EPA Application Form

9.1 - Environmental Management Techniques - Attachment

Organisation Name: * SSE Generation Ireland Limited

Application I.D.: * LA006988

* indicates required field

Amendments to this Application Form Attachment

Version No.	Date	Amendment since previous version	Reason
V.1.0	July 2017	N/A	Online application form attachment
As above	Mar 2018	Identification of required fields	Assist correct completion of attachment

9 Environmental Management Techniques [1]

9.1. Accident Prevention Measures

Measures to prevent accidental emissions and liabilities

Incidents and accidents are unplanned events. Emissions from incidents and (major) accidents usually occur within a relatively short time frame but with greater intensity than under normal operating conditions. Incidents such as fire or fuel spillages can result in liabilities such as contaminated soil and groundwater. Proactive risk management reduces the potential for an incident.

Abnormal operating conditions must be managed without endangering human health and harming the environment, and in particular without risk to water, air, soil, plants or animals, without causing a nuisance through noise or odours, and without adversely affecting the countryside or places of special interest.

The applicant must firstly undertake a risk assessment in accordance with EPA guidance on assessing and costing environmental liabilities. Having identified the key risks, the applicant should populate the following table with the measures to be taken to treat the key risks, e.g., bunding, integrity testing, fire prevention, etc.

The range of measures is dependent on the complexity of the site. Pollution prevention measures may, inter alia, include the following information:

- Conclusions on BAT set out in the EU Reference document on BAT on emissions from storage such as a safety management system; corrosion prevention measures on tanks, etc.
- Details of storage of all raw materials, products and wastes such as segregation, labelling, designation and impervious surface;
- Details of spill or emergency containment measures and structures such as bunds, high level alarms, absorbent materials;
- Details of fire detection and fire-water retention facilities in the event of emergencies or other measures to contain fire-water;
- Details of transport of material within the site, solid, liquid or sludge transported by pipe, vehicle or conveyor; etc.,
- The Agency has published a guidance document on Fire-Water Retention Facilities and on the Storage and transfer of materials.

[1] This part of the form collects information on environmental management at the installation/ facility. It seeks to understand the maturity of the management system in terms of knowledge of abnormal operating conditions, prevention and early detection measures and emergency response procedures. The level of detail required in this part of form relates to the environmental risk posed.

Describe in the table below existing and/or proposed measures, including emergency procedures, to minimise the impact on the environment of an accidental emission or spillage. (This table should include the measures to be taken under abnormal operating conditions, including start-up, shutdown, leaks, malfunctions, breakdowns and momentary stoppages that will demonstrate that any emission arising will not cause significant environmental pollution)[2].

Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Bunding of raw materials	All raw materials with environmental hazard statements are bunded in line with EPA guidance and licence requirements. These are tested on a routine basis by external contractors for integrity and water retention capability. The bunds are visually inspected at least weekly as part of the routine environmental procedures for the site. Uncovered or external bunds exposed to rainfall are assessed at least weekly and emptied as required after rainfall. Other external bunds are covered to protect the bund from rainfall. All bunds are designed, monitored and management in accordance with condition 3.6 of the IE licence P0606-03. All bunds are impervious to the materials stored within and non-compatible materials are not stored in the same bund. The bunds have the capacity for at least 110% the volume of the largest tank stored within or at least 25% of the total volume that could be stored within the bunded area.	Daily / Weekly	EMS Procedures IE licence conditions EPA Guidance note "Storage and Transfer for Scheduled Activities" 2004.
Bund Water	All drainage from bunded areas are treated as potentially contaminated unless it is demonstrated otherwise. Any contaminated material is collected	Weekly	EMS Procedures IE licence conditions

[2] Information relating to the integrity, impermeability and recent testing or pipes, tanks and bund areas should be included.

Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
	and disposed of appropriately and in line with licence conditions.		
Inlets, Outlets, vent pipes, valves and gauges	All Inlets, Outlets, vent pipes, valves and gauges are designed within the bunded area to prevent losses in the event of an accident.	At design stage	Design statements IE licence requirements
Labelling	All raw materials, intermediates and waste products are appropriately labelled to ensure their contents are known and they are treated accordingly.	Continuous	EMS Procedures Trained personnel
Gas oil Deliveries	There are numerous controls in place for the delivery of gas oil to the installation tanks. Deliveries are undertaken and overseen by competent and approved personnel.	As required	EMS Procedures Trained personnel
Loading / unloading of raw materials	All raw materials are unloaded in designated areas, which are hardstanding and controlled. Fill and delivery procedures are in place. Spill kits as well as defined emergency response plans are in place in the event of an accident or emergency from deliveries. The same procedures apply to contractors removing waste environmentally significant waste materials from site.	Continuous	EMS Procedures Trained personnel Contractor inductions contain large section on waste management and environmental compliance.
Spill Kits and adsorbent booms	There are numerous spill kits and adsorbent booms located at strategic locations around the installation. Personnel on site have been trained in the use of spill kits. In the event of significant accident or emergency, there are emergency phones on site to contact the spill response team.	Weekly	EMS Procedures

Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Silt traps and oil interceptors	The storm water lines have been fitted with silt traps to prevent excessive solids loss from site to the estuary. They are also fitted with certified Class 1 oil interceptors to capture any hydrocarbon spillages that could occur on site. These are visually inspected weekly and desludged as necessary.	Weekly	EMS Procedures
Fire / Explosion	The site has a detailed emergency response plan in conjunction with the fire prevention and control systems; Alarms, Firewalls & fire doors, Fire hydrants, Hose reels, Fire extinguishers. The local fire officer has reviewed the facility. The installation has a separate diesel operated firefighting pump in the event of interruption to electrical supply during a fire event.	Weekly	Firewater pump test
Fire water retention	Fire water retention is available on site to collect contaminated fire water.	N/a	EPA Guidance notes
Overground pipes	All pipes containing environmentally significant materials are located above ground and inspected routinely.	Weekly	EMS Procedures
Continuous Monitoring	The emission stack is fitted with a continuous emissions monitoring system that feeds live data to the control room. The system has alarms to alert operators to any incidental measurements from the emissions stack. The CEMS unit undergoes QAL 3 checks routinely and QAL 2 / AST checks by external consultants in compliance with the requirements of EN 14181 on an annual basis.	Continuous	EMS Procedures IE Licence Conditions

Measure *	Surveillance Measures		
	Description *	Frequency of Surveillance *	Method / Standard *
Effluent systems	Effluent systems are fitted with shut off values to cease any discharge to the estuary if the effluent water quality does not meet the required standards. Routine monitoring is carried out on water emissions; both visual and chemical quality assessments on a daily basis.	Daily	EMS Procedures IE Licence Conditions
Storm waters systems	Storm water drains are inspected daily to ensure the water leaving this site is not contaminated. Storm water lines are fitted with shut off valves in case of emergency	Daily	EMS Procedures IE Licence Conditions
Waste Management	Waste is stored and controlled on site to ensure mismanagement or loss of control does not occur. The waste is stored in designated areas, protected as appropriate against spillage or run-off.	Weekly	EMS Procedures IE Licence Conditions
Combustion system performance	The combustion system is continuously monitored by a control room operator via an advanced computer based control system. The system is fitted with continuous meters and monitors that feed live data to the operators on all performance aspects of the CCGT. The system is alarmed to inform internal operators and external bodies in the event of any abnormal activities.	Continuous	Manufacturer's Instructions
Fuel type	Low polluting fuels are used at this installation. The gas delivery network is owned and operated by Gas Networks Ireland, which is fitted with controls to alert site and Gas Networks Ireland in the event of abnormal operations.	Continuous	Gas Network Instructions

*add rows to the table as necessary

Outline what provisions have been made to ensure an adequate response to emergency situations outside of normal working hours, i.e., during night-time, weekends and holiday periods (attach additional pages to this document if required): *

The site has developed a comprehensive emergency response procedure. The installation is manned 24 /7/ 365, therefore there are always competent personnel on site to react to an emergency. Training is a core policy of SSE to ensure that there is cover in all areas during out of hours, shift, weekend or holidays.

