide an adequate or appropriate level of protection to the environment.

### **Other issues not resolved**

The containment provision and control of diffuse emissions are our main reasons for refusal. We are not satisfied that areas identified as waste pre-acceptance and acceptance, characterisation of wastewater streams, and bioaerosols have been adequately addressed. However, had we considered it acceptable for the permit to have been granted, we would have sought to address specific deficiencies and missing information in relation to these matters through improvement conditions, or compliance visits/checks. Accordingly, we did not identify the below as reasons for refusal.

### **Waste pre-acceptance and acceptance**

The Applicant submitted a Waste Characterisation and Acceptance procedure, (Version 2, 11 March 2022), Technical Evaluation Review Form (WwTW Sludge Imports) and WwTW Sludge Waste Declaration Form on the 21 March 2022. Sections 5 and 6 of the Waste Characterisation and Acceptance procedure explain how the pre-acceptance and acceptance system will operate.

While the Applicant provided a range of potential parameters that could be checked as part of pre-acceptance process, no commitment was provided on what parameters would actually be checked, stating that this would be determined by the technical resource completing the assessment. It was not clear how the Applicant would carry out pre-acceptance checks to ensure that they understood the effects of potential sources on the biological treatment process, or which parameters would be checked as a minimum.

For waste acceptance, the Applicant stated in section 6 of the Waste Characterisation and Acceptance procedure, (Version 2, 11 March 2022) that the sampling of imports on arrival to Burnley WwTW is not required as the material consists of sewage sludge from WwTW. We disagree with this statement as the Site will be operating under the IED which seeks to achieve a high level of protection for the environment by requiring each of the industrial installations to be operated under a permit with conditions based around the use of BAT. While not all loads must be sampled, a representative approach should be adopted, with clear parameters and guidance on processes to be carried out.

Pre-acceptance and acceptance measures and requirements are set out in the draft Appropriate measures for the biological treatment of waste, which has been consulted on. Although the Applicant does not strictly need to apply these measures currently, they will be published shortly, at which point the Applicant will be expected to put these measures in place.

We could not determine that waste pre-acceptance procedures would ensure that waste received at Site would be suitably assessed to understand the effects of potential sources on the biological treatment process as no clear sampling parameters have been provided.

We could not determine that waste acceptance procedures would be in place to confirm the characteristics of the waste, as identified in the pre-acceptance stage, or what characteristics would be verified upon the arrival of the waste at the Site, as well as the waste acceptance and rejection criteria.

However following consideration and subject to the publishing of the 'Appropriate measures for the biological treatment of waste' guidance, we consider that we could have addressed this through an improvement condition.

### **Characterisation of wastewater streams**

The Applicant identified various emissions of process effluents and surface run-off being discharged to the adjacent WwTW.

The Applicant has not provided a full characterisation of the wastewater streams as required by BAT Conclusion 3 which we requested in question 6 of Schedule 5 Notice 1, and question 5 of Schedule 5 Notice 2. In response to Schedule 5 Notice 2, the Applicant provided a partial characterisation of emissions returned to the WwTW which did not include all emissions or provide a full characterisation in line

with BAT Conclusion 3 requirements. Following further discussions with the Applicant, we agreed for returns to the WwTW to be addressed through the inclusion of improvement conditions which would implement a monitoring and sampling procedure to fully characterise emissions and carry out subsequent further assessment if required.

## **Bioaerosols**

Site-specific bioaerosols risk assessments (SSBRA) are required where:

- The operational area including abatement plant is located within 250 metres of sensitive receptors; or
- Where area or point source emissions may pose a risk to the nearest sensitive receptor's location.

SSBRAs demonstrate that the process and/or abatement measures adequately prevent, or where this is not possible, significantly reduce the risk of bioaerosols release, and that the resulting activity will be unlikely to expose the nearest sensitive receptor to elevated concentrations of bioaerosols.

On assessment of the Application, we identified that there are external operational processes on the Site within 250 metres of a sensitive receptor, and the Site operates biofilters which are located within 250 metres of a sensitive receptor.

The Applicant submitted a Bioaerosol Risk assessment dated October 2021, on assessment of which, we identified that the Applicant had undertaken a qualitative assessment and not undertaken any quantitative analysis in line with our guidance TGN M9 Environmental monitoring of bioaerosols at regulated facilities (version 2, July 2018).

