SSE Tarbert Next Generation Power Station

Environmental Impact Assessment Report (EIAR)
Volume I
Chapter 19 Major Accidents and Disasters

SSE Generation Ireland Limited

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Delivering a better world

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19.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents the likely significant adverse effects arising from potential major accidents and disasters (MA&Ds) pertinent to the Proposed Development.

MA&Ds are incidents which can result in immediate or delayed significant harm to human health and/ or the environment and require the use of resources beyond those of the Applicant or its Contractors to manage, such as the emergency services. In the context of this assessment, major accidents are typically anthropogenic in nature and include for example, the accidental loss of containment of significant quantities of dangerous substances such as natural gas and gas oil, leading to fires and / or explosions. Disasters are typically naturally occurring events, such as earthquakes, landslides and flooding, and can also include manmade or external hazards such as acts of terrorism.

In this assessment, the MA&Ds pertinent to the Proposed Development are identified and qualitatively assessed to determine the potential impact on the following receptors:

- Population and human health.
- Biodiversity, with particular attention to species and habitats protected under The Habitats Directive (EU Council Directives on Birds and Habitats (Council Directive 92/43/EEC)).
- Land, soil, water, air and climate.
- Property and material assets, cultural heritage, and the landscape.

The assessment of MA&Ds considers the full lifecycle of the Proposed Development, from construction, through operation, maintenance, and the eventual decommissioning of the facilities.

Credible MA&Ds scenarios which are identified are termed ‘Risk Events’ and the mitigation measures to reduce these risks are considered. These measures include the engineering design and operational controls to prevent MA&Ds, and if Risk Events were to occur, reduce their impact and severity. Mitigation measures are therefore considered, along with the anticipated emergency management arrangements which would be initiated if the Risk Event occurred.

For each Risk Event, the qualitative assessment contained in this chapter will conclude if sufficient measures are in place to reduce risks associated with reasonably foreseeable worst-case impacts to acceptable limits, or if further mitigation is required.

Full details on the background and Site history are provided in EIAR Volume I Chapter 4 (Existing Site and Conditions), and details of the Proposed Development are provided in Chapter 5 (Description of the Proposed Development) and the Planning Statement submitted with this planning application.

19.2 Legislation, Policy, and Guidance

This section identifies the relevant policy, legislation and guidance informing the scope of the assessment and sets out the requirements stipulated within Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 (the EIA Directive).

19.2.1 Legislation

The assessment of the vulnerability of the Proposed Development to MA&Ds is included within EIAR following changes to EU legislation within the revised EIA Directive 2014/52/EU and now transposed into Irish law S.*I. No. 191 of 2020 - European Union (Environmental Impact Assessment) (Environmental Protection Agency Act 1992) Regulations (as amended by S.I. No. 421 of 2022).* The EIA Directive states the need to assess:

> *"the expected significant adverse effects of the project on the environment deriving from the vulnerability of the project to risks of major accidents and / or natural disasters which are relevant to the project concerned".*

In accordance with the requirements of the Regulations, an assessment of the potential risks of MA&Ds relevant to the Proposed Development is required. This assessment considers the measures envisaged to prevent or mitigate significant adverse effects on the environment associated with these incidents and provide details of the preparedness for a proposed emergency response should they occur.

Many regulations have been made which are of relevance to the control of MA&Ds of the Proposed Development, including the following:

- *Act No.10/2005* - Safety, Health and Welfare at Work Act (HSWA) (ISB, 2005). Including associated amendments:
  - *S.I. No. 231/2021* - Safety, Health and Welfare at Work (Chemical Agents) (Amendment) Regulations (ISB, 2021).
  - *S.I. No. 528/2021* - Safety, Health and Welfare at Work (Construction) (Amendment) Regulations (ISB, 2021).
- *Act No. 10/1972 (as amended by Act No. 21/1979)* - Dangerous Substances Act (ISB, 1972).
- *S.I. No. 272/2008* - European Communities (Classification, Packaging, Labelling and Notification of Dangerous Substances) Regulations (CLP) (ISB, 2008).
- *S.I. No. 566/2012* - European Union (Large Combustion Plants) Regulations (ISB, 2012).

Another regulation of importance to the Proposed Development is the EU SEVESO III Directive (2012/18/EU) which is implemented in Ireland through the Chemicals Act (Control of Major Hazards Involving Dangerous Substances) Regulations SI. No. 209/2015 ("the COMAH Regulations"). This applies to sites, such as the Proposed Development, which store significant quantities of hazardous materials which includes alternative fuel sources with similar purposes and properties to diesel and kerosene, such as Hydrotreated Vegetable Oil (HVO). The Proposed Development plans to store

volumes in a quantity which is above the 'Lower Tier' COMAH threshold. In combination with other storage on the SSE Tarbert site this may cross the threshold for an 'Upper Tier' COMAH site overall.

19.2.2 Policy

The Department of Housing, Local Government and Heritage (DHLGH) as part of the Government of Ireland has published a series of guidance documents in line with their Major Emergency Management Framework in order to set out arrangements for co-ordination at local, regional and national levels of emergency management. The framework also introduces a system to immediately determine a lead agency in all emergency situations[1].

The Kerry County Development Plan 2022-2028 (Kerry CDP, 2022), does not provide guidance regarding the assessment of MA&Ds but does refer to the implementation and control of Major Accident Hazard Sites, as defined by the SEVESO III Directive (2012/18/EU), within objective KCDP 9-91:

"*Control the following, for the purposes of reducing the risk or limiting the consequences of a major accident (regard will be had to the provisions of the SEVESO III Directive and any regulations, under any enactment, giving effect to that Directive)*

- *The siting of Major Accident Hazard sites.*
- *The modification of an existing Major Accident Hazard site; or*
- *Specified development in the vicinity of a Major Accident Hazard site."*

19.2.3 Guidance

Key considerations for undertaking a MA&Ds assessment are provided in the EC Commission: Guidance on the preparation of the Environmental Impact Assessment Report (2017)[2].

There is no specific guidance available which sets out the approach for undertaking a MA&Ds assessment within an EIAR. However, the scope of the assessment has been developed with reference to "Major Accidents and Disasters in EIA: An IEMA Primer"[3] (2020) which lays out emerging best practice.

Other guidance that is of relevance to the assessment of MA&Ds includes those published by the Environmental Protection Agency (EPA) in 2022[4], the Health and Safety Authority (HSA) in 2023[5] and the Chemicals and Downstream Oil Industries Forum (CDOIF)[6] in 2017.

As an emerging topic within environmental impact assessment (EIA), the IEMA, EPA, HSA, and CDOIF Guidelines provide useful guidance on the assessment of MA&Ds via the application of a process involving hazard identification via the consideration of typical guidewords, assessment of consequences and the consideration of means to eliminate or mitigate credible scenarios. The methodology used within this assessment is detailed in Section 19.4.

[1] DHLGH (2021). *A framework for major emergency management*. Available at: https://www.gov.ie/en/collection/ca182-a-framework-for-major-emergency-management/#documents-and-reports
[2] EC Commission (2017). Guidance on the preparation of the Environmental Impact Assessment Report. Available at: environmental impact assessment of projects-KH0417939ENN.pdf

[5] HSA (2023). *Guidance on Technical Land-Use Planning Advice*.
[6] CDOIF (2017). *Guideline, Environmental Risk Tolerability for COMAH Establishments*

19.3 Definitions

For the purpose of this assessment, the definition of a 'Major Accident' is taken from the guidelines on MA&Ds within EIA published by IEMA.

> *"A major accident is an event (for instance, train derailment or major road traffic accident) that threatens immediate or delayed serious environmental effects to human health, welfare and / or the environment and requires the use of resources beyond those of the client or its appointed representatives (i.e., contractors) to manage".*
>
> *Major accidents can be caused by disasters resulting from both man-made and natural hazards.*
>
> *A disaster is a man-made / external hazard (such as an act of terrorism) or a natural hazard (such as an earthquake) with the potential to cause an event or situation that meets the definition of a major accident.*
>
> *In general, major accidents and / or disasters should be considered as part of an assessment where the development has the potential to cause the loss of life, permanent injury and/or temporary or permanent destruction of an environmental receptor which cannot be restored through minor clean-up and restoration".*

As the COMAH Regulations apply to the SSE Tarbert site, the criteria for a major accident listed in Schedule 6 (Regulation 19(2)) are appropriate for consideration in this assessment. These criteria (for a major accident) are listed below.

- An injury to a person which is fatal.
- Up to six persons injured within the establishment and hospitalised for at least 24 hours (hrs).
- One person outside the establishment hospitalised for at least 24 hrs.
- A dwelling outside the establishment which is damaged and unusable as a result of the accident.
- The evacuation or confinement of persons for more than 2hrs where the value (persons × hrs) is at least 500.
- The interruption of drinking water, electricity, gas or telephone services for more than 2hrs where the value (persons × hours) is at least 1,000.
- Permanent or long-term damage to terrestrial habitats:
  - 0.5 hectares (ha) or more of a habitat of environmental or conservation importance protected by legislation; or
  - 10 or more hectares of more widespread habitat, including agricultural land.
- Significant or long-term damage to freshwater and marine habitats:
  - 10km or more of river or canal.
  - 1.0ha or more of a lake or pond.
  - 2.0ha or more of delta; or

  - 2.0ha or more of a coastline or open sea; or
  - Significant damage to an aquifer or underground water: 1.0ha or more.
- Damage to property in the establishment, to the value of at least EUR 2 million.
- Damage to property outside the establishment, to the value of at least EUR 500,000.

19.4 Methodology

The assessment of MA&Ds has been based on the application of standard hazard identification and risk assessment methodology which is typically applied at COMAH Installations and follows the IEMA and EPA guidance where applicable.

