Microsoft Operations Ireland Ltd

Non Technical Summary

Attachment-1-2

November 2022 (Updated March 2023)

Licence Application (LA010453)

CONTENTS

1.0 INTRODUCTION

Microsoft Operations Ireland Limited ('the operator) is applying to the Environmental Protection Agency ('the Agency') for an Industrial Emissions (IE) Licence for an existing Data Storage installation (hereafter referred to as the 'installation') located in Grange Castle South Business Park, Dublin 22. The Data Storage installation will provide secure data storage services, and distribution of information to individuals, businesses and organisations.

The facility consists of three datacentres, DB 3, 4 and 5. The 3 no. data storage buildings (DB 3, 4 and 5) have a total combined building footprint of 57,421 m^2 on an overall site of approximately 10 hectare site with associated support buildings. Ancillary elements of the development include:

- Reception and security area;
- Administration Offices for staff and management;
- Staff cafeteria;
- Sanitary facilities;
- Waste compound;
- Internal road network and car and cycle parking;
- Bicycle Shelters;
- Sprinkler Tanks and Pump House;
- Security fencing; and
- Drainage infrastructure including underground attenuation.

The power requirements for the development are currently provided via a connection to an existing substation on the site and the utility 110 kV Kilmahud Substation. See Attachment 4-8-1 (Operational Report) for further information.

The permitted site layout is shown on A1000 Site Location Map and A1002 Site Plan included with this application.

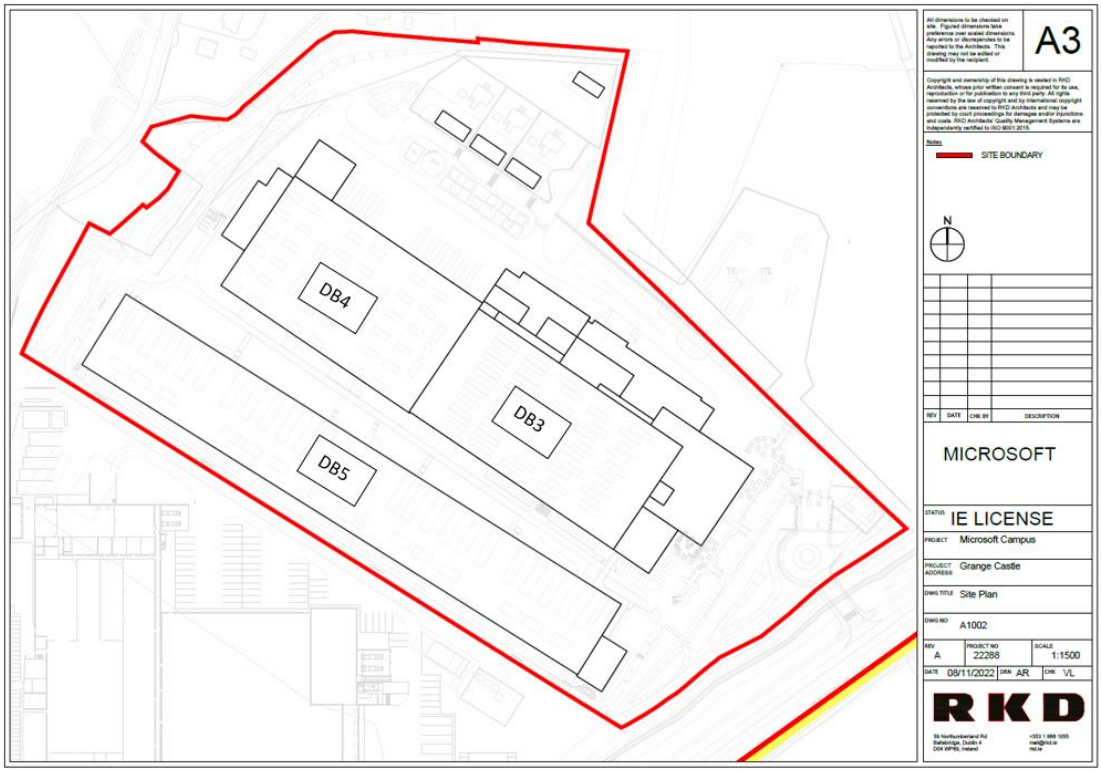

Figure 1 *Site Layout Plan*

In the event of a loss of power supply i.e. power outage, there are 41 no. back up generators at DB 3, 4 and 5 which have 41 no. flues either 31.5m, 18m or 25m high. Generators are supplied by bulk fuel storage tanks or belly tanks. There are 15 generators at DB3, 11 generators at DB 4 and 15 generators at DB 5 respectively. The capacity of the standby generation plant will be c.212.58 MWth.