We would have considered it appropriate to insert the bioaerosols monitoring requirements in the permit if it was issued in accordance with our guidance TGN M9 Environmental monitoring of bioaerosols at regulated facilities (version 2, July 2018). The Applicant would have been required to comply with the new monitoring requirements from the date of permit issue. Following further discussions with the Applicant, we agreed that the requirement for a Bioaerosol sampling program could be addressed through the inclusion of improvement conditions which would implement a monitoring and sampling procedure to fully assess the risk from Bioaerosols and implement any abatement if required.

## **Odour Impact**

A site-specific Odour Management Plan (OMP) is required where an odour nuisance at sensitive receptors is expected and/or has been substantiated.

BAT Conclusion 14 requires that in order to prevent or, where that is not practicable, to reduce diffuse emissions to air, in particular of dust, organic compounds and odour, BAT is to use an appropriate combination of techniques.

Recommended techniques include the containment, collection and treatment of diffuse emissions through collecting and directing the emissions to an appropriate abatement system via an air extraction system and/or air suction system close to the emission sources. BAT Conclusion 34 specifies the appropriate abatement types.

The OMP (March 2022) submitted by the Applicant identified diffuse and point source emissions in table 3.2. In section 4.2.1, three odour control units were identified including:

- Two dual bed trickling biofilters followed by an activated carbon adsorber polishing unit Odour Control Unit (OCU) (A4).
- Biofilter followed by an activated Carbon adsorption unit OCU (A5).
- Catalytic ion filtration roughing prefilter (CIF), followed by a dry scrubbing composite filter and a final VTS (vertical tank scrubber) odour filter OCU (A6).

The Applicant provided in Appendix C of the OMP the design operating parameters for the OCUs identified, however no assessment of the OCUs effectiveness or appropriateness has been provided. The Applicant stated in section 4.2 of the OMP that “Odour dispersion modelling was undertaken to identify the sources requiring abatement” and that “the odour control technologies were designed with the containment and odour control of certain process units”, however no evidence to show OCU effectiveness has been provided.

We could have considered it appropriate to address the effectiveness of the abatement systems through an agreed sampling program with the inclusion of improvement conditions to demonstrate the effectiveness of the OCUs through a monitoring and sampling procedure, and implementation of any improvements if required.

## **Growth Duty**

### Section 108 Deregulation Act 2015 - Growth Duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 100 of that Act in deciding whether to grant this Application.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

# Annex 1 – Application Timeline

## Schedule 5 Notice 1

### 30 July 2021

We served a Schedule 5 Notice<sup>7</sup> (“Schedule 5 Notice 1”) requesting information which we considered to be necessary to determine the application and included 72 questions for the Applicant to respond to, with a response date of the 13 September 2021.

### 30 September 2021

The Applicant contacted us to request an extension to the Schedule 5 Notice 1 deadline until the 1 October 2021. We wrote to the Applicant and confirmed this extension deadline.

### 1 October 2021

The Applicant requested a further extension to the Schedule 5 Notice 1 deadline, until 30 November 2021 with respect to questions 32 and 36.

### 8 October 2021

We confirmed with the Applicant that the Schedule 5 Notice 1 response deadline had been extended to 30 November 2021 for questions 32 and 36 in relation to containment, as requested.

### 11 October 2021

The Applicant contacted us to verbally request an extension to the Schedule 5 Notice 1 response deadline until the 18 October 2021.

### 20 October 2021

The Applicant provided a part response to Schedule 5 Notice 1. This included responses to questions 1 to 31, 33 to 35, 37 to 45, and 70 to 72. It did not include a response to questions 32 and 36 in relation to containment, which the Applicant advised would be provided by the 30 November 2021, and 46 – 69 in relation to odour which the Applicant advised would be provided as soon as possible. We had not agreed to the extension in relation to the provision of information for questions 46 - 69.

### 5 November 2021

We wrote to the Applicant<sup>8</sup> to express our concerns regarding the lack of response and their continued requests for extensions. We also stated we were concerned that in their Schedule 5 Notice 1 responses, they were deferring their responses to questions without prior agreement with us.

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<sup>7</sup> Notice of request for more information under paragraph 4 of Part 1 of Schedule 5 of the Environmental Permitting (England and Wales) Regulations (“the EPR 2016”).

<sup>8</sup> Email dated 5 November 2021 regarding Schedule 5 responses.

