Desktop Lightning Protection Risk Assessment (LPRA) Study for Haworth Scouring's (HS) New Anaerobic Digestion (AD) Plant

Client: **Haworth Scouring Company Limited (HS).**

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ThunderGuard Solutions (TGS) is a trading division of ADH Risk Ltd.

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1 Index of Revisions & Superseded Documents

Table 1. Index of Revisions.

Rev.	Date	Remark	Originator	Reviewer	Approver
01	08-08-2025	First Draft of LPRA Report, Submitted for Internal Comments.	ADH	TAB	ADH
02	05-09-2025	Second Draft of LPRA Report including Internal Comments. Submission to Client for Client Comments.	ADH	TAB	ADH

NOTE: There are no superseded documents.

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3 Scope of Works

Howarth Scouring has instructed ADH Risk Ltd, through ThunderGuard Solutions (TGS), to undertake a Lightning Protection Risk Assessment (LPRA) for their New AD Plant which is to be installed and operated at their site in Bradford, West Yorkshire, considering the R_1 risk of loss of human life only.

4 Introduction

Lightning flashes to, or nearby structures are hazardous to people, to the structures themselves, their contents and installations. The possible types of damage are injury to living beings, due to step and touch voltages; physical damage (fire, explosion, mechanical destruction, chemical and radiological release) due to lightning current effects; and failure of internal systems due to Lightning Electromagnetic Pulse (LEMP). This is why the application of lightning protection measures can be essential.

The need for protection, and the economic benefits of selecting and installing adequate protective measures should be determined in terms of risk management. However, the decision to provide lightning protection can be taken regardless of the outcome of such assessment, where there is a desire that there be no avoidable risk; or where protection against lightning is required by an authority having jurisdiction.

A Lightning Protection System (LPS) designed and installed to the latest British standards serves to reduce the risk of damage to a structure, the people in and/or around it, and systems on & within it.

5 Reference Documents & Information

The following documents and information are relevant to this study:

- BS EN 62305:2011/2012 Protection against lightning.
- PD 62305-2 Flash density map 2014 - Supplement to BS EN 62305-2:2012.
- IEC/BS EN 61643 series (conformity requirements for surge protection devices).
- BS 7430:2011+A1:2015 Code of practice for protective earthing of electrical installations.
- BS 7671:2018 Requirements for Electrical Installations.
- The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR).
- Control Of Major Accident Hazards (COMAH) Regulations 2015.
- Information obtained from Google Earth Pro, and customer correspondence.

6 Relevant Lightning Protection Standards

6.1 BS EN 62305

BS EN 62305 - Protection against lightning - is the British edition of the European standard to which all lightning protection systems to new structures, and new extensions to existing ones, are designed, installed and maintained. It is derived from IEC 62305.

BS EN 62305 was first introduced in 2006 and replaced BS 6651:1999 from 1st September 2008. Parts 1, 3 and 4 of the document were superseded by new versions in 2011; followed by a new version of Part 2 in 2012. These make up the current reference document for protection against lightning.

BS EN 62305 comprises four parts and these detail the fundamental requirements for protecting against lightning; describing external and internal protection measures for structures, the people in and around them, and their systems. The four (4) parts are:

- Part 1: General principles.
- Part 2: Risk management.
- Part 3: Physical damage to structures and life hazard.
- Part 4: Electrical and electronic systems within buildings.

BS EN 62305-1:2011 provides the general principles for the protection of structures, their people, contents and electrical installations, against the damaging effects of lightning.

BS EN 62305-2:2012 provides the procedure for the evaluation of the risk of damage from a lightning related event.

BS EN 62305-3:2011 provides the requirements for the protection of a structure against physical damage, by means of a lightning protection system, and for protection against injury to living beings due to touch and step voltages, in the vicinity of an LPS.

BS EN 62305-4:2011 provides information for the design, installation and maintenance of surge protection measures (SPM), for electrical and electronic systems within structures, able to reduce the risk of permanent failures due to Lightning Electromagnetic Pulse (LEMP).