A detailed response plan is attached to this report.

Soil Monitoring Points

Periodic monitoring of soil and groundwater is required having regard to the possibility of soil and groundwater contamination of the site[3].

Complete the table below with details of soil monitoring locations and in particular where a baseline report has been/is required in accordance with Section 86B of the EPA Act 1992 as amended.

Is periodic soil monitoring proposed at the installation/facility? (**Yes/No**): * **No**

Soil Monitoring Point Code	Monitoring Point Grid Ref.	
	Easting [4]	Northing [5]

3 Inherent in the monitoring of soil and groundwater is accepting the possible necessity for remediation of the soil / groundwater. Regular monitoring of soil and groundwater provides an early detection of any contaminations.

4 Six Digit GPS Irish National Grid Reference

5 Six Digit GPS Irish National Grid Reference

* indicates required field

Soil Monitoring Point Code	Monitoring Point Grid Ref.	
	Easting [4]	Northing [5]

*add rows to the table as necessary

Soil Parameters

Complete the table below with details of soil monitoring parameters (where a baseline report is required in accordance with Section 86B of the EPA Act 1992 as amended). (If different parameters are associated with different monitoring points this should also be identified in the table below.)

Parameter	Unit	Trigger Level	How was the trigger level determined?	Proposed Monitoring Frequency	Sample Method	Analysis Method / Technique

*add rows to the table as necessary

Groundwater Monitoring Points

Based on the assessment(s) carried out previously or as part of this licence application, complete the table below with summary details of the groundwater monitoring points.

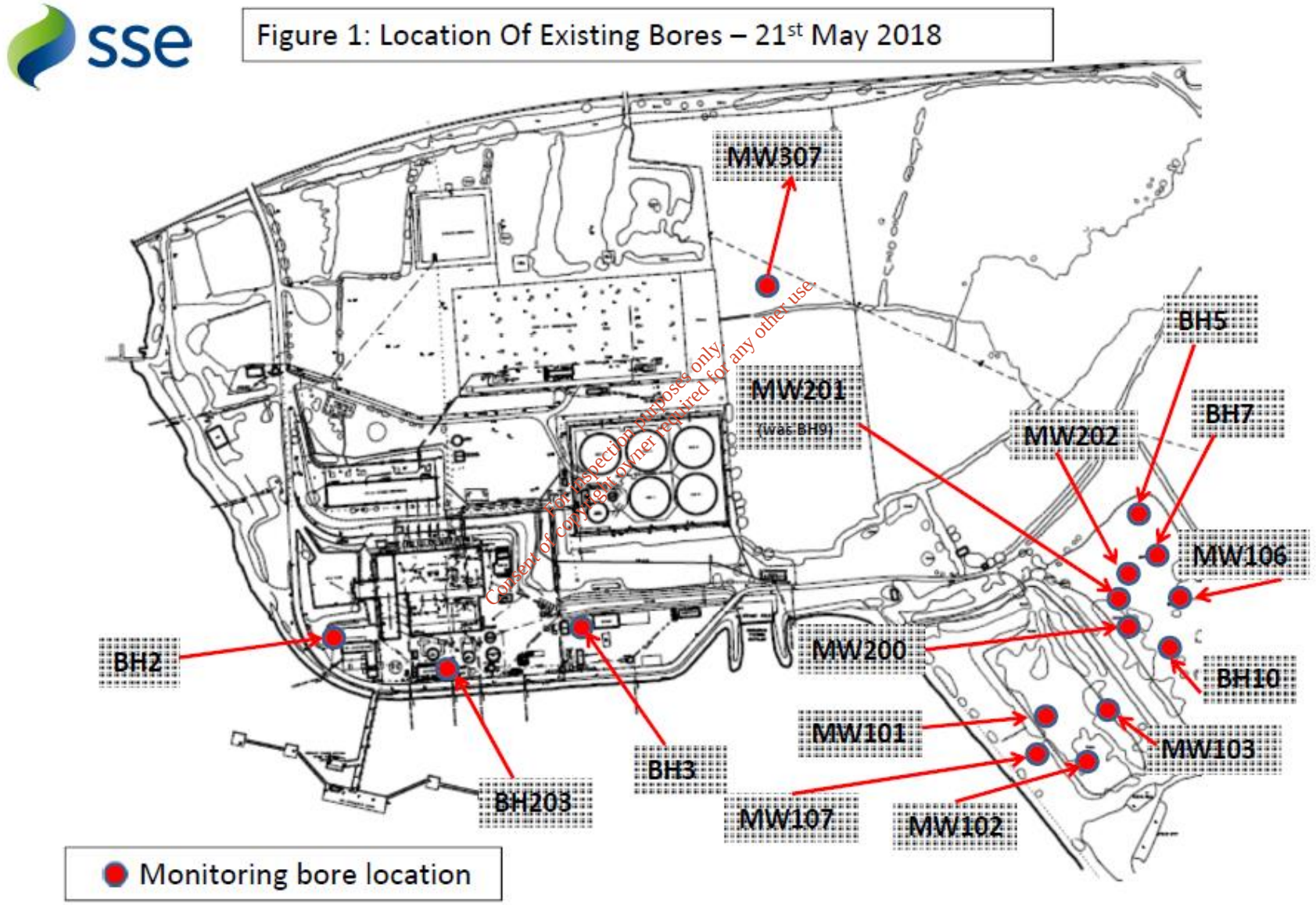
Is groundwater monitoring proposed at the installation/facility? (**Yes/No**): * **Yes**

