

**Amazon Data Services Ireland Ltd.**

# **Closure Plan**

**Attachment-9-2-3**

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**Prepared by AWN Consulting**

**IE Licence Application LA009874**

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## 1.0 INTRODUCTION

The outline Closure Plan has been prepared in accordance with EPA guidance for assessing and costing environmental liabilities<sup>1</sup> and the guidance for the closure of licensed sites<sup>2</sup>. The overall purpose of this plan is to ensure that necessary measures are taken to avoid any risk of environmental pollution and, where pollution has been caused, to return the site to a satisfactory state.

The applicant is applying to the Environmental Protection Agency (EPA) for an Industrial Emissions (IE) Licence to operate the facility. The following is an outline of the closure activities should they be required after the IE licence has been granted.

This plan addresses the key issues, which would occur in an orderly shutdown of all the site activities on a phased basis over approximately six (6) to twelve (12) months.

## 1.1 SITE DESCRIPTION

The Installation located on a site of c. 7.72 hectares located in Hibernian Industrial Estate, Greenhills Road, Tallaght, Dublin 24.

The Installation comprises 3 no. two storey data storage buildings (Buildings A, Building B and Building C) with ancillary elements. The ancillary elements of the development include loading bays, maintenance and storage spaces, associated water tanks, sprinkler, tanks, pump house and electrical rooms, security and utility spaces, underground foul and stormwater drainage network, underground attenuation systems, internal roading network, and site landscaping.

The overall site includes the Bancroft 110 kV GIS Substation. The site layout and main buildings is shown on Site Layout Plan Drawing Ref: 21\_123E-00-XX-DR-C-0002 Site Plan included with this application. The site is split in two, divided by the Hibernian Industrial Estate Road, Building B and C are to the north of the road with Building A to the south.

Operational hours are 24 hours a day, 7 days a week.

## 1.2 ACTIVITIES LICENCE/PERMIT DETAILS

An application is being made to the EPA for an IE licence. The requirement for an IE Licence is outlined within the First Schedule of the EPA Act 1992, Activity 2.1 *Combustion of fuels in installations with a total rated thermal input of 50 MW or more.*

The installation has received Final Grant of planning permission from South Dublin County Council (SDCC) under the separate applications listed below:

- Building A; final grant of permission on 2 August 2011 (SDCC Reg. Ref.: SD11A/0116). Building A Extension final grant of permission on 16 July 2014

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1 Ireland. Environmental Protection Agency. *Guidance on Assessing and Costing Environmental Liabilities*. Johnstown Castle: EPA, 2014.

2 Ireland. Environmental Protection Agency. *Guidance to Licensees on Surrender, Cessation and Closure of Licensed Sites*. Johnstown Castle: EPA, 2012

(SDCC Reg. Ref.: SD14A/0091) Building B; final grant of permission on 19 January 2015 (SDCC Reg. Ref.: SD14A/0232).

- Building C; final grant of permission on 4 April 2018 (SDCC Reg. Ref.: SD17A/0469). An EIA Screening Report was submitted with this application and is included as Attachment-6-3-6-EIAS-Planning-Apr-2018.

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. Any further information, including reports and advice, relating to the environmental assessment of the proposed activity is made available and contained within Section 7 of this licence application.

The planning history of the site is set out in Attachment-6-1-Stakeholder-Engagement.

The total combustion of fuels at the facility exceeds 20MW, and the facility holds a Greenhouse Gas (GHG) Permit under the Emissions Trading Regulations<sup>3</sup> Permit Register Number: No: IE-GHG172-10469-4.

### 1.3 CLOSURE SCENARIOS

This report covers a single closure scenario, it has been assumed that any closure of the site will be expected and therefore will be a well-planned and well-resourced event. It has been assumed that the on-site plant and equipment will be decommissioned, but that the site infrastructure (i.e., the building and associated services/utilities) will remain and will continue to be used for a similar use or repurposed for an alternative development.