This Lightning Protection Risk Assessment (LPRA) has been conducted using Furse's StrikeRisk V6.0 software, which is built using the BS EN 62305-2:2012 standard for consistency and quality reasons. A new version of the standard, BS EN IEC 62305-2: 2024, was published on 31st March 2025, where the Furse's StrikeRisk software has not been updated yet. However, as highlighted in the National Forward from the BS EN IEC 62305-2: 2024, as presented in Figure 1, it is confirmed that BS EN 62305-2:2012, can continue to be used and will only be withdrawn on 31st October 2027.

BS EN IEC 62305-2:2024 BRITISH STANDARD

National foreword

This British Standard is the UK implementation of EN IEC 62305-2:2024. It is identical to IEC 62305-2:2024. It supersedes PD 62305-2 Flash density map 2014, which is withdrawn and BS EN 62305-2:2012 which will be withdrawn on 31 October 2027.

Figure 1. Excerpt from BS EN IEC 62305-2: 2024.

Among notable improvements within the new BS EN IEC 62305-2: 2024 is a simplified risk assessment process and a move away from flash density to strike point density. However, it has been noted in the lightning protection community that in some cases, the previous standard, BS EN 62305-2: 2012 provides a more conservative risk assessment result compared to the new standard BS EN IEC 62305-2: 2024. Therefore, ADH Risk sees the LRA work, which has been conducted using Furse's StrikeRisk V6.0 software based on BS EN 62305-2: 2012, consistent to or more conservative than using the BS EN IEC 62305-2: 2024.

Please note that standards are not applied retrospectively, so existing lightning protection systems do not require any immediate changes.

7 Risk Management

7.1 Introduction

The risk management process determines whether lightning protection measures are required and recommended. The assessment process takes the form of clearly defined mathematical formulae in BS EN 62305-2: 2012. Valves are selected for different coefficients that make up these formulae from tables within BS EN 62305-2: 2012.

If the risk R_n is lower than tolerable risk, R_T, then, in the absence of other overriding considerations protection measures are not deemed necessary. If, however, the calculated risk Rn (whether this is R_1 – Risk of Loss of Human Life in a Structure, R_2 – Risk of Loss of Service to the Public in a Structure or R_3 – Risk of Loss of Cultural Heritage in a Structure) is greater than the tolerable (i.e. acceptable) risk, R_T, then protection against lightning is required and recommended.

BS EN 62305 defines different protection measures that can be applied (Refer to Section 8 for further details) to reduce R_n. In the event the risk assessment of the unprotected structure returns a result for R_n that is greater than R_T, the assessment must be performed again with protection measures applied until the value of R_n falls below that of R_T.

Table NF.1 of BS EN 62305-2:2012 details the values of tolerable risk, R_T (losses in one year) recommended for use in the UK and these are shown in Table 2 below.

Table 2. Values for Tolerable Risk, R_T, from Table NF.1 in BS EN 62305-2:2012.

Type of Loss	**Tolerable Risk, R_T (Per Annum).**	**Equating to:**
R_1 – Loss of Human Life or Permanent Injury.	10^{-5}	1 in 100,000 years
R_2 – Loss of Service to the Public.	10^{-4}	1 in 10,000 years
R_3 – Loss of Cultural Heritage.	10^{-4}	1 in 10,000 years

7.2 Risk Categories

Below is a brief description of each primary risk category:

- **R_1 – Risk of Loss of Human Life.**
  This is normally the most important risk and is considered in all cases.

- **R_2 – Risk of Loss of Services to the Public.**
  This is the loss that can occur when a service provided cannot provide its service to its customers, due to lightning inflicted damage. This is also the subsequent risk of consequential financial loss to consider.

- **R_3 – Risk of Loss of Cultural Heritage.**
  This risk would be considered where the loss of a historically important structure, or one containing cultural important artifacts or documents, would be disastrous.

- **R_4 – Risk of Loss of Economic Value.**
  The assessment of this risk takes a different format to the of R_1, R_2 or R_3. R_4 is not equated to a tolerable value set in the standard, but instead compares the cost of the loss for the unprotected structure to that with protection measures applied. In practice the assessment of R_4 is difficult to achieve, and it would not be considered 'standard industry practice' to undertake the assessment of R_4. Obtaining accurate information required to assess R_4 in a real-world scenario is difficult and would generally be consider a little arbitrary.

