

Shannon Technology and Energy Park (STEP) Power Plant

Appendix A2.5: Oil and Hazardous and Noxious Substances (HNS) Spill Plan

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Oil and Hazardous and Noxious Substances (HNS) Spill Plan

Development Framework

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1. Introduction:

Shannon LNG Ltd. operator of the Shannon Technology and Energy (STEP) Park Power Plant fully recognizes it has a moral, legal and business obligation to provide a process, procedures and resources to respond to unintentional releases of hazardous substances including hydrocarbons, chemicals and gases into the environment within its area operational responsibility.

This document describes the framework in which Shannon Technology Energy Park (STEP) Power Plant will develop plans to provide a graduated and tiered response process to fulfil these obligations and to provide a robust and coordinated response to release incidents in the unlikely event they should occur. The assessment of likelihood and consequences of these release events are set out in the following documents are outside the scope of this document

- QRA and associated MATTE
- Environmental Impact Assessment Report for the proposed development
- Construction Environmental Management Plan

The developed plans will follow international best practice guidelines of the International Maritime Organization (IMO), , and International Petroleum Industry Environmental Conservation Association (IPIECA) while taking into account relevant Irish legislative and regulatory approval requirements. In particular the plans will follow the requirements made within the National Maritime Contingency Plan Oil and HNS Spills 2019 (NCP) and the National Framework for the Management of Major Emergencies. Developed Plans will interface with other emergency management frameworks, key stakeholders, and mutual aid partners.

The plan will be developed to cover both In-Land (onshore) and Marine based releases and shall cover the Construction and Operational Phases of the project.

2. Scope:

The STEP Power Plant will be responsible for the response, control and mitigation of pollution incidents within its area of jurisdiction. This will include a Combined Cycle Gas Turbine (CCGT) gas-powered power plant capable of 600 MW of electricity generation, 120 MWh (1-hr) Battery Energy Storage System (BESS), Above Ground Installation (AGI), and associated plant, equipment and infrastructure.

The Proposed Development will be required to store defined quantities of fuel onsite as specified in 'Secondary Fuel Obligations on Licensed Generation Capacity in the Republic of Ireland' (CER/09/001), was issued by the CER (now CRU4) on 12 January 2009.

For power plants, the storage requirement totals five days' worth of fuel consumption, calculated assuming the Proposed Development is operating at its maximum capacity.

The secondary fuel will only be used in the highly unlikely event that both the gas connection is unavailable and that other generation on the grid cannot meet demand.

The fuel will be contained in tanks within a bunded area adjacent to the power plant. Approximately 11,500 m³ of diesel shall be stored.

The STEP Power Plant will manage the response to any Tier 1 and Tier 2 incident for any pollution on the water within their area of jurisdiction with the full cooperation and integration of the response with the Shannon Foynes Port, the Shannon Estuary Anti-Pollution Team (SEAPT) mutual aid group

which includes the three local authorities of Kerry, Clare and Limerick and other agencies as appropriate.

3. Objectives:

The primary objectives of Oil and HNS Contingency Plans under the framework are:

- To assess the pollution risk from STEP Power Plant operations and ensure sufficient preventative and response measures are in place to ensure the risk of a pollution incident “as low as reasonably practicable” (ALARP);
- To ensure the safety of STEP Power Plant employees, contractors, response personnel and the community/members of the public throughout the response to a pollution incident;
- To detail the internal and external notification processes and set-in motion practices for an integrated efficient pollution response;
- To ensure the timely mobilisation of resources, both personnel and equipment, to combat a pollution incident within the geographical scope of this plan;
- To have in place actions and procedures to ensure the response to a pollution incident is both timely and effective in mitigating any adverse impact on vulnerable socio-economic and environmental receptors; and,
- To be compliant with regulatory and best practice guidance on pollution preparedness and response.

4. Interfacing Plans:

The STEP Power Plant Oil and HNS spill Contingency Plan will interface with the plans as shown in the example below. Depending on the severity of the pollution incident, one or all the plans shown will be implemented to support this plan.