Outside of routine testing and maintenance related uses, the operation of these back-up generators is typically only required for emergency circumstances e.g. :A loss or other reduction of grid power supply or instability caused by equipment failure.,

2.0 GENERAL INFORMATION

The requirement for an IE Licence is outlined within the First Schedule of the EPA Act 1992. Activity 'Class 2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more' specifically relates to this installation.

2.1 ACTIVITIES TO BE LICENSED

The installation will include a total of 41 no. generators comprising:

- 38 no. 5.46 MW_{th} emergency backup generators to be used in the event of a loss of power supply to the data storage buildings;
- 3 no. 1.7 MW_{th} emergency backup generators to be used in the event of a loss of power supply to ancillary services; and

In addition there are 2 no. 0.5 MW_{th} fire pumps.

The capacity of the back up generators is above the requirement for an Industrial Emissions (IE) Licence as outlined within the First Schedule of the EPA Act 1992. Activity '*Class 2.1 Combustion of fuels in installations with a total rated thermal input of 50 MW or more'* specifically relates to this facility. The applicant is therefore, applying to the Environmental Protection Agency (EPA) for an IE Licence to operate the facility under Activity Class 2.1.

2.2 SITE CONTEXT

The site comprises lands directly east of the R120 within the Grange Castle International Business Park, Clondalkin, Co Dublin and lies to the northwest of a second Microsoft Ireland data centre campus. The site is C. 10 ha and is bound to the west by private land and the R120, to the east by the Griffeen River and an internal access road for Grange Castle International Business Park, to the south by Aryzta Food Solutions Ireland, and to the north by an Edgeconnex data centre and Takeda Ireland Limited Grange Castle Pharmaceutical facility. Prior to the construction of the facility the site was an unmanaged greenfield. Construction for the facility has been completed in line with SD07A/0632, SD08A/0496, SD09A/0376, SD11A/0211 and SD13A/0015.

The wider context of the development is defined primarily by commercial and industrial development. The surrounding 5 km of the site also includes IE and IPC Licenced sites including:

- Pharmaceutical manufacturing: Pfizer Ireland Pharmaceuticals (P0652) located to the northeast; and Takeda Ireland Limited (P0693) located to the north west;
- Grange Back Up Power (P1033-02) power station development located to the east in Grange Castle;
- Crag Digital Limited (P1113-01) power station development to support data centre development; located further to the east in Clondalkin; and
- Waste: Starrus Eco Holdings Limited (Greenogue) (W0188) located to the south, Rilta Environmental Limited (W0192) and Rilta Environmental (W0185) located to the south.

The site layout and wider context is presented in Drawing A1000 Site Location Map and A1002 Site Plan included with this application.

3.0 DESCRIPTION OF ACTIVITY

Attachment 4.8.1 (Operations report) presents the project description as it relates to the IE Licence.

3.1 SITE OVERVIEW

The facility will consist of three datacentres, DB 3, 4 and 5. The 3 no. data storage buildings (DB 3, 4 and 5) have a total combined building footprint of 57,421 m^2 on an overall site of approximately 10 hectare site with associated support buildings. A sprinkler tank and 2 no. fire pumps serving DB 3, 4 and 5 are located to the northwest of the site. Attachment 4-8-1 (Operational Report) presents the detailed description as it relates to the IE Licence.

3.2 PRIMARY PROCESSES/ACTIVITIES

3.2.1 Backup Generators

The DB3 facility is supported by back-up generators which are connected to day tanks and to two bulk storage tanks. The generators are housed internally in DB3 and the bulk storage tanks are located to the north of the site in appropriate bunds. DB4 and DB5 facilities are supported by containerised back-up generators with belly tanks these are located north of DB4 and south of DB5. A project to substitute Hydrotreated Vegetable Oil for traditional diesel fuel, where feasible to do so, is also currently being trialled at the site. These generators provide the necessary power to ensure the data hall can operate optimally in the event of a failure of electricity supply.