Monitoring Point Code	Monitoring Point Grid Ref.	
	Easting [6]	Northing [7]
BH2	268642	114557
BH203	268738	114527
BH3	268927	114561
BH5	269399	114660
BH7	269438	114599
BH10	269420	114537
MW101	269288	114504
MW102	269346	114412
MW103	269334	114474
MW106	269496	114569
MW107	269308	114442
MW200	269401	114567
MW201	269420	114568
MW202	269400	114598
MW307	269034	114995

*add rows to the table as necessary

[6] Six Digit GPS Irish National Grid Reference
[7] Six Digit GPS Irish National Grid Reference

* indicates required field



Groundwater Parameters

Complete the table below with summary details of the groundwater parameters. (If different parameters are associated with different monitoring points this should be identified in the table below.)

Parameter	Unit	Trigger Level	How was the trigger level determined?	Proposed Monitoring Frequency	Sample Method	Analysis Method / Technique
BH2, MW101, MW102, MW106, MW107, MW200, MW201, MW202, MW103, MW307						
pH	-	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Coliforms	Cfu/100ml	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Vanadium	µg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Ammonia	mg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Mineral Oil	µg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Arsenic	µg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Total Petroleum Hydrocarbons (TPH)	µg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Aluminium	µg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method
Polycyclic Aromatic Hydrocarbons (PAH)	µg/l	N/a	Trigger levels not determined	Annually	Purge and Sample	Standard Method

BH5, BH7, BH10, BH203, BH3,						
pH	-	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method
Ammonia	mg/l	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method
Vanadium	µg/l	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method
Lead	µg/l	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method
Chromium	µg/l	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method
Total Petroleum Hydrocarbons (TPH)	µg/l	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method
Polycyclic Aromatic Hydrocarbons (PAH)	µg/l	N/a	Trigger levels not determined	Biennially	Purge and Sample	Standard Method

*add rows to the table as necessary

Costed Environmental Liabilities Risk Assessment (ELRA)

Indicate if the activity, through pre-application meeting with the Agency or other means, is required to submit a costed ELRA[8] as part of the licence, or licence review application.