7.3 Risk Coefficients

Many coefficients are considered in the risk assessment process. Along with the location, environment, and dimensions of the structure other coefficients include:

- Lightning flash density in the surrounding area (Ng factor).
- Use of the structure.
- Occupancy.
- Materials used in the construction.
- Fire risk and fire protection provisions.
- Number and type of services on or within the structure.
- Voltage withstand levels of equipment on and within structures.

8 Lightning Protection System Parameters

8.1 External Lightning Protection

The ideal method to protect structures and services against the effects of lightning is to enclosure then with an earthed and perfectly conducting continuous shield of adequate thickness, with adequate equipotential bonding at the entrance point into the shield, for service connected to the structure (e.g. a faraday cage or shield). This would prevent the penetration of lightning current and the related electromagnetic field into the protected structure, thus preventing the dangerous thermal and electrodynamic effects of current, as well as dangerous sparking and overvoltages in internal systems.

Although this can be more difficult to apply to an existing structure, with existing services, the principle should be followed to give the best engineering solution possible.

If there is sufficient risk, the risk management process will determine a recommended level of lightning protection system for a structure and the requirements for equipotential bounding and coordinated SPDs.

Alternatively, the level of protection required may be dictated by the authority having jurisdiction, or the client may simply wish to reduce any risk to a lower level.

There are four (4) Lightning Protection Levels (LPLs) and each defines differing spaces for the system component parts and the rolling sphere radius used in the LPS design process. The fundamental sizes and spacings are shown below in Table 3.

Table 3. LPL Corresponding Mesh Method Dimensions, Distance between Down Conductors and Earth Terminations, as well as Rolling Sphere Radii.

LPL	Air Termination Mesh Size (m):	Down Conductor Spacing (m)	Earth Termination Spacing (m)	Rolling Sphere Radius (m)
1	5 x 5	10	10	20
2	10 x 10	10	10	30
3	15 x 15	15	15	45
4	20 x 20	20	20	60

NOTE: Each lightning protection level has a set of maximum and minimum lightning current parameters. These are defined in BS EN 62305-1:2011 Tables 3 and 4, and are used to design lightning protection components (e.g. cross section of conductors, thickness of metal sheets, current capability of SPDs, separation distance against dangerous sparking) and to define test parameters simulating the effects of lightning on such components.

8.2 Internal Lightning Protection

One of the most important requirements of BS EN 62305 is the equipotential bonding of metallic services where they enter or leave a structure. This primary internal lightning protection measure prevents dangerous sparking inside the structure. For most metallic services this is achieved by installing a direct equipotential bonding conductor, and for electrical systems this is achieved by using surge protection devices on cabled services.

Other internal lightning protection measures include:

- Additional earthing and bonding.
- Electromagnetic shielding.
- Adequate routing of services.
- Isolating interfaces.
- Coordinated transient overvoltages SPDs.

NOTE: Services delivered via fibre optic means area not at risk from lightning related activities, as such cabling does not transmit transients, providing the cable contains no metallic elements. Furthermore, partial lightning currents should not be introduced into a structure or the internal systems served by such cable.

8.2.1 Equipotential Bonding Lightning Current SPDs

Equipotential bonding lightning current SPDs are normally installed on all cables entering or leaving a building, when a structural lightning protection system is installed. This applies irrespective of entry / exit locations and can be at ground, side and roof levels. The purpose of lightning current SPDs is to attenuate lightning current and protect against dangerous sparking, to reduce the R_1 risk of loss of human life. Dangerous sparking can result in fire and electric shock hazards as it presents a risk of flash over, where the voltage present exceeds the withstand rating of the cable insulation or equipment subjected to the overvoltage.

Commonly referred to as Type 1 devices, offering common mode of protection, equipotential bonding lightning current SPDs should be selected in accordance with the level of LPS installed on the structure.

The SPDs should conform to the requirements of BS EN 61642 series of documents.