The overall site includes 41 back-up generators. Each individual generator includes an exhaust flue which is either 31.5, 18 or 25 meters high. Two fire pump engines have flues that are 3 metres high. There are therefore 43 minor emission points in total associated with the backup generators at DB 3, 4 and 5.

Attachment 4-8-1 (Operational Report) presents further details on the Emergency Backup Generators as it relates to the IE Licence.

3.2.2 Data Storage Building(s)

The data centre facility consists of three buildings containing hardware needed to store the data, deliver this content when requested, and allow quick and efficient communication between customers. The data storage facility (involving systemised racks of hundreds/thousands of server units), offers significant advantages (and economies of scale) over traditional in-house data storage systems.

3.2.3 Data Storage Cooling Systems

The data centre hardware and associated ancillary equipment produces heat which must be managed by the cooling systems. The data centres are cooled primarily utilising outside air, via roof mounted Air Handling Units (AHU) . Conditions in Ireland are conducive to this free cooling strategy, which essentially moves outside air across the servers to cool and then exhaust the higher temperature air to atmosphere. There are other small areas in the building which require additional cooling, i.e. the CNR Rooms, but the majority of the building is serviced by outside air cooling. In order to achieve such high levels of optimisation the Cooling units operate on two different modes dry cooling and evaporative cooling mode. The AHUs will primarily operate in a dry cooling mode air from inside the data hall is cooled using external air via an air-to-air heat exchanger before being supplied back to the data hall. It is expected that the AHU will operate in dry mode for c.95% in a typical year.

Attachment 4-8-1 (Operational Report) presents further details regarding the cooling systems in operation at the site. It is anticipated that the evaporative cooling system will be required very infrequently, however water used within the system at DB3,4 and 5 is flushed from the system periodically to mitigate against legionella. The daily average volume discharge from the evaporative cooling is 7.2m^3 a day or 2,628m^3 per annum.

3.3 SECONDARY PROCESS/ACTIVITIES

3.3.1 Ancillary infrastructure

. The ancillary infrastructure comprises the following main components;

- Reception and security area;
- Administration Offices for staff and management;
- Staff cafeteria;
- Sanitary facilities;
- Waste compound;
- Internal road network and car and cycle parking;
- Bicycle Shelters;
- Sprinkler Tanks and Pump House;
- Security fencing; and
- Drainage infrastructure including underground attenuation.

3.4 WATER, SEWER, AND STORMWATER DRAINAGE INFRASTRUCTURE

3.4.1 Potable water

The facility has both domestic water and cooling water demand. The potable water supply is supplied through a 100mm diameter main which is connected to the existing Irish Water watermain.

3.4.2 Foul and Process Sewer

The sanitary effluent from the washroom facilities and break room areas from the data centre buildings is collected and connects via a 100mm Ø, 150mm Ø and 450mmØ gravity foul sewers and discharge at two outfalls (SE1 and SE-2) into the existing 450mm Ø sewer located to the east of the site. Average wastewater flow from the permitted development is circa 0.081l/s.

3.4.3 Stormwater Drainage Systems

The surface water measures have been designed in relation to Sustainable Urban Drainage Systems in accordance with the guidelines of the Greater Dublin Strategic Drainage Strategy. All stormwater passes through by-pass interceptors with carbon monitors and lockdown valves linked to the facilities BMS, prior to discharge to the existing 900mm stormwater sewer which runs west to east across the site south of DB3/DB4 and north of DB5. There are attenuation tanks in place at the site upstream of the interceptors. The existing stormwater sewer discharges into the River Griffeen east of the site.

The control measures in place ensure only clean uncontaminated surface water will enter the existing stormwater sewer and be subsequently discharged to the River Griffeen. The outfall from DB3/DB4 and DB5 into the existing stormwater sewer is via a hydrobrake flow control devise that limits discharge to 45 l/s. A series of lockdown valves are provided across the site to isolate the stormwater network, this allows for the attenuation systems to intercept runoff in the event of a fire or major spill event at the site.