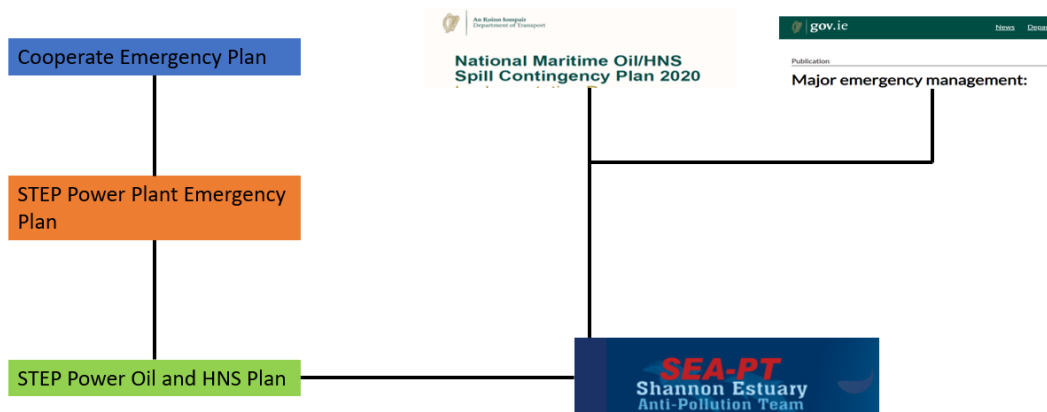


Figure 1 Interface of Oil/HNE Response Plans

5. Oil and HNS Spill Plan Format:

In accordance with the requirements of the National Contingency Plan (NCP) Standard Operation Procedure 05, the Plan will be developed around the five operational phases of the core document:

Phase 1 – Discovery and Notification, Evaluation, Identification and Activation

Phase 2 – Development of an Action Plan

Phase 3 – Action Plan Implementation

Phase 4 – Response Termination and Demobilisation

Phase 5 – Post Operations, Documentation of Costs/Litigation

Additional technical, tactical and guidance information shall be held in the accompanying Chapters and Annexes:

CHAPTERS:

- | | | | |
|---|---|----|---------------------------------------|
| 1 | Abbreviations and Definitions | 10 | Occupational Safety and Health |
| 2 | Irish Coast Guard notification | 11 | Wildlife Rescue and Rehabilitation |
| 3 | Incident Command Structure | 12 | Evidence Collection and Cost Recovery |
| 4 | Risk Assessment | 13 | Waste Management |
| 5 | Training and Exercising Regime | 14 | Place of Refuge |
| 6 | Shoreline Clean-up Assessment Technique | 15 | Stakeholder Engagement and Media |
| 7 | Response Strategies and Guidance | 16 | Financial Management Protocols |
| 8 | HNS Response Guidance | 17 | Documentation procedures |
| 9 | Dispersant Use | | |

ANNEXES:

- | | | | |
|---|-----------------------------|---|-----------------------------|
| 1 | Contact List | 5 | Service Contracts and MOU's |
| 2 | Certifications of Employees | 6 | Incident Command Forms |
| 3 | Equipment and Resources | 7 | Modelling Tools |
| 4 | Communication Protocols | | |

The developed plans will identify realistic Tier 1 and Tier 2 scenarios, and the capability to deal with these. They will describe any escalation to Tier 3 and as discussed above interface with the National Marine Oil/HNS Spill Contingency Plan. A training and exercising programme forms part of Chapter 5, an example of which is given below.

The completed plan(s) will be submitted to the Irish Coast Guard and EPA for appropriate approvals.

6. Shannon Estuary Anti-Pollution Team:

The Shannon Estuary Anti-Pollution Team (SEAPT) is a Mutual Aid Group and the primary response organisations for oil and HNS spills within the Shannon Estuary. The SEAPT consists of the Shannon Foynes Port company, Kerry, Limerick and Clare Local Authorities and commercial and industrial entities operating within the Shannon Estuary. SEAPT was initiated to form a unified coordinated response to pollution incidents on the Shannon Estuary.

SEAPT is a member's organisation. Members contribute annually to maintain equipment, carry out exercises and training and purchase new and replacement equipment. SEAPT holds a significant stockpile of equipment. This equipment is available to respond to any pollution incident or threat thereof. STEP Power Plant would also be able to avail of spill dispersion modelling capability held by SEAPT. SEAPT are also the custodians of the Shannon Estuary Oil/HNS Contingency Plan developed in accordance with the NCP and approved by the Irish Coast Guard.

The STEP Power Plant have consulted extensively with SEAPT and the intention is to join the SEAPT organisation on successfully receiving development consents and prior to commencement of the construction phase.