Upon cessation of activities at the facility there will be no further wastewater emissions to sewer or emissions to atmosphere. There will also be no substances with the potential to release fugitive emissions remaining on site once the facility is closed, i.e., Clean Closure is expected.

The applicant will have the financial and personnel resources to implement the Closure Plan and will utilise staff resources to form a team to manage and execute the plan, supplemented where appropriate by external specialist. This team would be responsible for managing and executing the plan. Outside contractors required for cleaning, waste disposal or recycling activities would be fully approved and licensed.

It is anticipated that an orderly shutdown of all the site activities would occur on a phased basis over approximately six (6) to twelve (12) months.

### 1.4 RESTORATION/AFTERCARE PLAN

This facility is located on a site with no history/evidence of significant contamination, and it is anticipated that there will be no environmental liabilities once closure, decommissioning and residuals management are completed. Therefore, in accordance with EPA guidance only a Closure Plan is required and not a Restoration and Aftercare Management Plan.

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<sup>3</sup>European Communities (Greenhouse Gas Emissions Trading) Regulations 2012 (Ireland)

A Screening and Complete Baseline report for the site has been completed in accordance with the EU Guidance<sup>4</sup> for baseline reports. The Complete Baseline Report (Attachment 4.8.2) is included with the IE License application documentation.

The scope of this plan addresses the key issues, which would occur in an orderly shutdown of all the site activities on a phased basis over an estimated time of approximately six (6) to twelve (12) months.

## 1.5 SCOPE OF THE CLOSURE PLAN

The scope of the plan includes the following primary activities:

- Setting up a management structure to oversee the closure,
- Cancellation of incoming raw materials and cessation of all combustion activities and ancillary processes,
- All excess raw materials run-down or removed from site,
- Full decontamination and decommissioning of all operations equipment and building surfaces,
- All storage areas fully emptied and stored material transported off-site or disposed of.
- Decontamination, decommissioning and verification of all site utility services,
- Disposal or recovery of all waste materials in a manner that complies with regulatory requirements,
- Management and retention of all relevant records relating to movement, transfer or disposal of waste throughout the closure process - available for review by the Agency; and
- Independent verification and certification of clean closure status.

## 2.0 CRITERIA FOR SUCCESSFUL CLOSURE

The basis of the closure plan is to ensure that, upon completion of the implementation phase of the plan, the facility would be in a suitable state for future use and would not pose a risk to public health and safety or the environment.

It is not intended to remove all structures, systems, or plant equipment from the site in this scenario. In general, specialised equipment, data servers, cabling, electronic equipment, office equipment, chattels etc. will be, where possible, sold for reuse, or disposed of off-site. The facility buildings and common external utility features will remain in a suitable condition for future site users.

Assuming an orderly shutdown, key staff resources will be used to form a team to manage and execute the requirements of this Closure Plan, supplemented where appropriate by external resources. This closure team will be responsible for managing and executing the complete plan.

The benchmark criteria against which to evaluate successful closure is as follows:

- The Environmental Management System at the facility will be continually implemented throughout the closure process,

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<sup>4</sup>European Guidance concerning baseline reports under Article 22(2) of Directive 2010/75/EU on Industrial Emissions. EU: 2014/C 136/03

- All buildings, facilities, and plant equipment decontaminated and secured from unauthorised access,
- The asset is left in a condition in which there will be no constraints on future land use due to residual contamination,
- All residual materials/wastes arising from decommissioning will be handled, packaged, stored and disposed or recovered in such a manner that,
  - The equipment or decontaminated materials can be sold for re-use or sold for scrap; or
  - The contaminated materials will be disposed of using authorised hazardous waste contractors.
- All relevant documents relating to waste, material movements, transfer or disposal will be managed and retained throughout the closure process,
- Sufficient funds will be available to cover the full cost of closure; and
- Agreement is reached with the Agency that the site has been returned to a satisfactory state.

Assuming an orderly shutdown, the applicant will use key staff resources to form a team to manage and execute the requirements of this Closure Plan, supplemented where appropriate by external resources. This closure team will be responsible for managing and executing the complete plan.