8.2.2 Coordinated Transient Overvoltage SPDs.

Coordinated transient overvoltage SPDs are installed to critical electrical and electronic systems and equipment within a building, to further reduce the R_1 risk of loss of human life, to reduce R_2 risk of loss of service to the public and to minimise the subsequent consequential financial losses. The purpose of transient overvoltage SPDs is to protect electrical and electronic equipment and systems from the secondary (electromagnetic) effects of lightning, and switching transients generated downstream of the lightning current SPDs. Transient overvoltage SPDs should be selected in accordance with the level of LPS for a building, if a structural lightning protection systems is installed.

Commonly referred to as Type 2 or 3 devices, the SPDs should conform to the requirements of BS EN 61643 series of documents, be positioned accordingly and coordinated with other SPDs, as described in BS EN 62305-4.

Most Type 2 SPDs are common mode, whilst most Type 3 devices offer both common and differential mode protection.

NOTE: It is common to have combined SPDs, these and subsequently classified with more than one type or test category. These devices can achieve the principle of coordination with the same unit.

8.2.3 Voltage Withstand Level

The voltage withstand level is the maximum value of surge energy which does not cause permanent failure of equipment through flashover or breakdown of insultation. The voltage protection level of an SPD should be below the voltage withstand level of the equipment to be protected.

8.2.4 Protective Distance

If the distance between an SPD and the equipment to be protected is too large, oscillations could lead to a voltage at the equipment terminals, which can be double the protection level of the SPD. This can cause a failure of the equipment to be protected, despite the presence of the SPD.

Once the correct SPD has been selected, for a point of installation, it is possible to determine the distance at which the protection offered by the device ceases to be effective. Oscillations can be disregarded for cable runs of less than 10 metres.

Additionally SPDs may be required where the circuit length to the terminals of final equipment exceeds the protective distance. However, these might not be required if the terminal equipment has suitable local or in-built coordinated protection.

9 Guidance on Lightning Risk with Respect to Identified Hazardous Areas

Guidance from the UK Health and Safety Executive (HSE)[1] states:

"The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) require employers to put control measures in place to either remove fire and explosion risks or, where this is not possible, control them. Where explosion risks cannot be removed, electrical sources of ignition should be managed by:

Design of equipment and structures, for example by:

- ***the selection of explosion protected (Ex) equipment and/or systems (see pages on ATEX and explosive atmospheres[2]);***
- ***avoiding hazards due to static electricity by bonding all conductors together and to earth;***
- ***installing lightning protection systems appropriate to the construction and contents of structures;***
- ***detuning structures capable of acting as RF antennae in explosive atmospheres within the vulnerable zones of transmitters;***
- ***application of a protective coating to cathodic protection isolating joints to prevent accidental contact."***

As explained in Section 7 of this report, the risk assessment process defined in BS EN 62305-2: 2012 is based on the principle of ensuring the calculated risk falls below a tolerable value defined in the standard. Therefore, it does not ensure that the explosion risk is removed completely. Furthermore, it should be noted that BS EN 62305-2: 2012 Section 5.4, NOTE 2 stipulates that:

"Where protection against lightning is required by the authority having jurisdiction for structures with a risk of explosion, at least a Class II LPS should be adopted."

To this extent, where the presence of a hazardous atmosphere has been identified in each structure by a DSEAR (or ATEX) Risk Assessment Study, the installation of Class II LPS is recommended.

[1] https://www.hse.gov.uk/eci/explosive.htm
[2] https://www.hse.gov.uk/fireandexplosion/dsear.htm

10 Risk Assessment Details

10.1 Site Overview

Haworth Scouring (HS) is located in Bradford, West Yorkshire, which is the heart of the UK's textile industry and is one of the largest, modern and environmentally responsible commission wool scours globally. However, in the wool cleaning process, a large amount of wastewater and dirt are produced.

HS have engaged with FRE-Energy to design, manufacture and install a new AD Plant on their Bradford site comprising of several digesters and buffer tanks and a biogas holding bag. Not only will the new AD plant at HS' Bradford site create energy from biological waste, it will give a significant reduction in discharge organics (lower Chemical Oxygen Demand (COD) levels and reduce permitted discharge costs), and at the same time help HS move closer to net zero as well as reducing journeys to and from the factory by up to 40%. It is estimated that with the New AD Plant installed and operational, HS would see a reduction of 45 tonnes of "sludge" being removed from the site each and every day.