Membership of SEAPT will enable the STEP Power Plant to interface directly with the approved Shannon Estuary Oil/HNS Plan and access additional response equipment to augment that held within the terminal.

Through the membership process, the STEP Power Plant will additionally be contributing to the on-going development and strengthening of the SEAPT organisation .

A letter from SEAPT confirming acceptance of membership is attached in Appendix A

7. Emergency Management System:

It is expected that Shannon Energy Park will be designated as a Lower tier COMAH/Seveso site. As such a comprehensive Emergency Management system will be developed and implemented. This system shall define and describe the Emergency Management organization, systems, processes and the actions to be taken when dealing with emergency situations including spill response. The Emergency Management system documents will contain

- Roles and responsibilities for emergency preparedness and response in the event of an emergency at the STEP Power Plant
- A process to identify, assess emergency scenarios together with appropriate strategies and tactics to control and mitigate such events
- Local Emergency plans, organization, procedures and resources
- Requirements for testing of systems, procedures and personnel
- Checklists for specific response scenarios

The Emergency Management system will be reviewed annually or following alterations to the facility that will result in significant changes to the requirements. The plan may also be updated following lessons learned from exercises onsite. The STEP Power Plant review and audit programme will include emergency management.

8. Estuary and Marine based Oil/HNS Spills:

The Oil Pollution Preparedness, Response Co-operation Convention defines the following response levels for oil spills in Ireland:

- **Tier 1 Local** (within the capability of the operator on site): A Tier 1 response is the lowest response level and requires resources to be available locally. Depending on the characteristics of the oil this may or may not include the use of dispersants. By definition these resources must be at or near the incident site. It is expected that these resources will be deployed as quickly as operational circumstances allow.
- **Tier 2 Regional** (beyond the in-house capability of the operator): For larger pollution incidents, local resources may be insufficient to deliver a proper response. In these cases it may be that resources from a regional centre will be required. A key component of IRCG offshore Tier 2 response is that operators are expected to have this capability mobilised and applied within 2 to 6 hours of an oil pollution incident.
- **Tier 3 National** (requiring national resources): For very large pollution incidents, resources supplied from national and international sources may be required. A key component of IRCG offshore Tier 3 response is that operators are expected to have this capability mobilised and applied within 6 to 18 hours of an oil pollution incident.

Oil spill emergency involves contacts and co-operation with local and/or regional authorities and governmental bodies and, depending on its size, may require the assistance of other operators, national, or international resources. An oil spill contingency plan or a checklist will be used to create the oil spill response plan.

Following the guidance of the NCP the Oil and HNS contingency plan will contain chapters covering the identification and assessment of spill and release scenarios and the response strategies, tactics and actions to be employed, in particular the following chapters:

Chapter 4 – Risk Assessment

Chapter 7 – Response Strategies and Guidance

Scenarios Identified

Mitigation methods:

The developed plans will detail potential spill or unintentional release scenarios (Chapter 4) and appropriate response strategies and guidance, Chapter 7.

Response strategies will follow best practice hierarchy described in the references shown:

Spill Response Hierarchy

Control of Source	Operating and Emergency SPO's are activated to stop release at source.
Monitor and Evaluate	Monitoring is a systematic process of collecting and recording information on the oil spill, while evaluating is the process of drawing together the information and making judgements
Shoreline Protection	If oil is expected to impact sensitive areas, booms may be used as a barrier to protect the shoreline.
Contain and Recover	The containment and recovery of an oil spill uses floating barriers (booms) to contain the oil in sufficiently concentrated quantities to enable recovery devices (skimmers) to remove the oil from the surface.
Wildlife Response	Wildlife response requires the knowledge and skills of experienced responders and handlers. Wildlife response will be addressed in detail in Chapter 11.
Waste Management	During an oil spill there are many streams of waste that have to be managed to ensure that operations can continue, and environmental impact is reduced. Waste management will be addressed in detail in Chapter 13.

9. Spills and Releases on Land:

STEP Power Plant expectation is that a major release of hazardous or noxious substances into the marine environment is not likely to occur.

The assessment of likelihood and consequences of spills and releases on land are set out in the following documents are our outside the scope of this document

- QRA and associated MATTE
- Environmental Impact Assessment Report for the proposed development
- Construction environmental management plan

Typical incident scenarios have been identified and are provided as a conservative framework to ensure decisions are based on knowledge of the potential range of events and effects, as well as allowing the STEP Power Plant to prepare for the worst-case scenarios in its emergency response preparations as required by applicable regulations and its prevailing duty of care.