3.4.4 Environmental Conditions

3.4.4.1 Soil

The Baseline Report (Attachment 4-8-3) concluded that there is no evidence of any residual contamination beneath the site.

The only chemical stored on site in significant quantities is diesel/HVO. However, the risk prevention measures planned at the installation significantly reduce the potential for an environmental impact to soil or water to occur. Each of the 41 emergency generators located at Dub 3, 4 & 5 has c.25m^3 double contained belly tanks with level gauges (high and low) within the fuel tanks connected to an onboard controller which will alarm to prevent overfilling and identify a sudden loss of fuel within the tank.

Source-pathway-receptor linkages were assessed for the bulk storage areas. It was concluded that there are no direct pathways to either the soil or groundwater environment.

3.4.4.2 Groundwater

Attachment 4-8-3 of this application provides a Baseline Report which identifies no historic contamination of groundwater. In the 2007 site investigations carried out by IGSL, Six No. groundwater samples were taken and analysed for a range of parameters. The groundwater did not exhibit levels of contamination greater than the Dutch Intervention Values.

3.4.4.3 Surface Water

The installation is located within the Eastern River Basin District (ERBD), as defined under the European Communities Directive 2000/60/EC. Surface water quality is monitored continuously by the EPA at various regional locations along principal and other smaller watercourses. The closest EPA surface water quality station downstream to the site is the 'Griffeen in Lucan Village' (EPA Code RS09G010600) which is located in the Griffeen River c. 4 Km to the north (i.e., downstream) of the subject site, just before its junction with the River Liffey (refer to Figure 13 below). Its most recent data (2019) show records which are consistently below the threshold values defined to achieve 'Good Status' (EU Environmental Objectives Regulations, SI 272/2009 and amendment SI 77/2019). However, a moderate status has been found for nitrogen and nitrate conditions.

All stormwater passes through by pass interceptors with carbon monitors and lockdown valves linked to the facilities BMS, prior to discharge to the existing 900mm stormwater sewer which runs west to east across the site south of DB3/DB4 and north of DB5. There are attenuation tanks in place at the site upstream of the interceptors. The existing stormwater sewer discharges into the River Griffeen east of the site.

3.4.4.4 Air

Ambient air quality monitoring was not undertaken as part of the preliminary assessment for this site. Reference has been made to the latest air quality monitoring programs that have been undertaken in recent years by the EPA and Local Authorities.

Attachment 7-1-3-2 – Air Emissions Impact Assessment of this application provides a summary of the relevant air quality that has been used as a baseline for the air dispersion modelling completed for the project.

3.4.4.5 Noise

The primary source of noise arises from the building service plant which are required to service the Data Centre (i.e. the AHU air intake and the AHU air exhaust), routine testing of the back-up generators, and in the event of a power failure there is noise produced by the generators.

An assessment of the noise emission impacts in line with the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* has been conducted and the results are summarised in Attachment 7.1.3.2 (Noise Impact Assessment) of this application.

4.0 BEST AVAILABLE TECHNIQUES AND COMMISSION IMPLEMENTING DECISION

Section 86A(3) of the EPA Act 1992 as amended, requires that the Agency shall apply BAT conclusions as a reference for attaching one or more conditions to an IE Licence. The installation has principally been assessed against the BAT conclusions contained in Table 4.1:

Table 4.1 *Applicable BAT documents*

Horizontal BREF	Publication date	Attachment
Best Available Techniques (BAT) Reference Document for Large Combustion Plants	2017	Attachment-4-7-1-BREF - Large Combustion Plants
Reference Document on the Best Available Techniques for Energy Efficiency	2009	Attachment-4-7-2-BREF - Energy Efficiency
Reference Document on the Best Available Techniques on Emissions from Storage	2006	Attachment-4-7-3 BAT REF - Emissions from Storage
Reference Document on the application of Best Available Techniques to Industrial Cooling Systems	2001	Attachment-4-7-4 BAT REF - Industrial Cooling Systems

The assessment has demonstrated that the installation will comply with all applicable BAT Conclusion requirements specified in the CID and will be in line with the guidance specified in the other relevant BREF Documents and relevant national BAT notes.