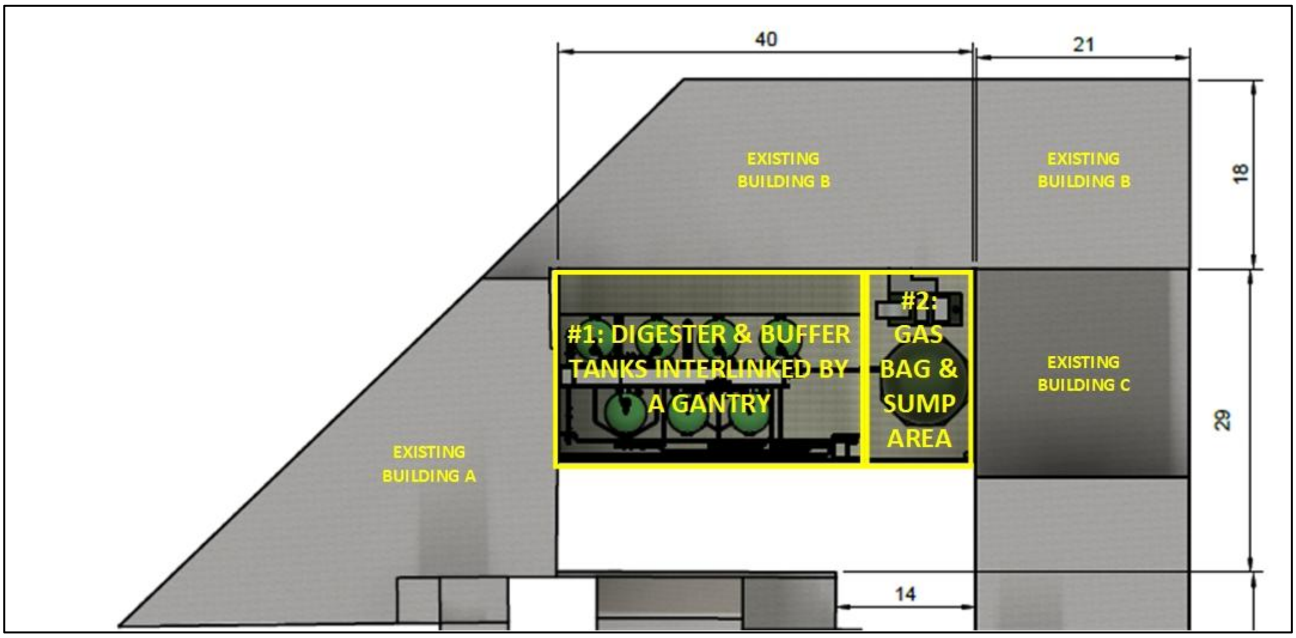

Figure 2. HS New AD Plant Plan Schematic, Adjacent Buildings & LRA Structure Identification.

The location of HS' New AD Plant, which is located on the site in Bradford, West Yorkshire, can be seen in the plan schematic diagram as shown in Figure 2. Also presented in the Figure 2 are the two (2) structures (#1 for the Digesters & Buffer Tanks Interlinked by a gantry and #2 Gas Bag & Sump Area – see the next report section for more details), and the adjacent buildings which are used in the LPRA conducted for HS' New AD Plant.

Please note that a DSEAR Risk Assessment Study has been completed for HS New AD Plant as well as a Computational Fluid Dynamics (CFD) Gas Dispersion Study, which has identified numerous external hazardous areas (Please see guidance presented in Section 9).

This lightning protection risk assessment has only been conducted on HS' new AD Plant, where any adjacent Combined Heat & Power (CHP) units have not been risk assessed and have been deemed external to this scope of work.