Event	Potential Impact
Fire at Facility	Product contaminated firewater impacts offsite and enters Estuary via groundwater, drains and culverts.
Release of Diesel from Secondary Fuel Storage Tanks	Product enters Estuary via surface water drains and Wastewater Treatment Plant
Incident involving lorries delivering to site via security gate on R612 resulting in spill of materials	Product impacts areas along R612 and enters Estuary via culverts/drain in roadside
Leak/spill due to damage caused to storage containers during forklift truck operations in off-loading area.	Product enters Estuary via surface water drains and Waste Water Treatment Plant.
Release of Diesel from emergency generator storage tanks	Product enters Estuary via surface water drains and Wastewater Treatment Plant.
Spill/ release of odorant at AGI	Pungent-smelling gas at low concentrations (ppm) released to the environment. Highly flammable substance

Table 1 Events on Land and Potential Impacts

Stopping the spill at source:

The ESD system will continually monitor inputs from process field devices, including the ICSS and fire and Gas detection system. If a leak is detected by changes in the levels monitored, then the system initiates appropriate output actions to bring the plant to a safe condition. In addition to being automatically activated by the ICSS or F&G system, the ESD can also be manually initiated by the control room operator. Each part of the process equipment that contains hazardous liquids will be contained within a bund. In the event of a spill, trained personnel are to use the nearest available spill kit to contain the spill. Once confirmed safe to do so, the Emergency response team are deployed to clean up the spill. If unsafe to do so the emergency services are contacted, and the emergency response plan follows.

10. Personnel & Equipment:

The STEP Power Plant will develop, train and have in place emergency management and response teams in order to manage and response to any incidents including spills and unintentional releases. The teams will be trained in accordance with training schedule given below.

Response teams will have access to equipment and other resources for Tier1 and Tier 2 incidents. Equipment stockpile specifications will be developed as part of the risk assessment, scenario planning

and response strategy sections on the spill response plan. The stockpile will include fixed and mobile equipment for protection, containment and recovery and will be augmented by the Tier 2 equipment stockpile held by SEAPT at Shannon Foynes Port.

11. Training and Exercises:

As per the NCP, the Irish Coast Guard has adopted the International Maritime Organisation (IMO) levels of model Oil and HNS Spill courses; these form the basis of the national courses organised by Irish Coast Guard and will form the core The STEP Power Plant maritime spill response training regime. Associated Inland Spill training in line with IPIECA best practice for non-marine based releases. In addition to the IMO suite of spill response training, appropriate Incident Management Training will also be undertaken to ensure personnel’s knowledge and understanding of specific roles and the corresponding responsibilities.

Example Technical Training Courses	Trained Staff
IMO 1 Operations Staff	To be determined
IMO 2 Supervisors and On-Scene Commanders	
IMO 3 Senior Management Personnel	
IMO HNS Operational Level (First Responders, Supervisor and On-Scene Commanders),	
IMO HNS Manger Level (Administrators and Senior Managers)	
ICS 100 - An Introduction to the Incident Command System	
ICS 200 - Applying the Incident Command System	
ICS 300 - Incident Command System	

Table 2 Example of technical Training Courses

Exercises form a fundamental part of training and competency development. Members of Incident Management and Response Teams must be familiar with spill and other emergency procedures and be prepared to carry out emergency response operations in a safe, rapid, effective, and efficient fashion.

This level of familiarity and preparedness is achieved through regular and routine drill and exercises. Below is an example of the type of Exercise program that will be implemented.

Type of Exercise	Monthly	Every 3 Months	Annually	Every 2 Years
IMT Communications Test	✓			
Full Communications Exercise		✓		
Tabletop/ Command Room Exercise		✓		
Limited Exercise			✓	
Full Scale Exercise				✓