5.0 EMISSIONS AND ABATEMENT TREATMENT SYSTEMS

This section describes the emissions from the unit operations above and the abatement or treatment system in place for those emissions and summarises any monitoring controls in place.

5.1 AIR EMISSIONS

Minor Emissions

DB 3, 4 and 5 will have 41 no. standby generators with 41 no. flues and two fire pump with 2 no. flues, The generator flues have been installed to a height of 18m, 25m or 31.5m above ground level and the fire pump flues have been installed to a height of 3m above ground level resulting in a total of 43 emission points. The generators are only used during testing, maintenance and in the event of other abnormal operating events including emergency power outages. The generators and fire pumps are classified as minor emission points due to their periodic testing and infrequent use. The environmental impact of these minor emissions are set out in Attachment-7-1-3-2 - Air Emissions Impact of this license application.

It is anticipated, based on the applicants' past experience, that back-up generators will be used infrequently. The back-up generators are not expected to run in excess of 500 hours per year. Generators are fitted with a data logger which tracks the number of hours the generators operate.

Potential Emissions

These are emissions which only operate under abnormal process conditions. Typical examples include bursting discs, pressure relief valves, and backup generators.

The back up generators and tanks at the facility each include two-way normal pressure (breather) and pressure relief vents on the belly tanks. These produce minor fuel oil vapour (trace) emissions.

Fugitive Emissions

Fugitive emissions are defined as low level diffuse emissions, mainly of volatile organic compounds, that occur when either gaseous or liquid process fluids escape from plant equipment. There are no such emissions anticipated from the installation.

5.1.1 Treatment and Abatement Systems

The emissions from the backup generators have been considered against the Industrial Emissions Directive (IED) (Directive 2010/75/EU) was adopted on 7 January 2013 and is the key European Directive which covers the regulation of the majority of processes in the EU. As part of the IED Article 15 - Paragraph 2 requires Emissions Limit Values (ELVs) are based on best available techniques (BAT) and the relevant sector Reference Document of Best Available Techniques (BREF documents).

The most relevant BAT sector document for the activities at the installation is the Best Available Techniques (BAT) Reference Document for Large Combustion Plants LCP. ELVs set out in the LCP BAT are applicable to individual combustion plant greater than 15 MWth. However, the individual generators are below the 15 MWth threshold and therefore does not apply in this case. The Medium Combustion Plant (MCP) Regulations (S.I No. 595 of 2017), which transposed the Medium Combustion Plant Directive ((EU) 2015/2193), applies to the individual plant in this case.

Air dispersion modelling has been undertaken as discussed in Attachment 7.1.3.2 (Air Emissions Impact Assessment) to ensure that the appropriate ambient air quality standards are met. The modelling has been undertaken using the AERMOD air dispersion model in line with EPA Guidance Note AG4.

The stack heights of the back-up generators for the facility have been designed to ensure that an adequate height was selected to aid dispersion of the emissions and achieve compliance with these ambient air quality standards at all off-site locations (including background concentrations). There is no SCR abatement or treatment systems in place or required for the back up generators.

5.1.2 Control and Monitoring

The generators deployed on site are back-up only and are not anticipated to operate in excess of 500 hours per annum. Therefore, the generators are exempt from complying with the emission limit values subject to Section 13(3) of the Medium Combustion Plant (MCP) Regulations.

5.2 EMISSIONS TO SEWER

The foul drainage includes domestic effluent from the three data halls DB 3, 4 and 5. Average domestic wastewater flow from the installation is circa 2.5 m^3 per day up to a maximum of c.7m3 per day.

The environmental impact of these sewer emissions are set out in Attachment-7-1-3-2 – Stormwater, Ground and Sewer Emissions Impact of this license application.

5.2.1 Treatment and Abatement Systems

There is no requirement for onsite treatment or abatement for foul effluent produced from the facility. The foul effluent comprises of sanitary waste only. The effluent is treated offsite at the Ringsend Wastewater Treatment Plant.