This methodology aims to identify credible hazard scenarios which are pertinent to the Proposed Development by virtue of the substances present, operations carried out and the geographic location. For each scenario identified, the precautionary measures associated with these hazards are taken into consideration and the residual risk is assessed. Following implementation of mitigation measures, the residual risk should be commensurate with a level considered by the Health and Safety Authority and EPA to be 'as low as reasonably practicable' (ALARP).

A proportionate, precautionary approach has been used in this assessment, based on the relative likelihood of the credible hazardous scenarios identified. A greater level of detail will be applied to the assessment of scenarios which are considered more likely to occur, or to scenarios with potentially more significant consequences.

The approach used in this assessment is summarised is as follows:

- Identify the hazardous substances which could be present over the lifecycle of the Proposed Development. These include flammable substances, materials harmful to the environment and materials harmful to human health.
- Consider the quantities and storage arrangements associated with these substances and the operations carried out at the Proposed Development involving these materials.
- Identify the credible major hazard scenarios associated with these materials and operations.
- Assess the location and vulnerability of the Proposed Development to hazards as a result of infrastructure, climatic conditions and geological events.
- In general, credible MA&D scenarios will fall into one of three categories:
  a) Events that could not realistically occur, due to the substances present, the type of development or its geographic location.
  b) Events that could realistically occur, but for which the Proposed Development, and associated receptors, are no more vulnerable than any other development; and
  c) Events that could occur, and to which the Proposed Development is particularly vulnerable, or which the Proposed Development has a capacity to exacerbate.

- Where credible major accident or disaster scenarios are identified, describe the potential for any change in the relevant environmental and human health receptors in qualitative terms.
- Describe the mitigation measures which will be adopted during the design, construction and operation of the Proposed Development, to provide documented evidence to support and demonstrate that likely effects have been mitigated or managed to an acceptable level.

Section 19.6 contains a screening process to identify the credible Risk Events for further consideration. The specific mitigation measures associated with each Risk Event are presented in Section 19.6.4 and general mitigation measures to reduce risk are discussed in Section 19.8.

19.5 The Proposed Development and Study Area

19.5.1 Facilities

This section provides an overview of the Proposed Development, summarising the key features pertinent to the assessment of MA&Ds, full details are provided in EIAR Volume I Chapter 5 (Description of the Proposed Development).

The Tarbert heavy fuel oil (HFO) Power Station commenced operation in 1969 and is currently under the management of the Applicant as of 2012. The existing Tarbert HFO Power Station employed approximately 40 people on the Site until recently and contains four generators with a combined power generation of up to 626MW. At present the Site is classified as an upper-tier COMAH site, with only two of the four generators currently in operation. The Tarbert HFO Power Station is required to close by the end of 2023 in line with environmental requirements. As such the installation of the Proposed Development, in addition to other developments at the Site, will allow the SSE Tarbert site to continue generating electricity. However, between the decommissioning of the Tarbert HFO Power Station, expected to be completed by the end of 2023, and the operation of the Proposed Development, expected to commence in October 2026, a Temporary Emergency Generation (TEG) development will be introduced. This comprises of three Open Cycle Gas Turbines (OCGTs) with a combined power output of 150MW operating using distillate fuel. The TEG plant is expected to be decommissioned in 2028/2029.

The Proposed Development will be installed alongside the current Tarbert HFO Power Station building, with the objectives of supporting the expansion of Ireland's renewable energy generation capacity and the supply at times of peak demand when other sources of electricity generation are unable to meet the demand requirements. This installation will take place in conjunction with the demolition and removal of some of the ancillary structures and foundations at the existing Tarbert HFO Power Station. The demolition will be carried out as part of the construction and site preparation stage and will include the demolition / removal of the following structures:

- Chemical storage buildings (175m^3).
- Water storage tank (18m x 15m).
- Water treatment plant (9500m^3).
- Septic Tank.
- Fuel lines (2170m^3).

- Carpentry workshop (1200m^3).
- Contractor / Canteen building (3300m^3).
- Boiler wash open top storage tank (5,500m^3).
- Remnant foundations (50m^3).
- ESB Building used by existing oil fired Tarbert Power Station (2800m^3).
- Storage Bund and Propane Tanks; and
- ESB toilet block (300m^3).

The Tarbert HFO Power Station's chemical inventory will be removed as part of the decontamination and decommissioning procedure and will be agreed with the EPA. This will be completed prior to the commencement of demolition and construction works associated with the Proposed Development.

The SSE Tarbert site also contains an 'Island Tank Farm' which comprises four HFO storage tanks each with a capacity of 29,500m^3 located within the Proposed Development boundary. These tanks will be fully decommissioned, and HFO removed as part of the decontamination and decommissioning procedure of the Tarbert HFO Power Station.

The proposed plant includes an OCGT unit, alongside supporting systems and equipment. The fuel source to the OCGT will be Hydrotreated Vegetable Oil (HVO). HVO is to be stored on Site in quantities as required under the Grid Code.

The required volumes of HVO will be stored within dedicated storage tanks on-site. Sufficient storage capacity (approximately 10,300m³) will be provided to operate the Proposed Development for approximately 116 hours (depending upon the machine selected). The proposed above ground fuel storage tank will be bunded and connected to pumps for transfer to the generator.

As part of the Proposed Development, HVO will be supplied by Heavy Goods Vehicle (HGV) road tankers to the Site with two unloading bays positioned close to the fuel storage tanks. The majority of the HVO pipelines will be above ground with a short section (approximately 22m) laid underground to connect to the OCGT. HVO will be forwarded from the storage tanks to the proposed OCGT via the fuel polishing and transfer system in pipework. Minor modifications will be installed to the electrical transmission system on-site, comprising new connections to the existing electrical distribution systems.

The objective of the Proposed Development is to provide support to the expansion of Ireland's renewable energy generation capacity and the electricity supply system when other electricity generation sources are not sufficient to meet times of peak demand. The OCGT is not expected to operate continuously, it will likely remain on stand-by for the majority of the time and will run only when required to complement the Country's renewable power generation technology. It is proposed that the OCGT will operate for 1,800 hours annually (approximately 20% of the time).

19.5.2 Location and Receptors

This section provides a summary of the location of the Proposed Development and proximity to health, safety, and environmental receptors. A study area based on a radius of 5km from the Proposed Development has been considered. There is no definitive guidance on the required study area for MA&Ds, therefore this has been based on experience and judgement, ensuring that sensitive locations

are included. The selected study area extends to Donail to the north, Glin to the east, Tarmon to the south and Ralaphane to the west.

A description of the Site location is provided in EIAR Volume I Chapter 4 (Existing Site and Conditions) alongside a summary of environmental receptors. Detailed descriptions of individual environmental receptors are contained within the appropriate technical sections of the EIAR Volume I, particularly Chapter 9 (Biodiversity), Chapter 12 (Water Environment), Chapter 13 (Land and Soils) and Chapter 15 (Population and Human Health).

The Proposed Development will be located approximately 2km north of the town of Tarbert, adjacent to the Tarbert Ferry. The Site is bound from its south-east to south-west boundaries by open green fields, intersected with hedging and vegetation.

Residential Receptors

- The nearest residential receptors are located adjacent to the Site on the south-east boundary with the nearest residential settlement being the town of Tarbert, which is sited approximately 2km south of the Site. The village of Killimer is sited approximately 3km north of the Site across the River Shannon.

Industrial Receptors

- The TEG development which is proposed adjacent to the Proposed Development boundary is anticipated to include three Distillate fuel storage tanks each with a capacity of 1,000m³.
- A 'Mainland Tank Farm' not related to the power station which is managed and controlled by the National Oil Reserves Agency (NORA) is located approximately 410m south-west of the Site, the tank farm consists of four HFO storage tanks each with a capacity of 42,500 m³ for a total capacity of 170,000 m³. This tank farm is regulated as an Upper Tier COMAH Installation.
- Moneypoint Power Station is located approximately 4.3km north-west of the SSE Tarbert site. This is the Republic of Ireland's largest, and only coal-fired power station, and is regulated as an Upper Tier COMAH Installation. However, the power station is expected to cease coal burning activities as of 2025 and will instead operate using HFO from 2025 to 2029. During this period the power station will only operate to compensate for shortfalls in generation capacity that threaten consumer supply.

Ground and Groundwater

- The Proposed Development is not located in a groundwater source protection area. Groundwater within the bedrock aquifer in the environ of the Proposed Development is classified as locally important and there are three abstractions and wells used for domestic and industrial purposes within an area of up to 2km from the Site.

Water

- The nearest sites where bathing water quality is monitored, is the Cappa Pier, Kilrush, located approximately 10km north-west of the Site. The EPA 2022 report on *Bathing Water Quality in Ireland*[7] classified this site as having '*Good*' Bathing Water Quality.

[7] EPA (2023). *Bathing Water Quality in Ireland 2022.*

- Cappa Pier is also a site used for fishing and recreational water sports.
- Glin pier, located approximately 5km east of the Site, is also a recreational ground for swimming events, such as triathlons.

Protected Environmental Sites

- The protected sites in the environ of the Proposed Development are:
  - Lower River Shannon Special Area of Conservation (SAC) [Site Code 002165]. Surrounding the Site boundaries.
  - River Shannon and River Fergus Estuaries Special Protection Area (SPA) [Site Code 004077]. Surrounding the Site boundaries.
  - Tarbert Bay Proposed Natural Heritage Area (pNHA) [Site Code 001386]. Adjacent to the south of the Site.
  - Clonderalaw Bay pNHA [Site Code 000027]. Located approximately 4.0km north-east of the Site.
  - St. Senan's Lough pNHA [Site Code 001025]. Located approximately 4.9km north of the Site.