### **12 November 2021**

The Applicant wrote to us to apologise for the delay in getting the odour management plan (OMP) to us, advising that this was due to “strict governance processes we have in place at UU to authorise the additional work required.” They advised that an OMP would be provided by the 14 January 2022.

### **29 November 2021**

We agreed to extend the submission of the revised OMP until the 14 January 2022.

### **30 November 2021**

The Applicant responded to question 36 with a draft Environmental Quantitative Risk Assessment (EQRA) which did not include all identified appendices and was 25 pages. No response was received to question 32.

### **2 December 2021**

We wrote to the Applicant to confirm that their response to question 32 and 36 did not adequately address the question, and we had not received a response to question 32. We advised that we agreed to extend the period to respond to Schedule 5 Notice 1 until 14 January 2022.

### **21 January 2022**

The Applicant responded to questions 46 – 69 in relation to odour, and questions 32 and 36 in relation to containment of Schedule 5 Notice 1.

No further responses were received until after we had sent the Final Opportunity Letter to the Applicant on 15 February 2022, which is detailed below.

## **Schedule 5 Notice 2**

### **08 December 2021**

We served a further Schedule 5 Notice (“Schedule 5 Notice 2”) requesting further information which we considered to be necessary to properly consider and determine the Application. Schedule 5 Notice 2 included 20 questions for the Applicant to respond to. We gave the Applicant a response deadline of 14 January 2022.

### **21 January 2022**

The Applicant responded to Schedule 5 Notice 2. We had not agreed to the extension.

No further responses were received until after we had sent the Final Opportunity Letter to the Applicant on 15 February 2022, which is detailed below.

## **Meetings**

During the determination, we attended meetings with the Applicant on:

- 17 August 2021



- 17 September 2021
- 29 November 2021
- 7 December 2021
- 13 December 2021
- 20 December 2021

These were to provide clarity on questions raised in the Information Requests.

## **Final Opportunity Letter**

### **15 February 2022**

We wrote a letter to the Applicant<sup>9</sup> (the “Final Opportunity Letter”). This requested information which we considered had not been responded to or required further clarification under the Information Requests. We deemed this information necessary to be able to properly consider the determination of the Application.

The Final Opportunity Letter outlined our concerns about the deficiencies in the information provided by the Applicant in key areas of the Application and included 19 questions from Schedule 5 Notice 1, and 8 questions from Schedule 5 Notice 2. The key issues for the Applicant to respond to included:

- Odour Management Planning.
- Compliance with BAT Conclusions 19c and 19d in relation to containment.
- Waste pre-acceptance and waste acceptance.
- Compliance with BAT Conclusions 3, 6 and 7 in relation to the return of emissions to the WwTW.

We gave the Applicant a response deadline of **18 March 2022**, stating that after this deadline, we would continue to determine the Application based on the information that the Applicant had, by then provided to us, and that we would not be making further requests for information.

### **18 March 2022**

The Applicant provided:

- Site Boundary Plan (Revised Appendix E).
- Site Surfacing Plan (Drawing No. 80063025-BURNL-DR-C-000001-A).
- EQRA Report (Report No. 331001867R5).
- Process Flow Diagram (Revised Appendix G).
- Odour Management Plan (March 2022) plus Appendix D.

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<sup>9</sup> Final Opportunity Letter dated 21 February 2022

- Waste Acceptance and Characterisation Procedure (March 2022).
- Emissions Points Plan (Revised Appendix E3B).

### **21 March 2022**

The Applicant provided the following documents which were omitted from the response received on the 18 March 2022.

- Waste Acceptance and Characterisation Procedure (March 2022).
- WwTW Sludge Waste Technical Evaluation Review Form.
- WwTW Sludge Waste Declaration Form.

### **10 May 2022**

The Applicant contacted us verbally to advise that their contract for spill modelling at the Site should be completed by the 27 May 2022, and that further information would be provided after this date. No commitment in relation to what was to be provided was given.

### **27 May 2022**

The Applicant submitted a Secondary Containment Modelling Assessment dated 18 May 2022.