10.2 Risk Assessment Parameters

This section sets out the specific parameters selected for the various coefficients when undertaking the risk assessment calculation defined in BS EN 62305-2:2012 for each individual structure. Based on the information provided by Howarth Scouring (HS) and their partners (i.e. FRE-Energy & Phil Durrant Associates Ltd), the risk assessment has been conducted on two (2) separate structures which are listed below, and where their approx. locations have been presented in plan schematic diagram for HS New AD Plant in Figure 2:

- **Structure #1: Digester & Buffer Tanks Interlinked by a Gantry.**
- **Structure #2: Gas Bag & Sump Area.**

The following general site specific or global parameters were used in this assessment:

- Both structures are considered to be located in a Urban environment and surrounded by structures which are taller as well as shorter in nature.
- Each structure has a floor area which is constructed of concrete, predominately.
- Occupancy in both structures assessed has been deemed to be 1 person, 1 hour per day, 7 days per week, 52 weeks of the year (assumed to be conservative).
- Lightning Ground Flash Density (flashes/km^2/year), Ng, is 0.7 (Worst case from Furse's StrikeRisk V6.0 software and PD 62305-2 Flash density map 2014).
- From the DSEAR Risk Assessments (as well as the Computational Fluid Dynamics (CFD) gas dispersion studies) undertaken for the HS New AD Plant, numerous hazardous areas have been identified. Therefore, the risk of fire or physical damage has classified as "Explosion – Zone 1, 21" due to location of hazardous areas with respect to both structures considered. This is predominately due to the Pressure Relief Vents (PRV) and Foam Alleviation Devices (FAD) on the top of the Digester & Buffer Tanks in Structure #1 and the Sump Area in Structure #2.

- With respect to each structure in question (which only have a single zone each):
    - Given the semi-enclosed location of HS New AD Plant, a low level of panic are anticipated with regards to people evacuating the structures/areas due to lightning related events (e.g. Fire/Explosion, assumed to be conservative).
    - Due to step and touch voltages, it is assumed that persons are present (Lt1 = 0.01).
    - Due to fire or physical damaged, they have been defined as being equivalent to Gas Compound or Power Station etc (L_F = 0.33), which defines losses due to physical damage applicable depending on building type.
    - A risk of explosion due to overvoltages has been assumed (Lo1 = 0.1).

10.2.1 Structure #1: Digester & Buffer Tanks Interlinked by a Gantry

- The overall dimensions of the structure above ground level is approximately, 30m x 20m, by 16m high. The structure has been modelled with a rectangular shape with a flat roof to represent the whole process. As the digester and buffer tanks and interlinked gantry are conductive, the structure has been deemed to have a "Conductive frame with conductive cladding – typical door openings", which is deemed conservative.
- Structure 1 is assumed to be connect to the following services (either power or comms):
    - Line 1 to/from Structure 2 (10m x 20m x 11m high), Burred, Length: 10m.
    - Line 2 to/from Building A[3] (28.5m x 28.5m x 25m high), Burred, Length: 20m.
    - Lines 3 to/from Building B (61m x 18m x 9m high), Burred, Length: 10m.
    - Lines 4 to/from Building C (21m x 21m x 4m high), Burred, Length: 20m.

10.2.2 Structure #2: Gas Bag & Sump Area

- The overall dimensions of the structure above ground level is approximately, 10m x 20m, by 11m high (approx. vent height). The structure has been modelled with a rectangular shape with a flat roof to represent the whole process. As the gas bag is the largest volume of equipment in this structure, it has been deemed to non-conductive in nature.
- Structure 2 is assumed to be connect to the following services (either power or comms):
    - Line 1 to/from Structure 1 (30m x 20m x 16m high), Burred, Length: 10m.
    - Line 2 to/from Building A[4] (28.5m x 28.5m x 25m high), Burred, Length: 30m.
    - Line 3 to/from Building B (61m x 18m x 9m high), Burred, Length: 10m.
    - Line 4 to/from Building C (21m x 21m x 4m high), Burred, Length: 10m.

[3] Equated to a rectangle / cuboid shape.
[4] Equated to a rectangle / cuboid shape.

10.3 Risk Assessment Results

Table 4 below shows the calculated risk of loss of human life, R_1, before and after protection (where required), and the protection measures applied (where applicable) for Structure #1 (Digester & Buffer Tanks Interconnected with a Gantry) and Structure #2 (Gas Bag & Sump Area).

Table 4. HS' New AD Plant LPRA Results for Structures #1 & #2, with & without Protection.