Flow volume monitoring of the overall sewer discharge is in place with flow meters at both foul sewer outfalls SE-1 and SE-2. The location of the monitoring equipment SE1-1 and SE2-1 are identified on Drawings Ref. A1008 and A1009 Foul Drainage included with the application.

5.3 STORMWATER EMISSIONS

Surface water from the site is ultimately discharged to the stormwater network and the River Griffeen located to the east of the site via Emission Point SW1. The stormwater emission point is shown in Drawing A1003 Surface Water Drainage. The foul water is separated from all stormwater lines in accordance with BAT.

The only bulk chemicals stored are hydrocarbons (Diesel/HVO) and there is a low risk of contamination of stormwater, this would only be from complete containment failure resulting in a major leak or spill or emergency situation such as fire. The implemented mitigations below are will further reduce that risk.

Excess cooling water used in the AHU's is periodically discharged to the stormwater sewer. The excess water is unused clean mains water which has not been subject to any addition of chemicals. The daily average volume discharge from the evaporative cooling is 7.2m^3 a day or 2,628m^3 per annum

The environmental impact of these stormwater emissions are set out in Attachment-7-1-3-2 – Stormwater, Ground and Sewer Emissions Impact of this license application.

5.3.1 Treatment and Abatement Systems

The generators are housed within a generator yard with various designed control measures in place. The individual belly tanks are double skinned tanks, with level gauges (high and low) within the fuel tanks connected to an onboard controller which will alarm to prevent overfilling and identify a sudden loss of fuel within the tank. The containerised generator housing includes retention bunding in the base of the container, there are leak detection systems within the bund to alert in the event of a leak from the generator fuel tank or lubricating oil tank. The onboard controller for individual generators is connected to the Building Management System (BMS).

The hardstanding areas that drain surface water from the generator yard, loading dock, and fuel delivery areas pass through Class 1 by pass interceptors prior to entering the existing surface water drainage system. The carparking areas also pass through Class 1 by pass interceptors prior to entering the existing surface water. The hydrocarbon interceptors treat rainfall and prevent hydrocarbon spillages entering the existing stormwater sewer and stormwater attenuation tanks. There are level alarms connected to the BMS within the interceptors to alarm when they are full and require maintenance.

The outflow from the installation is restricted by way of Hydrobrake facilities at DB3/DB4 and at DB5, which limits the discharge to 45l/s, which is based on a requirement to achieve greenfield discharge rates.

Potentially contaminated stormwater (e.g. in the event of a fire) that enters the stormwater attenuation tanks and system will be tested prior to discharge to the off-site storm water network/River Griffeen. Any stormwater of unacceptable quality will be pumped out of the attenuation tanks and system and disposed of appropriately.

5.3.2 Control and Monitoring

It is proposed that weekly visual inspections for discolouration and odour are undertaken of the stormwater discharge monitoring point (SW1-1).

5.4 NOISE EMISSIONS

The primary source of noise arises from the building service plant which are required to service the Data Centre (i.e. the AHU air intake and the AHU air exhaust), routine testing of the back-up generators, and in the event of a power failure there is noise produced by the generators.

An assessment of the noise emission impacts in line with the EPA *Guidance Note for Noise: Licence Applications, Surveys and Assessments in Relation to Scheduled Activities (NG4)* has been conducted by and the results are summarised in Attachment 7-1-3-2 (Noise Impact Assessment).

5.4.1 Treatment and Abatement Systems

Plant items have been selected in order to achieve the required noise levels in order that the plant noise emission levels are achieved on site during emergency operations. Each backup generator is contained within an acoustic container or internally in the DB3 building to dampen the noise.

The noise mitigation measures incorporated into the site design includes the installation of either acoustic louvres, or low noise equipment to the data facades, as set out in Attachment 7-1-3-2 (Noise Emissions Impact Assessment).

5.4.2 Control and Monitoring

Annual day time, evening and night-time monitoring will be undertaken in accordance with the IE licence requirements.

6.0 MANAGEMENT OF RAW MATERIALS, INTERMEDIARIES AND WASTES

A list of all raw materials in use on the site is provided in Attachment 4.6.2.