### **31 August 2022**

The Applicant wrote to us requesting to submit further information in relation to the Application by the 30 September 2022, and proposed this to include:

- An updated Containment and spill modelling proposal to include solutions & dates for completion.
- An updated ADBA tool.
- An updated asset risk assessment for leak detection to include monitoring and trigger points.
- Update of the OMP to include generic deficiencies identified including modelling & incident/emergency information.
- A new Application Support Document that would address all Schedule 5 Notice questions raised, including proposals for sampling and analysis to MCERTs or equivalent.
- A completed Application form B6

### **2 September 2022**

We wrote to the Applicant to advise that we had provided the Applicant with multiple opportunities to provide the information and considered that if we accepted the information we would probably still need to clarify (through further questioning) the information provided. We also advised that with the amount of information proposed to be submitted this would fundamentally change the application resulting in a need to re-consult. As such we believed that the submission of further information would constitute what is essentially a new application.

No further information has been provided.

## **Annex 2 - Consultation and Engagement Responses**

### **Consultation Notice**

We carried out consultation on the Application in accordance with the EPR 2016 and our statutory Public Participation Statement. We consider that this process satisfies, and frequently goes beyond the requirements of the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters, which are directly incorporated into the IED, which applies to the Installation and the Application. We have also taken into account our obligations under the Local Democracy, Economic Development and Construction Act 2009 (particularly Section 23). This requires us, where we consider it appropriate, to take such steps as we consider appropriate to secure the involvement of representatives of interested persons in the exercise of our functions, by providing them with information, consulting them or involving them in any other way. In this case, our consultation already satisfies the Act's requirements.

The Application was received and determined as a bespoke permit Application.

We publicised the Application by placing a notice on our website, which contained all the information required by the IED, including informing the public where and when they could see a copy of the Application. The notice ran from 2 September 2021, with a deadline for responses to be submitted by 30 September 2021.

We sent copies of the Application to the following organisations, which includes those with whom we have "Working Together Agreements":

- UK Health Security Agency (formerly Public Health England) – Their comments and our responses are summarised below.
- Director of Public Health – Pendle District Council – No response was received.
- Health and Safety Executive – No response was received.
- Environmental Health Department, Pendle District Council – No response was received.

### **Consultation responses**

The following summarises the responses to the notice, and the way in which we have considered these in the determination process.

Response received from UK Health Security Agency

Brief summary of issues raised:

- *The applicant's modelling assessment incorporates 2 emission points comprising a Combined Heat and Power Engine (CHP) and gas boiler, however the application details 9 emission points in total including Odour Control Units (OCUs) and a flare. We note the flare has been excluded from assessment as it will only be used for maintenance and safety operations, however no information is provided as to why the other emission points were excluded from assessment.*
- *The Applicant's air quality assessment states that it will consider the impact on human health of TVOCs (total volatile organic compounds) in addition to other potential pollutants, though it has not provided an assessment criteria nor background concentration for TVOCs.*
- *With respect to odour risks, we note that the process is mostly contained and that emissions from the degassing, concentrate and sludge buffer tanks will route to the Odour Control Units, however the proposed operations will emit Volatile Organic Compounds (VOCs) including methane. PHE recommends that the EA ensure that they are satisfied that the odour mitigation and abatement proposed is sufficient to abate odorous emissions from the operations applied for.*

Summary of actions taken:

Emission points A1, A2 and A3 are provide in relation to the CHP, boiler, and flare. Emission points A4 – A6 are in relation to the odour control units, and emission points A7 – A9 are provided in relation to the pressure release valves. Pressure release valves are restricted to operating only in emergency situations and as per the flare would not require modelling. TVOCs would be monitored as part of the permit conditions for emissions produced as a direct result of the combustion of biogas.

We requested in Schedule 5 Notices 1 and 2 that the Applicant provide significant further information on the management of odour arising from waste storage, handling and processing. We are not satisfied that the additional detail provided fully addressed our concerns and we have not approved the OMP (March 2022). The Applicant has provided no evidence to demonstrate that the Odour Control Units implemented would be effective. As such we determined that the Applicant had not provided suitable evidence of mitigation of odorous emissions, or satisfied us that they would adequately address the release of odorous emissions in line with BAT requirements and we have therefore decided to refuse the Application. Please also see the odour section in the main body of this document.

It should also be noted that had the permit been granted, we would have set emission limit values for ammonia (20 mg/m<sup>3</sup>) and set periodic monitoring from point source emissions of odour concentration, ammonia and hydrogen sulphide.

# Annex 3 - Map Showing Location of Proposed Installation and Surrounding Area