**2.1 ROLES AND RESPONSIBILITIES DURING CLOSURE**

The following personnel outlined in Table 2.1 will have specific responsibility in the event of closure of the site. In the case of an orderly shutdown, the Site Lead, in discussions with the applicants European Management Team, will determine if and when the facility is to be closed and will have ultimate responsibility for ensuring a clean site closure occurs.

**Table 2.1** Roles and Responsibilities of staff as part of the Closure Plan

Personnel	Area of Responsibility as part of Closure Plan
DCEO Area Manager	The Area Manager will have ultimate responsibility for overseeing the closure process.
DCEO Facilities Managers (for each data storage facility)	The individual Facilities Managers will have responsibility for overseeing the closure process at their respective data storage facilities and will co-ordinate the efforts between the different data storage facilities to ensure a cohesive approach.
DCEO Chief Engineer	The Chief Engineers will have responsibility for implementing the Closure Plan at their respective data storage facilities. He/she will assign tasks for the process and ensure that closure is carried out as per this strategy. His/her primary responsibilities will include: Responsibility for ensuring all plant and equipment has been decommissioned by the Engineering team, and for the process of sale or disposal of the equipment once decommissioned, Responsibility for the management of non-plant related closure aspects i.e., overseeing the decontamination process and direction of all residual raw materials and waste for disposal off site. Engineering Operations Technicians (EOTs) will be retained for an appropriate period of time to assist with production close out. The Chief Engineer will provide direction to the onsite EOTs and any third party vendors.
Regional Environmental Manager	The Regional Environmental Manager will provide input into the decommissioning process where required and will be responsible for approving the site sign off before requesting Agency approval.
Regional Environmental Manager And/or	The Regional Environmental Manager and/or the Regional Environmental Engineer will be responsible for ensuring site closure processes are carried out with minimal impact on the environment and with no residual risk to the environment following closure of the site.

Regional Environmental Engineer	<p>They will provide correspondence and liaison with the Agency during the closure process.</p> <p>He/she will be responsible for coordination of external consultants to carry out environmental monitoring and closure audit.</p> <p>He/she will ensure all waste documentation is maintained and daily inspections are carried out during closure. They will be responsible for correct waste storage and disposal/recovery.</p> <p>During decommissioning, all documentation relating to all movements of materials/machinery whether disposed of or sold for reuse must be maintained. In addition, certificates for cleaning of all tanks, bund drains etc. must be maintained.</p>
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### 3.0 SITE EVALUATION

#### 3.1 OPERATOR PERFORMANCE

The site, prior to the development, was partially brownfield, and partially greenfield land.

There was a diesel spill from the site that occurred in July 1998. A groundwater sump was previously installed as part of the remediation of this diesel spill.

Based on the findings of a detailed site investigation and risk assessment works completed in 2008. Widespread contamination was not identified at the site, localised elevated concentrations of hydrocarbons were identified in the north where a UST had been decommissioned and north-west corner of the site where the 1998 diesel spillage had occurred. It was concluded the site was suitable for ongoing commercial land use without the need for further remedial works as the identified contamination was not considered a risks to the identified receptors.

The applicant utilises Standard Operating Procedure(s) (SOP), spill response procedures and an emergency management plan are in place.

The applicant has no history of non-compliance, enforcement, incidents, or complaints at this site.

#### 3.2 ENVIRONMENTAL PATHWAYS AND SENSITIVITY

The site has been evaluated in the Complete Baseline Report (Attachment 4.8.3). The Complete Baseline Report sets the benchmark for closure.

There is instructive site investigation information available for the southern section and mid-section of the ADSIL site. There is no site investigation information available for the northern section of the ADSIL site.

On the basis of the site investigation undertaken prior to the construction of the ADSIL facilities, the following conclusions have been made:

- Bedrock is greater than 8.0 mbgl and there is a proven depth of boulder clay greater than 6.0 meters.
- A review of the available soil and water quality confirms that the majority of the southern section of the site is free from hydrocarbon contamination.
- There was evidence of residual hydrocarbon contamination beneath part of the southern section of the site in 2008. However, this is localised contamination that is residual to a known incident that was subject to remedial works and does

not pose a risk to human health or environmental receptors or prevents the site from being used for commercial purposes.