The site produces minimal amounts of waste. Details of the estimated waste volumes, types, disposal/recovery techniques are provided in Section 8 of this application. The majority of the wastes generated are non-hazardous. Appropriate segregation and management of waste operators ensures no significant impacts on downstream facilities.

6.1 ENERGY EFFICIENCY AND RESOURCE USE

The operation of the installation will involve the consumption of electricity, fuel and mains water. The estimated quantities to be used when the installation is operational are specified in Attachment 4.6.1 The applicant will employ a variety of technologies to maximise the efficient use of energy within the installation. The installation is operated in accordance with an Energy Efficient Management System (EEMS), which is compliant and certified with the requirements of ISO50001, as well as the requirements of BAT.

7.0 PREVENTION OF ACCIDENTS

Based on the information available for products used on site and corresponding usage and storage volumes, the EC (Control of Major Accidents Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) do not apply to this site.

The only substance stored on site controlled under Seveso/COMAH will be diesel for the emergency generators. The quantity of diesel which qualifies a given establishment for the application of lower-tier and upper-tier requirements under Directive 2012/18/EU is 2,500t and 25,000t respectively. The development has the capacity to store a maximum of approximately 1074m3 of fuel oil (diesel and/or HVO)at any one time.

Regardless of the potential for major accident hazards, the operation of any activity involves a certain amount of risk to the environment and human health. Preventative/Control measures are implemented to reduce the likelihood of accidents and mitigate the effects of the consequences of an accident at the installation.

8.0 MANAGEMENT AND PROCESS CONTROL SYSTEMS

8.1 BUILDING MANAGEMENT SYSTEM (BMS)

The facility operates a Building Management System (BMS) this is a highly sophisticated automation system for control, monitoring, data collection and alarm/reporting of all site wide process and conditions, electrical and mechanical systems. Within each mechanical plantroom or service area a wall or control panel mounted operator HMI touchscreen is to be provided. These are to be used by the operations team to access the BMS system remotely whilst attending to any breakdowns or planned service works within the plantrooms. These control panels are connected via ethernet to the local Network Switch within the BMS.

Overall, the BMS enables the operator to more promptly respond to problems as well as to identify, diagnose and address potential problems before they affect operations.

8.2 ELECTRICAL POWER MANAGEMENT SYSTEM (EPMS)

The electrical distribution services is provided with a dedicated Electrical Power Management System (EPMS) with interface facilities for the BMS to monitor, alarm and display the status of the plant for the Critical Environment (CE) Team. Data shall be stored in the Microsoft Cloud Infrastructure Health (CIH).

8.3 STANDARD OPERATING PROCEDURES AND EMERGENCY RESPONSE PLAN

The facility has a number of Standard Operating Procedures (SOPs) in place. These address all relevant operational process and environmental matters onsite including, but not limited to;

- Emergency Response Plan, including fire and explosion response, incident, spill response procedures,
- Generator testing
- Operational Waste Management;
- Chemical and fuel delivery, storage and handling;
- Water treatment plant processes;
- Maintenance schedule;
- Reporting on, investigating, and documenting incidents;

8.4 FIRE MANAGEMENT

There is a system for detection, alarm and fire suppression systems to enhance life safety and protection of property by the detection of fire, enabling an audio/visual alarm to be given such that emergency actions may be taken fully compliant with Irish and EU regulations and in accordance with the insurers requirements.

The system incorporates fire alarm panels strategically located throughout the building to provide both Fire Fighters and operational staff detailed indications of the fire alarm status and report any alarm or fault events and to provide detailed device address information including an active graphical display. Detection shall comprise manual call points, smoke and/or heat detectors and aspirating detection.

The fire detection and alarm systems is subject to routine checks by site personnel and is inspected and tested by the external service provider on a regular basis.

There is a fire/sprinkler main supplied from a dedicated set of firewater storage tanks and associated pumps which will pressurise a separate firemain network.

8.4.1 Data Processing Areas

The fire alarm and detection system incorporates Aspirating Smoke Detection systems within the data processing facility for high sensitivity technical/pre-alarm only. The system shall interface to the main fire alarm systems.

Fire alarm interfaces are provided for all security doors and access control equipment. The fire alarm shall release all doors in the event of a fire condition or by manual and automatic programmed override control from the fire alarm panel. The fire alarm shall interface with the building management system.