Costed Environmental Liabilities Risk Assessment (ELRA) required to be submitted? (**Yes/No**): *	**Yes**

If '**Yes**', upload a costed Environmental Liabilities Risk Assessment (ELRA), prepared in accordance with the *Environmental Protection Agency's Guidance on Assessing and Costing Environmental Liabilities* (2014) (select Document Type: '**ELRA**' in the application form).

Costed **ELRA** document filename:	4320-20-02 SSE Great Island, ELRA

Indicate your preferred form of financial provision instrument to meet ELRA costings have regard to the Environmental Protection Agency's Guidance on Financial Provision (2015), e.g., Environmental Liability Insurance:

Parent Company Guarantee

Upload a financial provision proposal have regard to the Environmental Protection Agency's Guidance on Financial Provision (2015) (where required at application /review application stage) (select Document Type: '**Financial Provision Proposal**' in the application form)

Financial Provision Proposal filename:	TBC

[8] There is an explicit requirement in EU and Irish law for financial provision for certain activities. The following categories of activities have an ELRA/CRAMP/FP requirement:

1. Landfills (excl. closed L.A. Landfills closed before 16th July 2009)
2. CAT A Extractive Waste Facilities
3. High Risk Contaminated Land Facilities
4. All Haz-Waste Transfer Stations
5. Non-Haz WTS (Accepting >50,000 tons/annum)
6. Incineration (incl. co-incineration of hazardous waste)
7. Upper & Lower Tier Seveso Sites
8. Exceptional circumstances associated with the site, e.g., significant ground/groundwater contamination.

Regard should be had by applicants to relevant Agency guidance on these matters.

Closure, Restoration and Aftercare Management Plan (CRAMP)

A restoration/aftercare period will be required where there are on-going environmental liabilities following closure. Applicants are required to describe the existing or proposed measures to avoid any risk of environmental pollution and to return the site to a satisfactory state or the state established in the baseline report where applicable, after the activity or part of the activity ceases operation.

A key measure is the preparation of a Closure, Restoration and Aftercare Management Plan (CRAMP) by the operator, for certain activities[9]. Notwithstanding the requirements of the EC Environmental Objectives (Groundwater) Regulations 2010, S.I. No. 9 of 2010, the closure and restoration/ aftercare target is the site condition at the time of the original application or the baseline report. The applicant shall have regard to the Environmental Protection Agency's Guidance on Assessing and Costing Environmental Liabilities (2014) in the preparation of the CRAMP.

Upload a CRAMP, where applicable (select Document Type: '**Site Closure**' in the application form).

CRAMP filename: 4320-20-01 SSE Great Island CRAMP

Costed CRAMP

Indicate if the activity, through pre-application meeting with the Agency or other means, is required to have a CRAMP [9] submitted as part of the licence, or licence review application.

[9] There is an explicit requirement in EU and Irish law for financial provision for certain activities. The applicant shall have regard to the Environmental Protection Agency's Guidance in determining CRAMP requirements and on Financial Provision (2015) in making financial provision to cover any liabilities.

The following categories of activities have an ELRA/CRAMP/FP requirement:
1. Landfills (excl. closed L.A. Landfills closed before 16th July 2009)
2. CAT A Extractive Waste Facilities
3. High Risk Contaminated Land Facilities
4. All Haz-Waste Transfer Stations
5. Non-Haz WTS (Accepting >50,000 tons/annum)
6. Incineration (incl. co-incineration of hazardous waste)
7. Upper & Lower Tier Seveso Sites
8. Exceptional circumstances associated with the site e.g. significant ground/groundwater contamination.