Heritage Sites

- The Tarbert Demesne is part of the Archaeological Heritage Gardens Survey. The demesne comprises of a main house, walled garden and dense planting occupying the peninsula onto the Shannon Estuary. Development at Tarbert Power Station has encroached the northern extent with a row of tanks now present.
- Tarbert Island Battery is an Archaeological Asset which has since been demolished when the existing Tarbert HFO Power Station built over it.
- A burial site which was uncovered during constriction works at Tarbert HFO Power Station in May 1965. The burial and was located under a flagstone 1.2m below ground level and 5.5m from the shoreline of the Shannon Estuary, it is considered to be an Archaeological Asset.
- Demesne of Glin Castle and associated features, which is approximately 5km east of the Site and is an architectural conservation area with large numbers of tourists visiting annually.
- Tarbert Lighthouse which is an archaeological asset located on the northern tip of foreshore on Tarbert Island 90m to the north of the Proposed Development.
- Tarbert House, a protected structure and part of the Archaeological Heritage Building Survey, is located 930m to the south of the Proposed Development.

19.6 Potential Impacts

19.6.1 Hazardous Substances and Operations

19.6.1.1 Do Nothing

In the Do-Nothing scenario, the existing Tarbert HFO Power Station will be decontaminated and decommissioned (but no demolition works will be carried out). The previously consented TEG facility will be constructed and will be operational. The hazardous substances and operations associated with the Do-Nothing scenario will be similar to those currently present at the existing Tarbert HFO Power Station, consequently, the same types of MA&D scenarios would apply, although as a smaller facility the risks would be lower. The likelihood of these MA&D scenarios occurring, is considered to be very low as the power generation industry and HFO/distillate fuel facilities both at this Site and at facilities operated worldwide have a very good safety record and major accidents and disasters are very rare. The reduction in fuel storage quantities may reduce the COMAH status from upper tier (at present) to lower tier in the Do-Nothing scenario, this would be subject to a COMAH assessment.

Therefore, in the absence of the Proposed Development, there would still be a low risk of a MA&D occurring at the Site.

19.6.1.2 Construction Phase

The identification of potential MA&Ds during construction considers the substances which will be present, and the typical activities associated with the works, such as demolition works, ground preparation, excavation, construction of buildings and process structures including bulk storage tanks and bunding.

The following substances will be present at the Proposed Development during construction:

i. **Construction materials such as liquid concrete**

   This material can be harmful to human health and the environment and will present in significant quantities during construction where it is used to construct buildings, site surfacing, equipment supports and other assets.

ii. **Acetylene or nitrogen**

   These materials, contained in compressed gas cylinders, may be present on-site to carry out welding during construction activities.

iii. **Distillate Fuel**

   This material will not be used as part of the Proposed Development but will be stored on the SSE Tarbert site to be used as fuel for the TEG plant, which is expected to be operational from 2024 until 2028/2029, and therefore will overlap with the construction of the Proposed Development. This material can be harmful to both human health and the environment, it is also highly flammable.

iv. **HVO, Aqueous Ammonia and Sodium Hypochlorite**

   These materials will be used during the operational phase but may also be present during construction for the purposes of testing and commissioning of the plant, which may overlap with the construction phase. The details of their use during operation are specified in Section 19.6.1.3.

Demolition works will involve the deconstruction of ancillary buildings and chemical storage containers. The main risks involved with such activities includes falling debris, premature collapse of structures, release of hazardous dust (including asbestos), and failure to properly decommission / clean out the plant before demolition which could lead to release of substances toxic to the environment or flammable materials subsequently igniting.

Construction activities include works required to connect electrical power generated at high voltage (HV) at the Proposed Development to the transmission system via equipment such as transformers and switchgear. There are hazards associated with HV electricity, particularly during construction when work is carried out at or near to overhead power lines and underground cables. Contact with HV electricity can cause fatal injuries therefore must be carefully managed to control risks. An accident which causes an interruption to the supply of electricity to local residents and businesses could be within the criteria for a MA&Ds event.

General demolition and construction activities such as excavation, and deconstruction/construction of buildings and other structures will require the use of vehicles and tools. The hazards associated with activities include the potential for vehicle impact, particularly during reversing and vehicle overturning. The controls around this work will be carefully managed via risk assessment to control the risks to people, the environment and the existing operational areas.

The safety controls are detailed in the Construction Environmental Management Plan (CEMP), refer to EIAR Volume II Appendix 5A.

19.6.1.3 Operational Phase

The identification of potential Major Accidents during operation considers the substances present at the Proposed Development, identifying those which are potentially dangerous, such as flammable materials and substances toxic to human health and / or the environment. The assessment also considers the equipment in which these substances will be stored and used.

The following substances will be present at the Proposed Development during operation, the MA&Ds scenarios associated with each material are considered in Table 19.1.

i. **HVO**

   This will be the source of fuel used to produce power and will be supplied to the Proposed Development. The installation will include construction of fuel storage tanks for the OCGT, with underground pipework running between them. HGV unloading facilities will also be installed for deliveries of HVO by road, as well as associated pipework, including fittings and instrumentation to supply HVO to the dedicated storage tanks. HVO will be stored within these above ground storage tanks to ensure an equivalent of approximately 116 hours of continuous operation (depending on the machine selected), as determined by the connection agreement for security of supply.

ii. **Aqueous Ammonia**

   Selective Catalytic Reduction (SCR) will be fitted to the OCGT which will remove NOx from flue gas by injecting aqueous ammonia into a catalyst chamber. The aqueous ammonia will be stored in a dedicated storage tank, of dimensions 2.5m diameter and 5m length, to be directly injected to the SCR.

iii. Sodium hypochlorite

This material will be used for the sites water treatment works to create demineralised water for NOx control within the OCGT. It will be stored on site in a bunded area, within a storage tank of dimensions 1.5m diameter and 1m height.

iv. Distillate Fuel

This material will not be used as part of the Proposed Development but will be stored on the SSE Tarbert site to be used as fuel for the TEG plant, which is expected to be operational from 2024 until 2028/2029. The Proposed Development is expected to begin operation in 2026, as such both developments will be operational at the same time.

v. Liquefied Petroleum Gas (LPG) e.g., propane

There will be a 10m³ propane tank on Site. Propane is commonly used in pilot ignition systems for combustion plant and as reference gases in the continuous emissions monitoring systems installed within the stack.

The following substances may also be present on the Site, albeit in much smaller quantities:

- Gas Oil (Diesel) will be stored in a storage tank on Site as part of the Sites containerised fire water module which includes a diesel fire pump. It will also be used in HGVs during operational traffic and transport (e.g., for HVO fuel deliveries).
- Hydrogen compressed gas stored in pressurised cylinders, used as a coolant in the gas combustion turbine generator cooling system.
- Acetylene or nitrogen contained in compressed gas cylinders may be present on-site to carry out welding when operational during maintenance activities.
- General oils and lubricants for rotating machinery.
- CO_2 compressed gas for fire suppression.

All materials will be safely contained on Site within dedicated storage tanks or appropriate containers, i.e., compressed gas cylinders. All materials will be stored in suitably bunded areas with weather protection and will be inspected regularly.

In addition, firewater runoff could be generated on-site during a major accident. In the event of a major fire on-site, water potentially containing a foam concentrate could be applied to extinguish fires within the HVO fuel storage area. Firewater generated in such an incident could contain a mixture of materials that are harmful to the environment if allowed to enter the ground and groundwater. These include un-combusted HVO, products of combustion and others. Consequently, firewater runoff is considered as a potentially dangerous substance in this assessment.

The Proposed Development does not include a heat recovery steam generator, therefore chemicals such as biocides and corrosion inhibitors will not be required. These materials are often used at power generation facilities which incorporate steam systems to treat water and effluent.

The OCGT system comprises a large combustion engine which mixes compressed air with HVO fuel, and the gaseous products drive a turbine to generate electricity. The system is housed within an

enclosure to provide a controlled environment, which incorporates pressurisation systems to prevent ingress of external hazardous materials such as dusts and flammable gases. OCGT systems use well established technology and are in operation within many facilities worldwide as they provide an efficient means of generating electricity very quickly. There are however recognised hazards associated with their use as they comprise complex, high speed components and operate at high temperatures and pressures with a flammable mixture of fuel in air. These systems must be carefully managed and controlled via safety systems; therefore, the use of this equipment is considered in the assessment of potential major accidents.

19.6.1.4 Decommissioning Phase

Where decommissioning takes place, all above-ground equipment associated with the Proposed Development will be disassembled and removed from the Site. However, prior to the removal of plant, all residues and operating chemicals will be cleaned out from the plant and recycled or disposed of at a suitably licenced facility. The majority of the plant and equipment will have some limited residual value as scrap or recyclable materials and will be recycled at the time.

Contamination prevention is a requirement of the IE Licence during the operational phase. Therefore, the Proposed Development has been designed to prevent new areas of ground contamination or pathways to receptors as a result of construction or operation. Once the plant and equipment have been removed to ground level the hardstanding and sealed concrete areas will be left in place.

Method statements and risk assessments for the activities described will be key mitigation measures adopted during the eventual decommissioning phase of the Proposed Development.

In addition to these measures, other general safety controls will be incorporated into a Decommissioning Plan (including a Decommissioning Environmental Management Plan (DEMP)) which will be produced when required and agreed as part of the Industrial Emissions (IE) Licence of the Site and site surrender process.

19.6.2 Identification of Potential Major Accidents

Table 19.1 contains a review of the potential accident scenarios which involves the substances used during the construction and operational phases, identifying the means by which a loss of containment may occur and assessing the likely significance of a release on human health, safety and the environment. The hazard codes of each substance are listed in accordance the Classification, Labelling and Packaging (CLP) Regulation (EC) No. 1272/2008.