The data halls have gas fire suppression system installed integrated with the fire alarm system to operate upon a fire condition. After a pre-determined time, delay period following the required operation of smoke detectors the gas is released.

8.4.2 Ancillary Office Areas

Detection comprises manual call points, smoke and/or heat detectors ass appropriate. Duct mounted smoke probes installed on the supply air to the offices and shall incorporate interfaces to shut down fresh air intake AHU plant in the event of a fire condition external to the building.

8.5 SITE CLOSURE

A certain amount of environmental risk is associated with the cessation of any licensable activity (site closure). An outline Site Closure report has been provided in Section 9 of this application. A site closure plan is described in Attachment 9-1-1 of this Licence Application.

It is anticipated that the EPA will impose suitable Conditions to the IE Licence once granted to ensure the proper closure of the activity with aim of protecting the environment.

9.0 ENVIRONMENTAL IMPACT ASSESSMENT

The Environmental Impact Assessment Report (EIAR) relating to this activity, prepared on behalf of Microsoft Ireland Operation Ltd. dated August 2007, which has been previously submitted to SDCC for Planning Ref. SD07A/0632 has been submitted to the Agency as part of this application (Attachment 6-3-6 EIS Planning Aug 2007 of the IE Licence application). All planning permissions for the data storage facilities that are relevant to this Licence application under Class 2.1 of the EPA Act 1992 (as amended) have been granted on site.

The installation has been constructed and operates in accordance with SDCC for Planning Ref. SD07A/0632, SD08A/0496, SD09A/0376, SD11A/0211 and SD13A/0015 therefore the EIS and updated EIS submitted to the EPA dated August 2007 and July 2008 (Attachment 6-3-6 and Attachment 6-3-7 of the IE Licence application) are relevant to this IE License activity. Any further information, including reports and advice, relating to the environmental impact assessment of the proposed activity is made available and contained within Section 7 of this licence application .

9.1 ALTERNATIVES

9.1.1 Alternative Locations and Layouts

The facility is ideally located adjacent to other existing Microsoft data halls.

Alternative project locations with suitable zoning and access to utilities were assessed during the procurement and planning stages of the development in 2007. It was concluded that having considered alternative sites that Grangecastle was a preferred option.

Several iterations of site layout were considered planning stages of the development to arrive at the current constructed arrangement of buildings and site infrastructure.

9.1.2 Alternative Processes / Technologies

Alternative technologies are considered on an ongoing basis as part of the ongoing maintenance and improvement to the operational efficiency of the technology at the facility. Technical feasibility, environmental impact, efficiency, security, reliability, and cost are carefully considered when upgrading or replacing elements of the datacentres.

The applicant has a programme in place which continually assesses and improves this technology particularly with respect to minimising power and water consumption. Designs are constantly evolving, and replacement hardware is chosen with energy efficiency central to the decision-making process.

The technology, is based on successful and proven technologies and processes already developed and in manufacture and use at the wider site, is not novel and no specific aspect is considered to represent an “Emerging technique”.

9.1.3 Alternative Mitigation

The Environmental Impact Statement (EIS) and an updated EIS relating to this activity, prepared on behalf of Microsoft Ireland Operation Ltd. dated August 2007 and July 2008 were previously submitted to SDCC for Planning Ref. SD07A/0632 and SD08A/0496 have been submitted to the Agency as part of this application (Attachment 6-3-6 EIS Planning Aug 2007 and Attachment 6-3-7 EIS Planning July 2008 of the IE Licence application).

The mitigation measures are outlined in the EIS completed for the installation at planning phase (operational phase and construction phase). These represent the best practice for achieving minimal impact on the receiving environment**.**

The mitigation measures for the environmental aspects considered under this IE licence application (if relevant) are set out in the accompanying emissions impact assessment reports within Section 7 of this licence application.

10.0 CONCLUSIONS

This non-technical summary includes a brief overview of the IE licence application, detailing each of the sections contained within the application that are relevant and applicable to the site.

It should be noted that in order to obtain comprehensive detailed description of the installation and the activities that will be carried out there, the full application should be viewed.