Structure	Without Protection (Per Annum)			Protection Measures Applied		With Protection (Per Annum)		
	Calculated Direct Strike Risk	Calculated Indirect Strike Risk	Total Calculated Risk, R1 (Sum of Direct & Indirect Strike Risk)	Lightning Protection System (LPS) [5]	Coordinated SPD Set Level (Enhanced Voltage Protection Level)	Calculated Direct Strike Risk	Calculated Indirect Strike Risk	Total Calculated Risk, R_1 (Sum of Direct & Indirect Strike Risk)
Structure #1: Digester & Buffer Tanks Interlinked by a Gantry.	1.526×10^{-5}	3.302×10^{-4}	**3.454×10^{-4}**	II	II	3.770×10^{-7}	6.748×10^{-7}	**1.052×10^{-6}**
Structure #2: Gas Bag & Sump Area.	6.765×10^{-6}	2.093×10^{-3}	**2.099×10^{-3}**	II	II	1.671×10^{-7}	7.061×10^{-6}	**7.228×10^{-6}**

[5] See Guidance in Section 9, as there are hazardous areas identified, a Class II LPS is recommended as per BS EN 62305-2: 2012.

As it can be seen for both Structure #1 (Digester & Buffer Tanks Interconnected with a Gantry) and Structure #2 (Gas Bag & Sump Area), they provide a calculated risk of loss of human life, R_1, which is higher than the associated Tolerable Risk, R_T, as outlined in Table 2. Therefore, protection measures are required to be implemented in order to reduce the calculated risk of loss of human life, R_1, to a level below the associated Tolerable Risk, R_T, as outlined in Table 2.

Due to the identified Hazardous Areas associated with Structures #1 & #2, as outlined in the current DSEAR Risk Assessment Study (as well as the CFD Gas Dispersion Study) noted previously, ADH Risk has assessed the reduction of risk R_1, by implementing a Lightning Protection System (LPS) with a Lightning Protection Level (LPL) Class II as stipulated in BS EN 62305-2: 2012 Section 5.4, NOTE 2 highlighted in Section 9. This has been conducted with inclusion of a Coordinated SPD set with a LPL of II* (Enhanced Voltage Protection Level). As it can be seen in Table 4, the calculated risk of loss of human life, R_1, with protection as outlined previously in this paragraph, provides a value which is less than the associated Tolerable Risk, R_T, as outlined in Table 2 and is in keeping with the requirements of BS EN 62305-2: 2012 Section 5.4, NOTE 2 as highlighted in Section 9 [**REC1 - RECOMMENDATION**].

10.4 Conclusions & Recommendations

A LPRA has been carried out on the two (2) structures identified on HS' New AD Plant, following the calculations defined in BS EN 62305-2: 2012. This was completed using the Furse' StrikeRisk V6.0 software as well the variables discussed and presented in Section 10.2. From the calculated risk of loss of human life, R_1, for Structure #1 (Digester & Buffer Tanks Interconnected with a Gantry) and Structure #2 (Gas Bag & Sump Area) the following recommendations have been made in order to reduce this risk to a tolerable level:

REC1 It is recommended that HS implements a LPS with a LPL Class II as stipulated in BS EN 62305-2: 2012 Section 5.4, NOTE 2, with Coordinated SPD set with a LPL of II* (Enhanced Voltage Protection Level) for both Structures #1 and #2 assessed in this study.

If HS believe any of the parameters listed in this report to be incorrect, please inform ADH Risk, where ADH Risk will be happy to revise the assessment and reissue the report.

The results tabulated and presented in Table 4 of this report, and the summary reports from the proprietary software (i.e. Furse' StrikeRisk V6.0) used accompany this report in Appendix A & B for Structure #1 (Digester & Buffer Tanks Interconnected with a Gantry) and Structure #2 (Gas Bag & Sump Area), respectively. Please see Section 0 for more details.

11 Appendices

A list of the accompanying study report appendices is provided in Table 5. Please note that appendices have been supplied as separate electronic files in PDF format should be read/studied in conjunction with this report.

Table 5. List of Accompanying Report Appendices.

Appendix Number	Content
A	Furse' StrikeRisk Summary Report for Structure #1 (Digester & Buffer Tanks Interconnected with a Gantry), REV01 (PDF).
B	Furse' StrikeRisk Summary Report for Structure #2 (Gas Bag & Sump Area), REV01 (PDF).