CRAMP required to be submitted at application/licence review application stage? (**Yes/No**): * **Yes**

Indicate your preferred form of financial provision instrument to meet CRAMP costings (where appropriate), e.g., Secured fund, On-demand performance Bond, Parent Company Guarantee, Charge on Property (have regard to the Environmental Protection Agency's Guidance on Financial Provision (2015) on the Agency's website):

State preferred form of financial provision instrument?	Parent Company Guarantee

Upload a financial provision proposal (where required) having regard to the Environmental Protection Agency's Guidance on Financial Provision (2015) in making financial provision to cover any liabilities (select Document Type: '**Financial Provision Proposal**' in the application form)

Financial Provision Proposal filename: TBC

Cessation of Activity

Where a CRAMP is not required, describe the measures to be taken on and following the permanent cessation of the activity or part of the activity to avoid any risk of environmental pollution and to return the site of the activity to a satisfactory state. (Input your response in the text box below or attach the information in to this attachment).

N/a

Emergency Response Procedure

Do you have an emergency response procedure (ERP)? (**Yes/No**) *	**Yes**
Is the ERP compliant with the EPA guidance? (**Yes/No**) *	**Yes**

9.2. Nuisance

Complete the table below in relation to each potential nuisance. Identify if the activity may cause or contribute to the type of nuisance in the area of the installation/facility and, where applicable, identify the techniques used to prevent/minimise the nuisance.

Type of Nuisance	**Applicable to the activity? *** (Yes/No/ Not Applicable)	**Techniques to prevent nuisances ***	**Where nuisances cannot be prevented, techniques to be used to minimise and reduce nuisances**
Odour	N/a	N/a	N/a
Fire Control	N/a	See pollution prevention procedure	N/a
Dust	N/a	N/a	N/a
Litter	N/a	N/a	N/a
Birds	N/a	N/a	N/a
Mud	N/a	N/a	N/a
Flies	N/a	N/a	N/a
Vermin	N/a	N/a	N/a
Other	N/a	N/a	N/a

If '**Other**' is selected define the other nuisance(s): N/a

Note: Odour must also be addressed in the fugitive emissions section of the '*7.4 Emissions to Atmosphere – Main and Fugitive*' template, where applicable.

9.3. Environmental Management System (EMS)

Do you have an environmental management system? (**Yes/No**) *	**Yes**
If '**Yes**', is the environmental management system accredited? (**Yes/No**) *	**Yes**
State the date accreditation was achieved **or** is expected to be achieved, where applicable:	**2006**
State the standard of accreditation achieved:	ISO 14001

Energy Efficiency

Outline the measures taken to ensure that energy is used efficiently having regard to the relevant decision on BAT conclusions and/or BAT guidance and where appropriate, an energy audit with reference to the EPA Guidance document on Energy Audit should be carried out. *	
Has an energy audit been carried out? (**Yes/No**) *	**Yes**
Do you have an energy efficiency management system? (**Yes/No**) *	**No**
If '**Yes**', is the energy efficiency management system accredited? (**Yes/No**)	**N/a**
State the date accreditation was achieved **or** is expected to be achieved, where applicable:	**N/a**
State the standard of accreditation achieved:	N/a

9.4. Hours of Operation

Provide details of the hours of operation for the installation/facility * (hours and days per week, etc.), including:

(a) Proposed hours of operation.

The hours of operation will not change from any aspect of the review of this licence. The installation will operate on demand, but will be manned 24/7/365.

(b) Proposed hours of construction and development works and timeframes.

There are no construction works to take place as part of the licence review.

(c) For waste activities, the proposed hours of waste acceptance.

Not applicable

(d) Any other relevant hours of operation expected (e.g., waste handling, etc.).

Not applicable

9.5. Review of a Licence

Where the Office of Environmental Enforcement (OEE) has agreed any variations or adjustments to the conditions or schedules of the existing licence, the licensee must provide details of these agreed variations and adjustments to the existing licence conditions in the table that follows.

An updated, scaled drawing of the site layout (no larger than A3) providing visual information on such adjustments or variations where appropriate should be uploaded in the **site tab** – 'site plan(s)' upload.

In the case of once-off assessments/reports required under conditions/schedules of the existing licence the licensee must provide details of those assessments/reports that have been completed and agreed with the OEE or as otherwise agreed, in the table below.