The conclusions of the assessment of substances contained in Table 19.1 are that the main substances which will be present at the Proposed Development with the potential to initiate credible Risk Events are HVO, Distillate fuel and LPG. These scenarios are considered in further detail within Section 19.6.4 and Table 19.3.

Table 19.1: Identification of Credible Major Accident Scenarios

Substance	Description of Use	CLP Hazard Classification	Screening and Identification of Potential Major Accident Hazards	Further Assessment Required (Y / N)
HVO	HVO will be supplied to the Site via a pipeline running from the HVO offloading facility for road deliveries to storage tanks prior to use on demand in the turbine. The storage capacity of HVO on the Site is three bulk tanks of combined volume 10,300m^3, which is sufficient for approximately 116 hours of continuous operation. From storage, HVO is forwarded via pumps to the new OCGT.	H226 - Class 3 flammable liquid and vapour. H304 - May be fatal if swallowed and enters airways. EUH066 - Repeated exposure may cause skin dryness or cracking.	The credible scenarios which could result in a release of HVO include the failure of or accidental damage to pipework, flexible hoses, storage tanks and transfer pumps which cause significant quantities of HVO to be released. This scenario could also include the failure of containment systems within delivery vehicles whilst on/travelling to Site. The maximum quantity of HVO which could be released may be up to several tonnes, depending on the type of incident. Though HVO is not classified as harmful to the environment, a significant release of it has the potential to cause a major accident if released to the environment, as it can cause major disturbances to the soil, groundwater and River Shannon, which contains protected species such as dolphins and water birds. If HVO vapour is ignited, this can result in a pool fire which has the potential to cause harm to people via thermal radiation and inhalation of smoke. The impact of a pool fire within a storage tank bund would be likely to be restricted to the Site, as high levels of thermal radiation would be unlikely at offsite receptors. A plume of smoke generated by a major fire would contain harmful substances such as particulate matter, however due to the size of the HVO tanks, in the worst-case pool fire scenario the plume would be unlikely to extend for a significant extent offsite. Consequently, there is the potential for a major accident scenario(s) associated with a significant loss of containment of HVO to the environment, therefore this scenario is considered further in this assessment.	**Y** **Risk Event 1** **Risk Event 2** **Risk Event 3**
Distillate Fuel	Distillate Fuel will be present on the SSE Tarbert site during construction and operation as part of the TEG project, which is proposed to have a storage capacity of 3,000m³ across three tanks. The TEG will be decommissioned in 2028/2029 at which point this material will be removed from the site.	H226 - Class 3 flammable liquid and vapour. H304 - May be fatal if swallowed and enters airways. H332 - Harmful if inhaled. H350 - May cause cancer.	The credible scenarios which could result in a release of Distillate fuel include the failure of or accidental damage to pipework, flexible hoses, storage tanks and transfer pumps which cause significant quantities of Distillate fuel to be released. This scenario could also include the failure of containment systems within delivery vehicles whilst on/travelling to Site. The maximum quantity of Distillate fuel which could be released may be up to several tonnes, depending on the type of incident. In the event of accidental damage to the storage tank, HGV tankers or associated pipework, there is the potential for a release of Distillate fuel to the surrounding environment. If it is released Distillate fuel has the potential to cause a major accident, as it can cause major disturbances to the soil, groundwater and River Shannon, which contains protected species such as dolphins and water birds.	**Y** **Risk Event 1** **Risk Event 2** **Risk Event 3**

Substance	Description of Use	CLP Hazard Classification	Screening and Identification of Potential Major Accident Hazards	Further Assessment Required (Y / N)
		H361d - Suspected of damaging the unborn child. H373 - May cause damage to organs through prolonged or repeated exposure.	If Distillate fuel vapour is ignited, this can result in a pool fire which has the potential to cause harm to people via thermal radiation and inhalation of smoke. The impact of a pool fire within a storage tank bund would be likely to be restricted to the Site, as high levels of thermal radiation would be unlikely at offsite receptors. A plume of smoke generated by a major fire would contain harmful substances such as particulate matter and potentially Sulphur Dioxide, however due to the size of the Distillate fuel tanks, in the worst-case pool fire scenario the plume would be unlikely to extend for a significant extent offsite. Consequently, there is the potential for a major accident scenario(s) associated with a significant loss of containment of Distillate fuel to the environment, therefore this scenario is considered further in this assessment.	
Aqueous ammonia	Aqueous ammonia will be stored on Site in a dedicated storage tank of approximate capacity 24.5m^3. From storage it will be injected into the new SCR outfitted onto the OCGT.	H314 - Causes severe skin burns and eye damage. H335 - May cause respiratory irritation. H410 - Very toxic to aquatic life with long lasting effects.	The total volume of aqueous ammonia stored on Site is relatively low. In the event of accidental damage to the storage tank, HGV tankers or associated pipework, there is the potential for a release of aqueous ammonia to the surrounding environment. If it is released it can cause harm to people present, potentially causing damage to skin and eyes as well as causing respiratory issues especially within an enclosed area. The release of aqueous ammonia to the environment can also lead to contamination of the surrounding soil, groundwater and potentially aquatic life if it reaches the River Shannon. Although there is the potential for major accident scenarios to occur upon accidental release of aqueous ammonia, this is not considered a credible major accident scenario, as the quantities to be stored are relatively low. The containment systems which will be installed at the Proposed Development should be sufficient to prevent this material from reaching the environment. Therefore, no specific scenarios involving a release of aqueous ammonia are considered further in this assessment.	**N**
Sodium hypochlorite	Sodium Hypochlorite will be stored on Site in a dedicated storage tank of approximate capacity 1,600 L. From storage it will be directed to the Demineralization Water Treatment Plant.	H290 – Corrosive to Metals. H314 - Causes severe skin burns and eye damage. H318 – Causes serious eye damage.	The total volume of sodium hypochlorite stored on Site is relatively low. In the event of accidental damage to the storage tank, HGV tankers or associated pipework, there is the potential for a release of sodium hypochlorite to the surrounding environment. If it is released it can cause harm to people present, potentially causing damage to skin and eyes as well as causing respiratory issues especially within an enclosed area.	**N**

Substance	Description of Use	CLP Hazard Classification	Screening and Identification of Potential Major Accident Hazards	Further Assessment Required (Y / N)
		H335 – May cause respiratory irritation. H400 - Very toxic to aquatic life. H410 - Very toxic to aquatic life with long lasting effects.	The release of sodium hypochlorite to the environment can also lead to contamination of the surrounding soil, groundwater and potentially aquatic life if it reaches the River Shannon. Although there is the potential for major accident scenarios to occur upon accidental release of sodium hypochlorite, this is not considered a credible major accident scenario, as the quantities to be stored are relatively low. The containment systems which will be installed at the Proposed Development should be sufficient to prevent this material from reaching the environment. Therefore, no specific scenarios involving a release of sodium hypochlorite are considered further in this assessment.	
Firewater – effluent generated during fire-fighting	In the event of a major fire, application of firewater would be used to extinguish a fire and potentially to provide cooling to adjacent structures preventing escalation of the incident. A foam concentrate additive would typically be used in a fuel pool fire scenario which involved HVO or distillate.	Non-classified in accordance with CLP.	Firewater runoff would contain foam and other substances used for fire suppression along with products of combustion and un-combusted hydrocarbons. Modern foam concentrates do not contain substances classed as harmful to the environment; however, the firewater could contain products of combustion and un-combusted fuel. This material has the potential to cause harm if released to the environment. During the design of the Proposed Development, a detailed firewater containment assessment will be carried out, as required for a COMAH Installation. This assessment will involve the calculation of the total quantity of firewater which could be produced in a range of scenarios and will inform the design of containment facilities. Containment of firewater would therefore prevent material from being released offsite. This material would be collected for testing, treatment and disposal offsite at a suitable facility. Although there is the potential for a major accident scenario which involves the application of firewater, a release of firewater to the environment is not considered a credible major accident scenario due to the containment systems which will be installed at the Proposed Development to prevent this material from reaching the environment. Therefore, no specific scenarios involving a release of firewater are considered further in this assessment.	**N**
Gas Oil (Diesel)	Gas Oil (Diesel) will be used in the Sites Containerised Fire Water Module which will contain a diesel fire pump and associated storage tank	H226 - Flammable liquid and vapour. H304 - May be fatal if swallowed and enters airways.	In the event of accidental damage to the storage tank, or associated pipework, there is the potential for a release of gas oil (diesel) to the surrounding environment. If it is released gas oil (diesel) has the potential to cause a major accident, as it can cause major disturbances to the soil, groundwater, and River Shannon, which contains protected species such as dolphins and water birds, due to its high toxicity.	**N**