- The remedial works completed in the southern section of the ADSIL site in 1998/1999 were completed in the north-western section which included the installation of a recovery sump and the removal of an UST at the northern boundary of the site. Boreholes completed in the 2008 intrusive investigation confirmed the soil and groundwater downgradient of the historical incident remained free of hydrocarbon contamination. Borehole WS-10 identified localised residual hydrocarbon contamination at the location of the former UST. Made ground was encountered to a greater depth (3.3 mbgl) at this location than across the site which is consistent with a localised excavation. Residual contamination was also identified at 2.6 mbgl at this location which is at a greater depth than the low permeability boulder clay encountered across the site. Both localised areas of hydrocarbon contamination are being naturally attenuated by the boulder clay.
- Based on regional information and the available site information the underlying bedrock aquifer is protected from the identified residual hydrocarbon contamination and any further potential contamination arising from the sites in the future.
- There is only bulk diesel storage proposed for the facility. However, the risk prevention measures planned at the facility significantly reduce the potential for an environmental impact to soil or water to occur. These measures include bunded or double contained vessels, dual-contained fuel pipe system (when underground), and spill management procedures.
- Source-pathway-receptor linkages were assessed for the bulk storage areas. It was concluded that there are no direct pathways to either the soil and groundwater environment. Interceptors are installed on the surface water drainage. A leakage from a bulk tank would be fully contained in the designated bund or the double skin lining of the tank, with leaks during delivery fully contained within the continuous hard stand delivery area. Any leakage outside of the delivery area would be contained within the drainage system.
- Based on the assessment of the source-pathway-receptor linkages, there was no potential for impact of any downgradient Natura sites.

### 3.3 SITE PROCESSES, ACTIVITIES, BUILDINGS, PLANT AND EQUIPMENT

The installation is currently occupied by 3 no. operational data storage facilities (Buildings A, B and C).

The three data storage facilities generally consist of the following primary aspects:

- Data Storage Rooms housing IT electrical equipment;
- Internal and External Air Handling Unit (AHU) Plant Rooms to house the equipment required to maintain the temperature, humidity, and power supply for the installation;
- Administration areas (office space, meeting rooms, welfare facilities etc.);
- Diesel powered emergency back-up generators, including day tanks (and associated emissions stacks/flues);
- Evaporative cooling water storage tanks; and;
- Loading bays and associated infrastructure.

Each of the three data storage buildings are accompanied by a designated generator compound for the supply of emergency power to that building. There is no interconnectivity between the generators of different buildings.



The generators are housed within a container with various designed control measures in place including acoustic attenuation, exhaust silences, and diesel stored locally in either day tanks or belly tanks within each containerised generator. There are drip trays at the diesel fill points.

The individual double skinned day tanks at the emergency back-up generators tanks have level gauges (high and low) within the fuel tanks connected to an onboard controller which will alarm to prevent overflowing and identify a sudden loss of fuel within the tank.

The containerised emergency backup generator housing includes retention bunding in the base of the container, there are leak detection systems within the bund. The onboard controller for individual generators is connected to the Building Management System (BMS).

### 3.4 RAW MATERIALS, PRODUCTS AND WASTES

The site has limited raw materials that are stored, the maximum potential storage is detailed below. It can be assumed in a worst-case scenario that the maximum quantity stored of each material will need to be managed at closure.

This includes all hazardous substances associated with both the IED Annex I activities and directly associated activities which have a technical connection to the activities carried out and which could have an effect on soil or groundwater pollution.

Where hazardous substances are listed under trade names the chemical constituents have also been identified. For mixtures or compounds the relative proportion of the largest constituent chemicals are identified.

There are no other raw materials held onsite other than domestic cleaning chemicals for cleaning of the staff facilities. These are managed by the cleaning company.