Condition/ Schedule No.	Existing Condition	OEE Agreement Reference	Description
B.2	**Emission Point Reference No:** SW7-Engine Room Drains (prior to dilution with surface water) Note 1 **Name of Receiving Waters:** Barrow Estuary **Location:** 26870E,11450N Parameter: Mineral Oil — Emission Limit Value: 20mg/l Note 1: On commencement of commercial operation of new CCGT plant discharges from SW7 shall cease.	N/a	The condition to cease discharging from this storm water location on commercial operation of the CCGT is requested to be removed. This storm water line would be reintroduced into the licence – the engine room drains have been decommissioned and this is now just a storm water line. There is no source of contamination from mineral oil since the ESB plant was decommissioned.
B.2	**Emission Point Reference No:** SW8-Cooling Water Screen Wash water Note 1 **Name of Receiving Waters:** Barrow Estuary **Location:** 26861E,11452N **Volume to be emitted:** Maximum in any one day: 1,970m^3 Parameter: Chlorine — Emission Limit Value: 0.5mg/l Note 1: On commencement of commercial operation of new CCGT plant discharges from SW8 shall cease.	N/a	The condition to cease discharging from SW8 on commencement of the CCGT is requested to be removed. This discharge location is required for use at the installation.

C.2.3 as amended in Technical Amendment B	**Emission Point Reference No:** SW1 [Note 1], SW3b [Note 1, 2], SW4 [Note 1], SW12 [Note 1] **Control Parameter** / **Monitoring Frequency** / **Key Equipment/Technique** **pH** — Daily — On-line pH probe with recorder **TPH** — Daily — Standard Method **Visual Inspection** — Daily — Sample and examine for colour and odour **Suspended Solids** — Monthly — Standard Method **Note 1:** On commencement of commercial operation of the new CCGT plant. **Note 2:** SW3b shall be located at a point upstream of the connection with the foul water discharge. **Licensing Notice Details** Eden >> All Licences >> SSE Generation Ireland Limited (Great Island) (P0606-03) >> All Actions & Notices >> LS Approval - Notice - Amend Monitoring Approval **Subject** LS Approval - Notice - Amend Monitoring Approval **Created Date** 27/04/2015 Dear Fergal, I refer to your submission LR015741, "TPH Weekly monitoring" in relation to your proposal to amend the frequency of surface water monitoring for mineral oil analysis. The approval is sought under Condition 6.8 of IE Licence P0606-03 for an alteration to the frequency of surface water monitoring for mineral oil from weekly, as previously agreed by the Agency, to monthly as requested in this correspondence. I am to advise you that on the basis of the information provided, the Agency approves your request, continent upon the following: 1. TPH monitoring of surface water monitoring points are sampled and analysed monthly for mineral oil. 2. Daily visual checks are completed and documented. A copy of the daily visual check shall be maintained on site for inspection by the Agency. 3. If the presence of hydrocarbon is noted during the daily visual check or on activation of the oil interceptor alarms, discharge of the surface water is not permitted. Sampling and analysis shall be completed for the presence of mineral oil in this instance. You are reminded of the requirement to comply with the Conditions of IE Licence P0606-03 at all times. The Agency may at any time, if it considers necessary, revisit and/or revoke this approval. If you have any queries in relation to this matter please contact the undersigned or a member of Team B, OEE Licence Enforcement, Wexford on 053 9160600. Yours sincerely, Eimear O'Keeffe Licence Enforcement Inspector Office of Environmental Enforcement, Wexford 	EDEN Notice	The frequency of TPH in storm waters was agreed with the EPA to reduce testing from daily to monthly given the site is using natural gas and the storm waters were not displaying elevated concentrations of hydrocarbons.
-	Include a condition in the licence which will allow for discharge from SW11 which is clean water from the resevoir. This will be an exceptional circumstance (cleaned approximately once every ten years		SW11 is a discharge point that is very infrequently used at the installation. This line would only be used in the event that the site reservoir was to be cleaned out. The reservoir is used to hold potable water. This

			is a very infrequent process (i.e. a maintenance process that would be carried out approximately once every 10 years). This discharge line would be dry for all other periods. The application includes a request to include this discharge point in the licence. It is suggested that a condition be included to demonstrate the water is uncontaminated prior to discharge, in agreement with the Agency.