Substance	Description of Use	CLP Hazard Classification	Screening and Identification of Potential Major Accident Hazards	Further Assessment Required (Y / N)
		H315 - Causes skin irritation. H332 - Harmful if inhaled. H350 – May cause cancer. H373 - May cause damage to organs H410 - Very toxic to aquatic life with long lasting effects.	If gas oil (diesel) vapour is ignited, this can result in a pool fire which has the potential to cause harm to people via thermal radiation and inhalation of smoke. The impact of a pool fire within a storage tank bund would be restricted to the Site, as high levels of thermal radiation would be unlikely at offsite receptors. A plume of smoke generated by a major fire would contain harmful substances such as particulate matter, however due to the size of the gas oil (diesel) tanks, in the worst-case pool fire scenario the plume would not extend for a significant extent offsite. Although there is the potential for major accident scenarios to occur upon accidental release of Distillate fuel, this is not considered a credible major accident scenario, as the quantities to be stored are relatively low. The containment systems which will be installed at the Proposed Development should be sufficient to prevent this material from reaching the environment. Therefore, no specific scenarios involving a release of gas oil (diesel) are considered further in this assessment.	
Liquefied Petroleum Gas/Propane In Compressed Gas Cylinders	Propane cylinders may be used in pilot ignition systems and as reference gas in emissions monitoring systems. A 10m³ propane tank will be present on site.	H220 - Extremely flammable gas. H280 - Contains gas under pressure; may explode if heated. H332 – Harmful if inhaled.	In the event of accidental damage to a gas cylinder, pressure regulator or associated pipework, there is the potential for a release of gas. If the gas released is ignited, this could result in a fire / explosion. In the event of a fire onsite which escalates to areas where gas cylinders are stored, there is the potential for an explosion if the cylinders are exposed to thermal radiation. The consequences of a fire / explosion could include harm to people if present in the vicinity of the cylinder(s) and damage to assets, potentially interrupting operation of the Proposed Development. Industry standard procedures will be used for the storage and use of gas cylinders which reduce the risk associated with these systems to a low level. When not in use, cylinders will be stored in external, well-ventilated areas and when in use, appropriately certified equipment will reduce the potential for ignition if a flammable gas is accidentally released. There is the potential for a major accident scenario(s) associated with a loss of containment of LPG, therefore this scenario is considered further in this assessment.	**Y** **Risk Event 4**
Compressed Gas Cylinders Typically	A small number of compressed gas cylinders containing hydrogen may be present on-site	H220 - Extremely flammable gas (Acetylene,	The number of cylinders containing extremely flammable gas used on Site will be relatively low.	**N**

Substance	Description of Use	CLP Hazard Classification	Screening and Identification of Potential Major Accident Hazards	Further Assessment Required (Y / N)
including: Hydrogen Acetylene	during operation as part of the power generator cooling systems. Propane cylinders may be used in pilot ignition systems and as reference gas in emissions monitoring systems. During construction and maintenance activities, welding may be carried out using compressed gases such as acetylene and nitrogen.	hydrogen, propane). H280 – Gas under pressure (all gas cylinders).	In the event of accidental damage to a gas cylinder, pressure regulator or associated pipework, there is the potential for a release of gas. If the gas released is ignited, this could result in a fire / explosion. In the event of a fire onsite which escalates to areas where gas cylinders are stored, there is the potential for an explosion if the cylinders are exposed to thermal radiation. The consequences of a fire/ explosion could include harm to people if present in the vicinity of the cylinder(s) and damage to assets, potentially interrupting operation of the Proposed Development. Industry standard procedures will be used for the storage and use of gas cylinders which reduce the risk associated with these systems to a low level. When not in use, cylinders will be stored in external, well-ventilated areas and when in use, appropriately certified equipment will reduce the potential for ignition if a flammable gas is accidentally released. Taking into consideration the small quantities of flammable gas stored in cylinders which will be present on-site and the safety and security measures which will be in place to store and use this material safely, it is considered that no credible major accident scenarios exist for these substances and are therefore not considered further in this assessment.	
Compressed Gas Cylinders (non-flammable) Including Nitrogen CO_2.	A small number of compressed gas cylinders containing CO_2 will be installed to provide fire protection in enclosed areas of the turbine and generator. Nitrogen would typically be used during construction and maintenance activities to purge pipework and other uses.	H280 – contains gas under pressure	The number of cylinders containing nitrogen and CO_2 gas present on Site will be relatively low. In the event of accidental damage to a gas cylinder, pressure regulator or associated pipework, there is the potential for a release of gas. If gas is released within an enclosed area, this can cause harm to people present, potentially causing asphyxiation. The control measures for these substances are as described previously. Taking these into consideration along with the low numbers of cylinders which will be present, it is considered that no credible major accident scenarios exist for these substances and are therefore not considered further in this assessment.	**N**
Lubrication and Hydraulic Fluids	Mineral and synthetic oils are typically used within equipment such as generators and compressors to generate power and to provide lubrication for moving parts.	Typically, non-classified in accordance with CLP.	Lubrication and hydraulic fluids will be present on site in relatively small quantities and stored in suitable containment systems to prevent accidental damage and collect all stored material should a failure of the storage vessel occur. In the event of failure of the storage vessel and containment systems, there is the potential for a release of fluid however the quantity would not be sufficient to reach environmental receptors or cause significant harm to people, therefore would not	**N**

Substance	Description of Use	CLP Hazard Classification	Screening and Identification of Potential Major Accident Hazards	Further Assessment Required (Y / N)
	These materials are typically delivered and stored in small containers such as drums with a 200-litre capacity. Maintenance areas will be established for the storage of these substances, within fixed containment bunds.		result in a major accident. This scenario is therefore not considered further in this assessment.	
Concrete	Liquid concrete will be used in the construction of new facilities at the Proposed Development including buildings, surfacing and containment systems. Temporary storage systems will be present during construction of the Proposed Development and standard techniques will be used to pour cement onto prepared areas, for example, during the creation of tank bunds.	Typically, non-classified in accordance with CLP.	Concrete is not classified hazardous in accordance with CLP; however, concrete paste is alkaline (pH 10-14) and therefore harmful to people if in contact with skin or eyes. If concrete enters the environment via a release to water, it can raise the pH causing harm to aquatic ecosystems. Concrete released to the environment can also cause sedimentation on aquatic beds, which could harm flora and fauna. In the event of an accidental release occurring during construction, concrete/cement can raise the pH if released to water. Mitigation measures to prevent concrete reaching the Shannon Estuary are described in the Construction Environmental Management Plan (CEMP) and will be developed further in the Contractor's CEMP. This scenario is therefore not considered further in this assessment.	**N**

19.6.3 Identification of Potential Disasters

The identification of potential disaster scenarios which are pertinent to the Proposed Development is primarily based on an assessment of the geographical location. For example, highly unlikely events such as seismic events at the location of the Proposed Development have the potential to cause significant damage to assets and infrastructure such as HVO pipework and storage tanks. These events can result in a loss of containment of HVO leading to fires and/ or explosions.

The design life of the Proposed Development is expected to be 25 years; therefore, adverse impacts associated with climate change such as increased ambient temperatures, flooding and wind speeds are pertinent and are also considered in this Section.

The Proposed Development is located alongside the following facilities: the decommissioned Tarbert HFO Power Station; the TEG (total storage capacity 3,000 m^3), which will be operational during the construction and the early operational years of the Proposed Development; a NORA operated Mainland Tank Farm (total storage capacity 170,000 m^3); and the Moneypoint Power Plant. As such, there is risk of adverse events occurring at these facilities and escalating and to have an impact at the Proposed Development. These scenarios are referred to in the COMAH Regulations as 'Domino Events' and are also considered in this section along with accidents which are not directly related to dangerous substances identified in Table 19.2.

Disasters such as major storms and significant seismic events have a low probability of occurrence, however the potential consequences can reach the highest level of significance as defined in Section 19.3.

The potential disaster scenarios which have been assessed for the Proposed Development are described in Table 19.2.

The potential impacts of disasters are well understood by engineers involved with all aspects of the design, construction and operation of power stations such as the Proposed Development. These impacts are mitigated during the engineering design phase, for example, by the use of industry standard mechanical and structural design codes used for pipework, process equipment, supports and structural assets.

Taking into consideration the likelihood and consequences following the inclusion of mitigating measures, the overall risk of disasters occurring at the Proposed Development is considered to be very low but cannot be entirely eliminated. Consequently, additional measures associated with management of the Site such as operating procedures, accident prevention plans, and emergency response procedures will be in place prior to operation. These measures further reduce the risk and the consequences of disasters and are summarised in Section 19.8.

This assessment has identified one scenario where an incident such as a fire and / or explosion occurring adjacent to the existing NORA Mainline Tank Farm could escalate and potentially have an impact at the Proposed Development (and vice versa). This scenario is considered further in Table 19.3.

Table 19.2: Identification of Credible Potential Disaster Scenarios

Category	Description	Screening and Identification of Potential Accident / Disaster Scenarios	Included in Assessment (Y/N)
'Domino Event' Accident - Industrial accident at NORA tank farm which escalates to new facility (and vice versa)	The Site is in the vicinity of the NORA Mainland Tank Farm. An incident such as a fire at the Mainland Tank Farm could potentially reach the facilities associated with the Proposed Development and conversely, an event at the Proposed Development could reach the Mainland Tank Farm. This could result in an event which takes more resources to manage and has the potential to cause harm to people on Site, damage to property and assets. An explosion at the Mainland Tank Farm could generate projectiles which may reach the Proposed Development, causing harm to people on Site and damage to assets such as pipework which could result in a loss of containment. This has the potential to initiate a secondary incident at the Proposed Development. A plume of smoke generated by a fire on the Mainland Tank Farm could reach the air intake system of the OCGT causing asset damage and has the potential to interrupt operations on site.	The scenarios which are associated with a major fire and/ or explosion occurring at the Mainland Tank Farm would be initiated via a loss of containment of HFO via the same mechanisms as described for the Proposed Development in Table 19.1. The proximity of Mainland Tank Farm to the Proposed Development has the potential for the impact of these scenarios to be exacerbated, therefore this scenario is considered to be a credible potential disaster and will therefore be considered further.	**Y** **Risk Event 5**
'Domino Event' Accident – Industrial accident at Moneypoint which escalates to the Proposed Development (and vice versa)	An incident such as a fire occurring at a neighbouring industrial site (not associated with the Proposed Development) such as the Moneypoint ESB site on the northern bank of the River Shannon could potentially impact the Proposed Development via the same mechanisms as described in the previous disaster scenario.	There are several industrial sites located in the vicinity of the Proposed Development, including the upper tier COMAH site at Moneypoint ESB. An incident at this facility such as a fire could result in significant damage at that location but would be unlikely to have an impact at the Proposed Development due to distance. The impact of thermal radiation and explosion overpressure generated by an event at Moneypoint ESB would not be considered to have a sufficient magnitude at the Proposed Development, therefore it would be unlikely to cause significant harm to people or assets. Consequently, whilst this scenario would be considered a potential disaster at the Moneypoint ESB, is not considered further for the Proposed Development.	**N**
Structural Failure / Building Collapse during demolition / construction	An Incident such as a building collapsing during demolition activity (e.g., falls in wrong direction or off schedule) or during construction.	Demolition / construction activities conducted at the Site will be subject to the CEMP, which will consider the potential for collapses to occur and identify appropriate mitigation measures and safe systems of work to be adopted to reduce the risk to a very low level, therefore the risk of a disaster occurring is considered to be low and is not considered further.	**N**