Table 3 Example of Exercise training Schedule

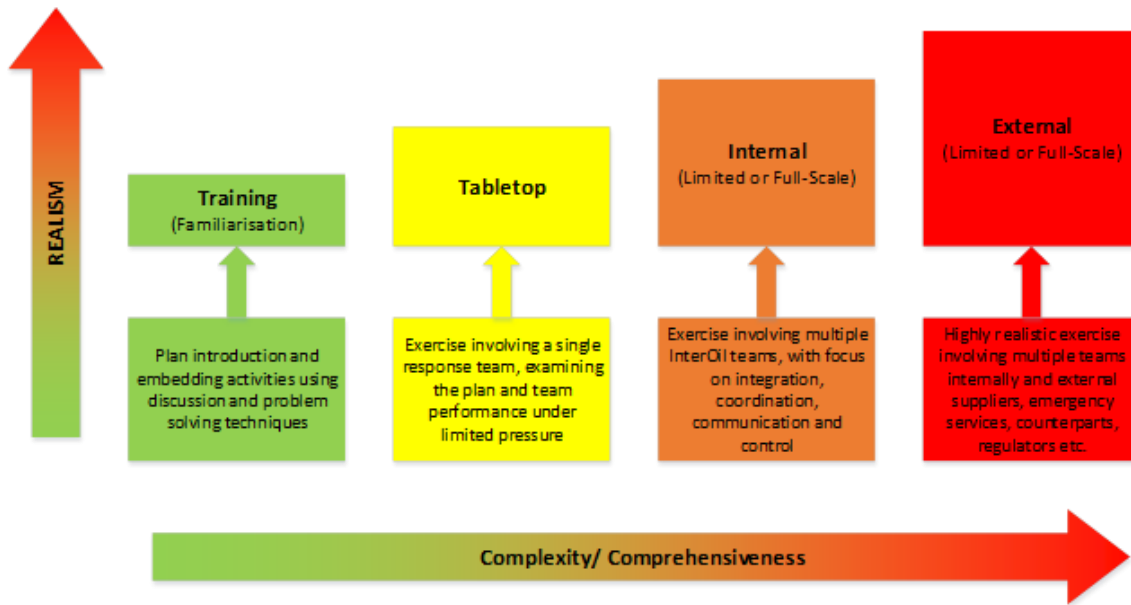


Figure 2 Description of Training and Exercise Content

12. References:

International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) 1995

Sea Pollution Act 1991, Sea Pollution (Amendment) Act 1999

National Maritime Contingency Plan for Oil and HNS Spills 2019 – Department of Transport. Irish Coast Guard: [Gov.ie. NCP](http://gov.ie/NCP)

International Petroleum Industry Environmental Conservation Association – Technical Document Series <https://www.ipieca.org/resources/>

<https://www.itopf.org/knowledge-resources/>

A Framework for Major Emergency Management: www.MEM.ie

European Union Control of Major Accident Hazards (COMAH) Involving Dangerous Substances Regulations 2015

Sandia Laboratories, Information Day Report, 2009

CFD methodology for simulation of LNG spills and rapid phase transition (RPT), Horvat, MMI Engineering Ltd, 2018 Institution of Chemical Engineers, Process Safety and Environmental Protection 120 (2018)

Shannon Estuary Anti-Pollution Team: Shannon Estuary Oil and HNS Spill Contingency Plan: <http://www.seapt.ie>

Environmental Protection Agency Guidance Assessing and Costing Environmental Liabilities (2014).

SOLAS; Safety of Life at Sea

<https://www.imo.org/en/KnowledgeCentre/ConferencesMeetings/Pages/SOLAS.aspx>

Shannon Energy Park QRA study, Vysus UK Limited

EIAR Shannon Energy Park QRA, AECOM

13. Appendix A: Letter of Intent for SEAPT Membership

Harbour Office
Mill House, [Foynes](#)
County Limerick, Ireland

Tel: +353 69 73100
Fax: +353 69 65142
Email: info@seapt.ie



Martin Ahern
Shannon Energy Park,
Listowel,
Co. Kerry.

06th May 2021.

Dear Martin,

Thank you for your recent enquiry regarding Membership of Shannon Estuary Anti- Pollution Team.

I am very pleased to confirm that Shannon Energy Park will be able to join SEAPT when they are ready.

Membership of SEAPT fulfils requirements for Tier 2 obligations with respect to the National Maritime Contingency Plan for Oil and HNS Spills in terms of inclusion in the Shannon Estuary oil and HNS plan, access to pollution control equipment, training and exercises. The current Shannon Estuary contingency plan is approved by the Irish Coast Guard. SEAPT equipment is available to members to augment Tier 1 response as per the arrangements of the membership.

Detail on membership and associated subscriptions can be confirmed at a later date.

Yours Faithfully,

A rectangular box containing a handwritten signature in black ink, which appears to be "Hugh Conlon".

Hugh Conlon

Director.