All oils, paints, adhesives or other materials required are brought onsite and removed from site by the relevant contractors.

Refrigerant is held within the VRF system for the offices. No additional refrigerants are stored onsite.

The small amounts of hazardous waste generated are stored in a fully paved designated storage areas in or external to each building. The waste is covered, and a mobile retention bund is in place to contain any liquid waste that requires storage. The waste is collected from this area by an authorised waste manager for disposal off-site.

Waste oil and filters and waste batteries are not stored onsite and are removed by the maintenance companies during maintenance operations and change outs.

**Table 3.1:** Storage of raw materials and maximum potential storage.

Substance	Area Served/Purpose	Expected Volume of storage
Diesel Fuel Oil	Emergency Generator Fuel source	325 m <sup>3</sup>
R410A	Refrigerant for cooling systems	551 (kg)
R407C	Refrigerant for cooling systems	34 (kg)
R32	Refrigerant for cooling systems	3.1 (kg)

It is anticipated that waste generated from the facility will be removed on a regular basis at least once monthly, it is not anticipated that there would ever be a substantial stockpile of waste at the facility. The waste at the facility during regular operation is primarily generated from the office and kitchen areas. The closure process will include undertaking an inventory of all materials and wastes on the site.

#### 4.0 CLOSURE TASKS AND PROGRAMMES

Upon cessation of operations and subsequent decommissioning at the facility, it is anticipated that there will be no remaining environmental liabilities, i.e., Clean Closure is expected.

#### 4.1 PLANT AND EQUIPMENT DECONTAMINATION REQUIREMENTS

All plant and equipment at the site will be decontaminated to ensure the removal of any hazardous materials. Equipment will be verified either analytically or through a visual inspection, as appropriate.

#### 4.2 PLANT AND EQUIPMENT DECOMMISSIONING REQUIREMENTS

During the planning phase prior to closure a cost benefit-analysis and risk assessment will take place to determine the future use of the facility plant and equipment.

It is anticipated that all temporary fixtures and fittings will be cleaned/decontaminated and removed, and what is not recoverable will be recycled or disposed of as appropriate.

It is expected that no major demolition will take place and the facility buildings and infrastructure will be left in place for future commercial/industrial use.

After decontamination, plant and equipment may be removed for use at other facilities, on sold, or left in place as for a future owner of the facility.

#### 4.3 SURFACE WATER DRAINAGE PROTECTION

The following surface water drainage network protection measures will be implemented during decommissioning:

- Dismantling of equipment will take place indoors, where possible, isolated from any clean surface water collection points,
- All loading and unloading of vehicles as part of the decommissioning process will be isolated from clean surface water collection points and will be carried out at tanker delivery areas where any spills will be routed to the retention pond,
- All waste oils/greases drained from equipment will be stored in containers on hard stand surfaced that are either bunded or have other retention mechanisms in place any to ensure any potential hazardous material spills can be quickly managed and contained,
- The facility's procedures for accident prevention and emergency response will be adhered to in the event of any potential spill, and
- Additional spill kit equipment will be brought on site during decommissioning works.

#### 4.4 DEMOLITION

No demolition is anticipated.

#### 4.5 RAW MATERIALS, PRODUCTS AND WASTE DISPOSAL AND/OR RECOVERY REQUIREMENTS

It is assumed that any shutdown of the site will be a well-planned event known in advance. Therefore, the process schedules and cancellation of raw material inputs will be factored in. It is anticipated that all usable raw materials on the site would be consumed prior to closure.

However, any residual raw materials will be documented and labelled. An inventory of any materials will be taken along with the identification of materials suitable for return to suppliers, transport to other facilities, or for sale to third parties.

All waste, both non-hazardous and hazardous, will be removed off-site for re-use, recycling, recovery and/or disposal by licensed waste contractors in accordance with regulatory requirements.

#### 4.6 CONTAMINATED LAND TREATMENT, REMOVAL AND/OR DISPOSAL

There is no known existing contamination of soil at the facility and, by implementing the procedures outlined in this report, it is not anticipated that any contamination will occur as a result of the decommissioning process. It is not anticipated that there will be any contaminated soil requiring removal/treatment upon closure.