Category	Description	Screening and Identification of Potential Accident / Disaster Scenarios	Included in Assessment (Y/N)
	This could result in an event which takes more resources to manage and has the potential to cause harm to people on Site, damage to property and assets.		
Accident–- High Voltage (HV) Electrical equipment	Electrical power will be generated at high voltage levels at the Proposed Development. Accidental contact with high voltage systems can be immediately fatal to people and accidents involving electricity have occurred particularly during construction activities, for example, where cranes have come into contact with overhead power lines. Malfunction of high voltage electrical systems can result in events such as arc flash incidents which could create high levels of thermal radiation. People exposed to arc flash events can suffer fatal or life changing injuries. Damage to high voltage electrical infrastructure could restrict the ability of the facility to operate and compromise electrical supply to the local area.	There is the potential for a disaster to occur at the Proposed Development which involves accidental damage or malfunction of high voltage electrical equipment. During construction, activities will be carried out to install new electrical connections including a connection to the existing substation site to the immediate south of the Proposed Development OCGT. This work will be very carefully controlled via the CEMP and specific work plans supported by risk assessments. Only suitably qualified and experienced electrical engineers will be allowed to work on high voltage systems, and industry standard safety procedures will be used. Engineers and technicians will manage this work to reduce the risk to a very low level, therefore the risk of a disaster occurring is considered to be low and is not considered further.	**N**
Accident–- Vandalism / Arson / Terrorism / Cyber Attack	There is the potential for hostile acts against the Proposed Development for example by people opposed to power generation using hydrocarbon fuels. In most instances, these acts would be limited to the potential interruption to operation, minor damage or vandalism. The potential for a significant terrorist incident would be considered as unlikely as the Proposed Development would not be considered as a high-risk target. Cyber security breaches where electronic process control systems are remotely accessed by bad actors for a variety of purposes is an increasing threat, which the Power Generation industry is aware of and takes very seriously by putting systems in place to prevent such breaches.	Vandalism, arson and terrorist activities could cause harm to people on Site, damage to assets and interruption to power generation operations at the Proposed Development. This will be mitigated by implementing security measures including appropriate fencing, CCTV, access control and guards etc. Cyber security systems are designed by expert engineers to prevent unauthorised access to computers on site which provide essential functions for safe operation. The measures described above will reduce the risk associated with vandalism, arson, terrorism and /or cyber-attacks to a low level. Consequently, this scenario is not considered further.	**N**
Climate Change / Natural Event – Surface Water Flooding	The frequency of storms experienced in the location of the Proposed Development could increase during the lifecycle of the facility as a result of climate change. This could result in, flash flooding due to rainfall, pluvial flooding from surface water and fluvial flooding from rivers.	A Site-Specific Flood Risk Assessment (FRA) Report has been prepared, refer to EIAR Volume II Appendix 12A. The purpose of the FRA is to identify whether a potential risk of flooding exists at the Proposed Development, and if so, to what extent. The conclusion of the FRA is that there is a credible risk of pluvial / fluvial flooding in the location of the Proposed Development. This conclusion will	**N**

Category	Description	Screening and Identification of Potential Accident / Disaster Scenarios	Included in Assessment (Y/N)
	Flooding could result in damage to site assets such as storage tanks and pipework, with the potential for subsequent loss of containment of HVO, aqueous ammonia or other substances. There is the potential for fires and/ or explosion if HVO releases were ignited, which could have an impact on and off-site.	inform the engineering and environmental design of the Proposed Development, such as the installation of non-return valves on surface water drains. The design and installation of these systems will reduce the risk of an impact caused by flooding to a level which is considered to be ALARP. Consequently, whilst pluvial / fluvial flooding presents a credible risk to the Proposed Development, it will be mitigated by design to reduce the risk of a disaster and therefore this scenario is not considered further within this chapter.	
Climate Change / Natural Event – Coastal Flooding	The frequency of storms experienced in the location of the Proposed Development could increase during the lifecycle of the facility as a result of climate change. This could result in storm surges from the Atlantic Ocean, and increased risk of coastal flooding. Coastal flooding could result in damage to site assets such as storage tanks and pipework, with the potential for subsequent loss of containment of HVO, aqueous ammonia or other substances. There is the potential for fires and/ or explosion if HVO releases were ignited, which could have an impact on and off-site.	A Site-Specific Flood Risk Assessment (FRA) Report has been prepared, refer to EIAR Volume II Appendix 12A. The purpose of the FRA is to identify whether a potential risk of coastal flooding exists at the Proposed Development, and if so, to what extent. The conclusion of the FRA is that there is a credible risk of coastal flooding in the location of the Proposed Development. This conclusion will inform the engineering and environmental design of the Proposed Development, such as the installation of a concrete coastal flood defence wall. The design and installation of these systems will reduce the risk of an impact caused by flooding to a level which is considered to be ALARP. Consequently, whilst flooding presents a credible risk to the Proposed Development, it will be mitigated by design to reduce the risk of a disaster and therefore this scenario is not considered further within this chapter.	**N**
Climate Change / Natural Event – Increased Ambient Temperatures	The ambient temperatures experienced in the location of the Proposed Development could increase during the lifecycle of the facility as a result of climate change. Increasing atmospheric temperatures could potentially result in the operational instability of equipment such as cooling systems and electrical apparatus such as switchgear, which is sensitive to temperature and humidity. Failure of these systems due to high temperatures could result in operational interruptions at the Proposed Development but would be unlikely to result in harm to people or the environment.	A potential increase in ambient temperatures has the potential to impact the operation and efficiency of the Proposed Development but would be unlikely to cause an incident which has the potential to result in a major accident or disaster. The engineering design of the facilities will take operation at future climatic conditions into account; therefore, this scenario is not considered further within this chapter.	**N**
Climate Change / Natural Event –	The weather conditions experienced in the location of the Proposed Development could drastically change during the lifecycle of the facility as a result of climate change.	A potential increase in ice storms has the potential to impact the operation and efficiency of the Proposed Development has the potential to cause damage to assets and harm to people.	**N**

Category	Description	Screening and Identification of Potential Accident / Disaster Scenarios	Included in Assessment (Y/N)
Extreme Cold Weather Conditions	Extreme weather conditions such as ice storms can result in the freezing and subsequent damage of pipework within the Site. Failure of the pipework would result in operational interruptions at the Proposed Development and potentially the release of HVO or aqueous ammonia to the environment. There is the potential for fires and/ or explosion if HVO releases were ignited, which could have an impact on and off-site.	The engineering design of the facilities including de-icing equipment on the air intake structures will take operation at future climatic conditions into account; therefore, this scenario is not considered further within this chapter.	
Climate Change / Natural Event – Increased Wind Speeds	The wind speeds experienced during storms in the location of the Proposed Development could potentially increase during the lifecycle of the facility as a result of climate change. Increasing atmospheric wind speeds could cause tall structures such as chimneys and exhaust vent stacks to become unstable. In a worst-case event, these structures could collapse resulting in harm to people on site, damage to assets and an interruption to operation.	A potential increase in the maximum wind speeds caused by climate change which are experienced at the Proposed Development has the potential to cause damage to assets and harm to people. The structural engineering design of the facilities will calculate wind loading and other requirements based on industry standard guidance and methods. Structural design standards incorporate factors to account for uncertainty, therefore operation at future conditions which include higher wind speeds will be considered. Consequently, a potential disaster involving high winds is not considered further within this chapter.	**N**
Natural Event – Earthquakes and seismic events	Low magnitude seismic events which are not perceptible to humans occur quite regularly throughout the island of Ireland. The probability for a major event with the potential to cause significant harm however is very low. If a major seismic event were to occur at the Proposed Development, there is the potential to cause harm to people, damage to assets and infrastructure and interrupt power generation operations.	The Irish National Seismic Network records earthquakes on the island of Ireland, however these are predominantly low magnitude events. For example, on 6th May 2010 a magnitude M2.9 earthquake occurred off the west coast of Ireland, approximately 50km north of Tarbert. This event would not have been particularly noticeable on land. The structural engineering design of the facilities will calculate the appropriate loading requirements for seismic factors. This is considered to be suitable mitigation therefore this scenario is not considered further.	**N**
Natural Event - Lightning strike	A direct lightning strike to the Proposed Development could cause damage to assets and equipment and has the potential to cause harm to people struck by falling objects. There is also the potential that lightning may ignite flammable substances. This could result in a fire causing damage to assets and potentially harm to people on Site.	The engineering design of the Proposed Development will incorporate lightning mitigation. This will be assessed in accordance with recognised industry standards such as EN/IEC 62305. It is expected that this assessment will specify the installation of an appropriate lightning arrestor to be fitted at the highest point on buildings such the turbine building. The exhaust stack would also be expected to be fitted with lightning protection to safely conduct the electrical current to earth in the event of a storm. Consequently, these mitigation measures are considered to be sufficient to reduce risk and this scenario is not considered further.	**N**

19.6.4 Assessment of Credible Scenarios

The conclusions of the assessment of substances contained in Table 19.1 are that HVO, Distillate Fuel and LPG all have the potential to initiate a credible major accident scenario. HVO and Distillate Fuel are both diesel like fuels with similar properties, and as such the credible major accident scenarios associated with each one are the same. Such credible scenarios comprise of an accidental release into the Shannon Estuary, defined as Risk Event 1; scenarios related to fires and / or explosions, which has been termed Risk Event 2; possibility of a road accident involving an HGV carrying fuel has been termed Risk Event 3. There is a further credible major accident scenario related to LPG which refers to fires and / or explosions, this has been defined as Risk Event 4.

The potential disaster scenarios which are credible for the Proposed Development have been identified in Table 19.2. This assessment has identified one scenario where an incident such as a fire and / or explosion occurring at the NORA controlled Mainland Tank Farm adjacent to the Proposed Development could escalate and have an impact at the new facilities. This ‘Domino Effect’ scenario has been defined as Risk Event 5.

Risk Events are assessed in further detail within Table 19.3, where the measures which will be taken to prevent and mitigate these are considered.

Table 19.3: Assessment of Major Accident and Disaster Scenarios

Risk Event Ref.	Substance	Scenario Description	Potential Causes and Impacts	Mitigation Measures	Residual Effects
1	HVO and/or Distillate Fuel	Major Release to the Environment	A release of HVO from equipment or pipework could be caused by mechanical failure, impact damage or an operator error resulting in a loss of containment. The most likely impacts resulting from a major loss of containment of HVO are on the environment, should a catastrophic failure of primary, secondary and tertiary containment occur. In such an event, HVO could enter soil, groundwater and Shannon Estuary via local surface water drains. HVO is biodegradable and not toxic to aquatic environments, it is also not soluble enough to form an emulsion with water. However, major releases to the environment could cause formation of a film on the water's surface which can lead to asphyxiation of aquatic life and could cause harm to seabirds if feathers become coated. A distillate fuel release at the on-site TEG facility could escalate to the Proposed Development with similar impacts, however, distillate fuel is also very toxic to aquatic life with long lasting effects, and as such a major release to the environment could cause death to the aquatic life in the Shannon Estuary.	The Proposed Development will include the following mitigation measures which will prevent and minimise the consequences of a release to the environment caused by the accidental loss of containment of HVO and/or Distillate Fuel. - The design will be subject to numerous formal process safety studies to identify and mitigate hazards, such Hazard and Operability (HAZOP) studies. - HVO and Distillate Fuel will be stored in fixed steel tanks (primary containment) which are located within impermeable bunded areas with weather protection (secondary containment sized to contain 110% of the tank volume). The tanks and bunds will be inspected regularly. - The Proposed Development will have a process drains system (tertiary containment), complete with class 1 full retention Oil Water Separators and measures to isolate the surface water to prevent discharge to the environment. This will contain HVO in the event of a failure of primary and secondary containment. - During HVO and Distillate Fuel offloading operations, protective systems will be in place to prevent a loss of containment such as dry-break hose couplings and vehicle chocks to prevent 'drive-away' incidents. - Major pipework sections will be routed below ground where practical to reduce the potential for accidental damage. - The design equipment and pipework will be to industry codes and standards to reduce the potential for a loss of containment, including the use of welded connections to avoid potential leak sources. - Fuel pipework safety systems will be installed along with operational controls and monitoring.	Extensive and robust mitigation measures will be incorporated throughout the design of the Proposed Development to reduce the likelihood of a release of HVO and/or Distillate Fuel. A qualitative risk assessment has been carried out to support the project to consider whether there is an increase in consequence or risk from the proposed modifications associated with the Proposed Development. This study has concluded the level of risk onsite and offsite is acceptable. The residual low risk will be managed by standard operating procedures, safety and environmental management measures to level commensurate with ALARP. Upon decommissioning of the TEG plant, works will be subjected to their own detailed risk assessment which will be adhered to in full to prevent risk of MA&D scenarios occurring. A consequence analysis study was carried out as part of the TLUP (refer to Appendix 19A, EIAR Volume II) for accidental release of HVO. This concluded that the maximum amount of HVO that would breach the tanks bunding would be 2,411m^3. This material would then be collected in the drainage system, or in gravelled areas on site. If the worst-case scenario were to occur in which this material is released to the Shannon Estuary, it would cover an area greater than 0.5ha. The recovery period of such

Risk Event Ref.	Substance	Scenario Description	Potential Causes and Impacts	Mitigation Measures	Residual Effects
				- Instrumentation and control systems will continuously monitor the process and leaks causing a loss of pressure would be rapidly detected. - Alarms, both audible and visual, would be raised in the event of a deviation from set points such as pressure levels, alerting site operators. - During commissioning, when HVO will be introduced to the site, detailed method statements, plans and assessments will be produced to carry out these activities' safety. - The Proposed Development will be operated and managed by experienced, highly trained personnel in accordance with all Regulatory requirements, including COMAH. In the event of a HVO and/or Distillate Fuel fire, firewater or foam may be used in firefighting systems. Firewater runoff will be collected in the surface drainage system and tested before being discharged from the Site and therefore the potential for it to cause harm to the environment if released would be low. The foam concentrate used has been developed to be environmentally friendly, therefore if released to the Shannon Estuary, the material will not harm the environment.	an incident is relatively short for shorelines and marshlands, spanning a maximum of 5 years. However, the damages would still be enough to classify it as a Major accident on the Chemical and Downstream Oil Industries Forum (CDOIF). Though, the probability of such an occurrence happening was deemed 1.5 X 10^{-5} per annum, less than the broadly acceptable figure set by the CDOIF of 10^{-4} per annum (HSA, 2023). The risk of this scenario happening is therefore broadly acceptable.
2	HVO and/or Distillate Fuel	Major Fire and / or Explosion	A release of HVO could potentially arise from the same mechanisms previously described in risk event 1. Ignition of HVO could lead to a major fire. If initiated in one area of the Proposed Development this could have the potential to escalate to other areas such as the fuel storage. Ignition of HVO could also lead to an explosion which could cause harm to people and assets such as equipment and buildings. The impact of a HVO fire and/ or explosion could cause significant harm to personnel on Site, up to the potential for fatal injuries caused by thermal radiation and/or projected	The mitigation measures which will prevent the accidental release of HVO and/or Distillate Fuel have been laid out in the mitigation measures for risk event 1. To prevent and minimise the consequences of a major fire/explosion, the installed electrical and mechanical equipment will be compliant to ensure chances of ignition upon contact with HVO and/or Distillate Fuel are minimized / eliminated. Equipment will be installed as required by Explosives Atmosphere Risk Assessment, to be carried out during the detailed engineering design of the Proposed Development. A comprehensive fire detection and firefighting system will be provided for the Proposed Development as appropriate for the level of fire risk in each part of the Site. A fire protection design basis document containing a fire risk assessment will be	The residual low risk will be managed by standard operating procedures, safety and environmental management measures to level commensurate with ALARP. Upon decommissioning of the TEG plant, works will be subjected to their own detailed risk assessment which will be adhered to in full to prevent risk of MA&D scenarios occurring. The HSA's LUP guidance states that ignition probabilities for flammability Category 3 substances (such as HVO) are zero unless they are in the same bund as Category 1 or 2 substances which

Risk Event Ref.	Substance	Scenario Description	Potential Causes and Impacts	Mitigation Measures	Residual Effects
			debris generated during an explosion. The distance to the nearest residential receptors is such that an incident would be unlikely to have an impact offsite, other than potentially a recommendation by the emergency services to close windows and remain indoors temporarily. A distillate fuel release at the on-site TEG facility could escalate to the Proposed Development with similar impacts.	developed by the appointed Contractor and this will inform the design of the fire system. In the event of a fire, or if HVO is detected within the OCGT enclosures, an alarm will be generated to alert operators. An inert gas (CO_2) fire suppression and purging system will automatically operate to displace air from the enclosure and prevent or extinguish the fire. Fire safety evacuation drills and training to be provided as appropriate.	does not apply to the Proposed Development. In the event of Bund overtopping the released material would be collected in the sites drainage system, as such chances of the material migrating offsite, resulting in a surface spill which could potentially be ignited, is zero.
3	HVO and/or Distillate Fuel	Accident – transport accident to HGVs transporting HVO and/or Distillate Fuel to site or during fuel offloading on site	A release of HVO from HGVs transporting HVO to Site could be caused by the same mechanisms as in risk event 1 but could also be a result of collision with other road vehicles especially when works are being carried out on / near Site where road traffic is likely to increase. The result of which could lead to a major Fire and/or explosion and potentially a major release of HVO to the environment, the details of which have been laid out in risk events 1 and 2. As this could occur offsite this has the potential to impact a wider range of receptors, also this could have the potential to escalate further if ignition of HVO reaches the fuel tanks of other vehicles using the road in the vicinity of the HGV. A Distillate Fuel release due to HGV accident at the on-site TEG facility could cause a fire which could escalate to the Proposed Development with similar impacts.	The mitigation measures to prevent events such as release to environment and/or fires/explosions for HGVs both on and off site are as follows: - The Proposed Development will have dedicated areas for parking and fuel offloading for HGVs. - The contractor will be required to provide detail of any HGV routing in the full Construction Traffic Management Plan. This will consider where deliveries will be made to/from and what roads will be used. - HVO fuel delivery by road will be limited to the hours between 07:00 and 19:00, and no deliveries will take place on Sundays or at night, except in the case of extended emergency operations.	The residual low risk will be managed by standard operating procedures, safety and environmental management measures to level commensurate with ALARP. Upon decommissioning of the TEG plant, works will be subjected to their own detailed risk assessment which will be adhered to in full to prevent risk of MA&D scenarios occurring. A consequence analysis study was carried out as part of the TLUP (refer to Appendix 19A, EIAR Volume II) for environmental release from road tankers for HVO. The chances of failure of containment occurring are 10^{-5} per annum, with the highest chance of leakage occurring due to loading/unloading hoses at 4 X 10^{-5} per hour. Such events would only have the potential to give rise to environmental damage if the release could also find a pathway to escape off site. However, in each case the release would be to a dedicated kerbed area, designed to retain