The areas of the site where decontamination of equipment will take place are hard stand surfaced that are either bunded or have other retention mechanisms in place so any potential hazardous material spills can be quickly managed and contained.

In the case that there has been a risk of soil contamination, appropriate soil testing will be undertaken by independent consultants. Based on their advice a cost benefit-analysis and risk assessment will take place to assess treatment options. If removal of the soil is required, it will be disposed of at an appropriate non-hazardous or hazardous waste disposal facility in accordance with good practice.

#### 4.7 CLOSURE PROGRAMME

This section outlines the phased procedures to be followed in the event of a site closure. It is anticipated that the date of closure will be known in advance and detailed closure planning and an independent closure audit will take place. After detailed planning, it is expected that the closure of the site will take place over six (6) to twelve (12) months. The programme and tasks involved have been summarised in the sections below.

##### Detailed closure planning

Prior to the closure of the facility a detailed planning phase will take place that will include several actions including but not limited to; setting dates and timeframes for the closure and planning to run down raw material.

During the planning stage an inventory of any raw materials will be taken along with the identification of materials suitable for return to suppliers, transport to other facilities, or for sale to third parties. It is noted that in the event of a sudden closure, running down the quantities of raw materials on site will not be possible and the quantities to be removed may be up to the maximum volume of any particular tank.

A cost benefit-analysis and risk assessment will take place to determine the future use of the facility plant and equipment. Plant and equipment decontamination, and decommissioning requirements will be determined, and contractors will be engaged.

All contracts relating to the delivery of supplies and materials will be cancelled. All contracts other than those that are concerned with the Closure Plan or related to safety of personnel or the environment will be terminated.

Notification to the Agency regarding the planned closure of the facility will be supplied with the following information:

- a) The date when the activity will stop/stopped at the site.
- b) Expected date of vacation of all staff from the site.
- c) The proposed future use of the premises e.g., similar industrial use or redevelopment.
- d) Contact details for the company, post-exit from the site.
- e) Contact details for the following:
  - Proprietor of the land on which the site is situated,
  - Owners of the building and ancillary plant in which the activity is situated (if different from the operator of the activity),
  - Local Authority, and
  - Current occupiers of the building (where applicable).
- f) Proposals for revised sampling, analysis, and reporting arrangements on foot of the changes on site, for agreement with the Agency.
- g) Status of any associated bonds or financial provisions.

#### Independent Closure Audit

An Independent Closure Audit (ICA) of the site will be undertaken prior to cessation of operations and decommissioning of the facility. The ICA will be prepared in accordance with all relevant Agency guidance. The scope of the ICA will have prior written approval by the Agency before being conducted, but will include:

- The identification and documentation of any soil, sub-soils, buildings, plant, equipment, or waste materials or substances that may result in environmental pollution.
- The identification of how environmental liabilities will be dealt with post-closure, and whether any remediation measures are necessary.

#### **4.7.1 Stage 1 – Disconnection and decommissioning of non-essential site services/utilities.**

This task will include disconnecting all electrical and telecommunication connections and decommissioning the data halls and servers, and associated plant equipment including the cooling systems.

This is also expected to include, the disconnection of the emergency backup generators, transformers, water connections, and all other relevant operational equipment that will not be required for the closure phase.

Water storage tanks containing clean (mains) water including sprinkler tanks and evaporative cooling tanks will be drained down to the stormwater attenuation pond.

There are many fans, pumps and motors located throughout the site with HVAC equipment these will be disconnected.

It is assumed that only partial administration facilities will be required for the remaining site decommissioning operations and the successful completion of this plan. The non-essential areas will be cleared of office and kitchen, equipment and furniture etc. Outside of the wastepaper and other recyclables, the only anticipated difficult residuals associated with decommissioning of the administration buildings include office waste electrical and electronic equipment (WEEE). Due to the short life span of most office electronic equipment and sensitivity of the equipment due to confidential data, it is assumed that most of the electronic equipment will be considered waste.

#### **4.7.2 Stage 2 – Removal of excess raw materials from site**

Any excess raw materials, furniture, electronic equipment, catering equipment will be removed from the site with the following options implemented in a hierarchical format:

- Return to suppliers,
- Transfer of materials to other sites,
- Transfer/sale to other companies in Ireland,
- Transfer to recovery/recycling companies,
- Treating the material as a hazardous/non-hazardous waste (Stage 3).

#### **4.7.3 Stage 3 – Removal of hazardous/non-hazardous wastes from site**

It is assumed that any materials that can be recovered or recycled will have been done so in Stage 2. The remaining material on site will be considered waste, either hazardous or non-hazardous.

Removal of both hazardous and non-hazardous waste materials will be removed and disposed of in accordance with the facility's IE Licence requirements and appropriate National and EU Legislation.

In the case of hazardous waste disposal, all requirements of the IE License will be applied, especially in relation to hazardous waste that is not typically generated at the facility. Therefore, the management of some of this material may require the prior written approval of the Agency before the waste can be removed from the site.

Administrative organisation of relevant paperwork will take place, according to EPA Guidelines, ensuring all waste shipments during this period are accounted for. This will facilitate the requirement to have stated criteria for validation of decommissioning.

#### **4.7.4 Stage 4 – Decontamination**

This task specifically includes cleaning and decontamination procedures for all operational plant equipment. It is envisioned in this closure scenario on-site plant and equipment will be decommissioned but will remain in place and will continue to be used for a similar use or repurposed for an alternative development.

Contaminated solid waste arising from wipe-downs of equipment etc. will be collected in containers as hazardous waste, stored in the waste storage area.

### Cleaning of tanks/vessels

This stage is started when storage tanks are emptied, there a limited number of storage tanks associated with the storage of raw materials that will be cleaned with standard procedures. Liquid wastes not suitable for discharge to sewer will be disposed of using a licenced / permitted contractor.

### Cleaning and decommissioning generators

The generators will be cleaned and will include the removal and recovery/disposal of engine oil, greases and coolant, including pumping dry the fuel from day tanks.

### Cleaning of ducts, vents, and pipework and decommissioning of HVAC units

All ducts, vents, and pipework connecting various equipment and areas of the site will be cleaned and decontaminated by a specialist cleaning contractor.

### Cleaning of bunds, sumps, interceptors and drainage

There are bunds, sumps and a significant process drainage network at the facility associated with material storage areas, production, utilities, and abatement equipment.

#### **4.7.5 Stage 5 – Disconnection of remaining (essential) utilities**

One of the final stages of decommissioning will include the disconnection of the electrical substation and the disconnection of water the water supply.

Electrical substation and transformers will be rendered safe, and it is assumed that decommissioning will be carried out by maintenance staff. It is anticipated that a separate sub-system needed for emergency power / lighting and security will remain live.

Decommissioning of any cables will involve decoupling the cable from the switchgear. An excavation pit of approximately 10m<sup>2</sup> will then be established. The cables to be retired will be identified within this excavation pit and spiked (to ensure that decoupling from the switchgear has been successful and the cable is not live). The cables will then be cut and capped to protect the exposed cable. The excavated pit can be reinstated using the excavated material, with no import of fill required. The retired cables can remain in situ in the ground, with the potential for it to be returned to operation should it be required in the future.

#### **4.7.6 Stage 6– Removal of decommissioning waste and any residual hazardous materials**

Any other waste or hazardous materials identified during the closure or required during decontamination or decommissioning will be stored in appropriate receptacles and will be disposed of by licenced / permitted contractor.

Each major area of the site will have segregated skips allocated for the hazardous and non-hazardous waste. This waste will include things like:

- Spent mechanical parts; WEEE and waste decommissioning equipment,
- Solid hazardous waste (absorbent mats, contaminated PPE) stored in sealed and labelled containers,

- Contaminated containers, contaminated empty drums, IBC's and other packaging,
- Non-hazardous solid waste (non-contaminated containers, drums, pallets, packaging and PPE); and
- General miscellaneous waste.