					the spill. As such the release would only escape off site if there was a further failure of the operator to correctly manage the drainage system and to discharge the release. The worst-case scenario would be the catastrophic failure of a full road tanker of capacity 36m^3. This volume would only be classified as a minor event according to the CDOIF. Because of this the associated risk is deemed broadly acceptable.
4	LPG	Major Fire and / or Explosion due to catastrophic rupture of LPG cylinder	A cylinder rupture could be caused by mechanical failure, or an operator error (for example during delivery) resulting in a vapour cloud explosion, jet fire / fireball or flash fire. The impacts would be similar as for Risk Event 2.	Embedded mitigation measure for Risk Events 2 apply. LPG will be delivered by road tanker. Standard operating procedures will be in place to mitigate the risk of cylinder rupture or leak during delivery.	The residual low risk will be managed by standard operating procedures, safety and environmental management measures to level commensurate with ALARP. Results of the consequence analysis for failure of LPG containment systems determined by the chance of failure to be 5x10^{-7} per annum with a chance of leakage being 1 x10^{-5}. As such they are deemed broadly acceptable.
5	HFO	Accident - Industrial accident at NORA Mainland Tank Farm	An incident which occurs at the NORA Island Tank Farm has been identified as having the potential to escalate and potentially have an impact at the Proposed Development. This impact includes the potential to increase the duration and severity of an event such as a fire and / or explosion.	The mitigation measures to prevent events such as fire and / or explosion at the NORA Island Tank Farm are as described in risk event 2. These measures are the established systems and controls adopted throughout the power generation industry, which is recognised as having an excellent safety record with a low number of incidents occurring historically in dual fuel turbine generation plants.	COMAH Installations such as the NORA Mainland Tank Farm are required by law to take ‘all measures necessary’ to prevent major accidents. These principles have been in place at these tanks since operation commenced. The mitigation measures to reduce the risk of a fire and/ or explosion which originates within the Mainland Tank Farm will reduce the residual risk to a low level and will be managed by standard operating procedures, safety and environmental management measures to level commensurate with ALARP.

19.7 Mitigation Measures

The following section contains a summary of the key measures which will be implemented in full to prevent major accidents and disasters at the Proposed Development.

- The CEMP (Appendix 5, EIAR Volume II) will be updated by the Contractor in accordance with any conditions of planning, and similar plans developed for eventual demolition activities.
- The design, construction, and operation of the Proposed Development will be in accordance with international, national and established industry codes, standards and practice, such as the specification of pipework materials, design of structures etc.
- A detailed chemical inventory and risk assessments for all materials handled on-site will be produced in accordance with the requirements of the Chemical Agents legislation.
- All fuels and chemicals stored on-site will be subject to the Safety, Health and Welfare at Work (Chemical Agents) Regulations, as amended by *S.I. No. 231/2021* as well as compliance with the requirements of Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).
- The Proposed Development will comply with the requirements of all relevant health, safety and environmental legislation including COMAH, which requires operators to take all measures necessary to prevent major accidents.
- Regular maintenance and inspection of all facilities will be carried out to reduce the potential for equipment failures which could lead to a loss of containment.
- The existing site Environment Management System (EMS) will be amended to include the Proposed Development. The EMS will set out the requirements and procedures required to ensure that the Proposed Development is operating to appropriate standards. Such Procedures include:
    - Hazardous and polluting liquids such as transformer oils will be stored in tanks located in bunds.
    - HVO fuel unloading bays will be designed to contain spillages.
    - Storage tank level indicators and oil detection sensors in bunds will be provided with alarms.
    - Class 1 full retention Oil Water Separator will be provided in the surface water drainage system.
    - Measures to isolate the surface water drainage system will be provided to prevent discharge of contaminated water.

19.8 Emergency Management

A Site Emergency Response Plan (ERP) will be developed in relation to the Proposed Development in accordance with legislative requirements including COMAH and IE Licence, which will include a fire strategy and appropriate training procedures.

Procedures will be in place to clearly detail the responsibilities, actions and communication channels for operational staff and personnel on how to deal with emergencies should they occur. Staff will also receive the level of training required for their role and position. This will include dealing with events such as fires, spillages, flooding etc. Such measures will be included in the site operating and management system and regulated by EPA through the IE Licence.

The ERP will contain detailed plans for the response to emergencies such as loss of containment of HVO, fires and severe weather events. A stock of emergency equipment such as spill kits will be maintained on Site in particular around the chemical storage areas.

The local Fire and Rescue Service and other key stakeholders will be consulted to provide an input to the development of emergency plans and potentially engage with desktop and live emergency training exercises.

19.9 Cumulative Effects

Cumulative effects relate to the potential effects of the Proposed Development in combination of the potential effects of other developments (referred to as 'cumulative developments') within the surrounding area, as listed in Chapter 4 (Existing Site and Conditions). A summary of cumulative effects pertinent to MA&D is contained in the following section.

19.9.1 Cumulative Effects during Construction

The construction of the Proposed Development is expected be carried out after the existing Tarbert HFO Power Station has finished decommissioning works thus this is not expected to contribute towards any MA&Ds scenarios.

Construction of the Proposed Development may be undertaken at the same time as other developments planned at SSE Tarbert and in the surrounding area. A full list of existing planning applications is included in Chapter 4 (Existing Site and Conditions), which includes the following:

- A Temporary Emergency Generation (TEG) development project consisting of a 150MW OCGT plant will be operating at the SSE Tarbert site. The plant will be located in the south-west portion of the SSE Tarbert site and is expected to operate for five years after which it will be decommissioned and dismantled.

A CEMP has been produced for this project and will incorporate welfare accommodation for the additional construction workers on site, and a number of risk assessments such as traffic management, and control of simultaneous activities on site, both operation and construction works. For example, the placement of temporary cabins used as offices and welfare facilities for the construction workers shall be carefully located to reduce risk from the operational areas.

The potential risks associated with cumulative effects during construction will therefore be reduced and mitigated.

19.9.2 Cumulative Effects During Operation

A credible MA&D scenario has been identified (Risk Event 4) where a major incident occurs at the NORA Island Tank Farm during operation which escalates to areas within the Proposed Development.

As these tanks are COMAH installations it is required by law to take 'all measures necessary' to prevent major accidents, such as the mitigation measures laid out in Risk Events 1 and 2. Thus it can be concluded that the mitigation measures installed at both facilities will be sufficient to reduce the risk of this scenario to a level considered to be ALARP.

As the Proposed Development will be storing large amounts of flammable material it is likely to be a COMAH installation thus it will also be required by law to take 'all measures necessary' to prevent major accidents, such as those set out in Table 19.3. It can be concluded that the mitigation measures installed at both facilities will be sufficient to reduce the risk of this scenario to a level considered to be ALARP. As well as this the existing Tarbert HFO Power Station is already an upper tier COMAH installation that has measures in place to prevent any major accidents.

The Proposed Development, and existing NORA Island Tank Farm will be regulated in accordance with COMAH and will be managed by experienced operating personnel to ensure communication and cooperation in activities thus reducing the potential for accidents.

19.10 Summary

The assessment outlined in this chapter has identified the most likely scenarios which could occur at the Proposed Development that could result in an impact representing a major accident and / or disaster are:

- A loss of containment and subsequent release to the environment caused by accidental damage or failure of the pipework and equipment containing HVO and/or Distillate Fuel (Risk Event 1).
- A loss of containment and subsequent fire and/or explosion caused by accidental damage or failure of the pipework and equipment containing HVO and/or Distillate Fuel (Risk Event 2).
- A loss of containment and subsequent release to the environment and/or fire/explosion caused by accidental damage or failure of the tankers or HGVs transporting HVO and/or Distillate Fuel to the Site (Risk Event 3).
- A loss of containment and subsequent fire and/or explosion caused by accidental damage or failure of the pipework and equipment containing LPG (Risk Event 4).
- A fire and / or explosion which originates at the NORA Mainland Tank Farm which escalates to the Proposed Development (and vice versa) (Risk Event 5).

These events have the potential to cause significant harm to people on The Site if exposed to thermal radiation generated by fires, and / or if in contact with projectiles such as broken glass produced by an

explosion, up to and including the potential for fatal injuries. Operation of the Site in accordance with the highest level of safety standards commensurate with a COMAH site will be the key mitigation to reduce these risks to a level demonstrated to be ALARP.

It is not possible to completely eliminate the risks associated with the use of materials such as HVO. Consequently, the Site will comply with all applicable safety legislation, national and international design standards, industry guidance and other control measures, including those set out in Table 19.3, which will be adopted at the Proposed Development. These mitigating measures have been in place at the existing SSE Tarbert since operation for approximately 50 years and contribute to the excellent safety record at this facility.

Overall, the construction, operation and decommissioning of the Proposed Development is considered ‘Not Significant’ for Major Accidents and Disasters as all risk events will be mitigated to a level commensurate with ALARP.

19.11 References

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