#### 4.7.7 Stage 7 – Documentation and certification of decommissioning and decontamination

All transfers of raw materials, product and waste materials off-site will be appropriately recorded and maintained throughout the process for verification. Records of sales for value products will be kept for inspection and waste transfer documentation and consignment notes will be maintained on site for the duration of the decommissioning process and will be available after closure if required.

## 5.0 CLOSURE PLAN VALIDATION

### 5.1 ENVIRONMENTAL MONITORING

Environmental monitoring will be conducted upon agreement and request of the Agency. Once operations cease and site is decommissioned, there will be no significant emissions to atmosphere at the facility so monitoring of emissions will not be required.

In terms of the test programme, it is proposed to comprise the sampling and analysis presented in Table 5.1 as a minimum. It is anticipated that this scope will be refined and agreed with the Agency in advance of the assessment following confirmation of closure.

**Table 5.1:** Proposed sampling and analysis plan for the facility during and after closure

Media	No of Samples/Parameters	Description/Locations
<b>Soil</b>	Samples at varying depths for soil chemistry for all known contaminants used/present on site at the time of closure.	To be agreed with the Agency.
<b>Groundwater</b>	Samples for chemical characterization including all known contaminants used/present on site at the time of closure.	To be agreed with the Agency.
<b>Sewer</b>	Sampling as per IE licence requirements over the closure period	To be agreed with the Agency.
<b>Surface Water Drainage</b>	At minimum, weekly visual inspection during closure period.	To be agreed with the Agency.
<b>Ambient Dust and PM<sub>10</sub></b>	Sampling at several locations (upwind and downwind) for total dust and PM <sub>10</sub> .	To be agreed with the Agency.

### 5.2 CLOSURE VALIDATION AUDIT

Following completion of the site closure, a validation audit will take place to ensure that the details outlined in this Closure Report and factors raised by the approved Independent Closure Audit have been implemented.

As previously noted, it is not envisioned that there will be any residual contamination, and therefore an audit to ensure contamination does not exist is not expected.

### 5.3 CLOSURE VALIDATION AUDIT REPORT

As required by the IE Licence, a final validation report for the site will be submitted to the Agency upon execution of the Closure Plan. The report will present all of the information required to demonstrate that the criteria for successful closure has been achieved as well as the information necessary for making an application for surrender of IE Licence, where appropriate.

This audit will contain the following details:

- Name of person(s) completing closure audit,
- Any environmental liabilities or remediation issues and how these shall be dealt with post closure,
- Proposal for revised sampling analysis and reporting arrangements on foot of changes on-site for agreement with the Agency,
- Name of person(s) completing contaminated land/hydrogeological investigation; and
- Names of all waste handling contractors during closure i.e., waste contractors, proposed final destination etc. and waste disposal documents.

### 5.4 CLOSURE VALIDATION CERTIFICATE

The site operations staff and its consultants will carry out the above tests and investigations and submit certification, as requested by the Agency, to confirm that there is no continuing risk to the environment.

### 6.0 FINANCIAL PROVISION / COSTING

The costings have not been estimated and will be completed at a later stage as required and will include at a minimum:

- Plant and equipment decontamination costs
- Plant and equipment decommissioning costs
- Demolition costs
- Waste recovery or disposal costs
- Environmental monitoring costs
- Site security costs
- Validation costs
- Management and utility costs

The financial provision is to be agreed with the EPA subject to the approval of the costs by the EPA, set out in this Closure Plan.



## 7.0 CLOSURE PLAN REVIEW AND UPDATE

This outline Closure Plan is provided to support the IE application. This outline Closure Plan may be reviewed and updated as necessary to take account of any significant changes to the site, processes, available technology or costs.

The cost of implementing the Closure Plan will be borne by the applicant in the event of closure of the facility.

A final Closure Plan and costing of the closure activities will be provided to the EPA at request, after the IE licence has been granted.

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