*add rows to the table as necessary

9.6 Environmental Management Techniques – Upload Files

State the number of 'upload files' referred to and named in this attachment document? * **2**

Applies to: Great Island CCGT Power Station	**Pollution Response Plan**	**WI-GTIS-SHE-011-005**
Classification Internal	Uncontrolled if printed	Rev:1.00

The author / owner of this document is:	This document has been approved for Issue by:	Date of Issue:	Review Date:
Jonathan Storey	Padraig Dunleavy	28/02/2019	28/02/2022

Summary

Why Do we need this Instruction?

The purpose of this Pollution Response Plan is to:

- Identify the pollution spill risks associated with the day to day operation of the Greater Island Power Station.
- Explanation to regulations and legislation which this plan adheres to.
- Identify interfacing emergency response and pollution response plans both internally and externally.
- Notification and activation procedures to escalate a response as required.
- Describe the roles and responsibilities of the Great Island Emergency Response Team (ERT), Emergency Command Team (ECT), Crisis Management Teams (CMT) and Pollution Response Contractors.
- Response measures to efficiently and effectively mitigate the risk of impact to environmental and socioeconomic receptors.

Accountabilities

Intent

To define roles and responsibilities and to help ensure that everyone understands their roles and responsibilities in relation to this procedure.

Mandatory Requirements

- **Station Manager**: Is responsible for the correct implementation of this procedure at Great Island CCGT.
- **Process Support Manager:** Is responsible for providing guidance and support to the team.
- **The Health & Safety Officer:** Is responsible for ensuring that all required training for persons mentioned in this plan is provided & kept up to date.

Accountabilities

- **Emergency Command Team:** Is responsible for activating this plan and providing support to the response teams who are undertaking mitigating measures.
- **Emergency Response Team Leader:** Is the primary contact for the ERT and is responsible for the first line of response to a pollution incident.
- **Emergency Response Team Leader Step up:** acts as the **ERT** leader during the absence of the Team Leader.
- **Emergency Response Team Member:** Is responsible for keeping up with all training and drill requirements detailed in this Work Instruction and meeting any other team obligations as decided by the **ERT** Leader.
- **Response Contractor Ambipar Response**: Is responsible to ensure they are adequately prepared to respond to a pollution incident at Great Island Power Station, know the environmental and socioeconomic sensitivities, and incident management processes so they can seamlessly integrate in the initial stages of an oil spill response.

Contents

PART 1 – Strategy

1 Overview of Operations

Great Island is a 465 Mega Watt (MW Combined Cycle Gas Turbine (CCGT) power plant operated by Scottish & Southern Energy (SSE) located in Great Island, New Ross, Co Wexford.

The CCGT plant operates on natural gas as the primary fuel with distillate oil as a standby fuel. The plant operates only in the combined-cycle mode and has no “open cycle” capacity. The plant has a gas turbine, burning natural gas through a Heat Recovery Steam Generator (HRSG) to generate high pressure steam.

The main fuel supply is piped natural gas from the utility company mains supply with the back-up fuel of gas oil supplied from an on-site tank farm. The operating level used at this fuel storage facility is 11,000 tonnes.

The gas oil back up is delivered to the power station by ships, with up to a capacity of 16,000 tonnes, and stored in a Tank Farm, which has a total capacity of 85,000 tonnes, in five 17,000 tonne storage tanks. It is envisaged that only one tank will be utilised for the gas oil reserves. Delivery of the gas oil is not frequent and dependant on use, which is only as a backup. Estimate delivery period is one delivery every three to five years.

The power station also has a range of other facilities including; water reservoir, water treatment plant, sewage treatment plant, diesel storage, propane gas storage, hydrogen gas compound, chemical stores, chemical bunds, workshops, lubrication oil storage, laboratory and administration block as shown in Appendix 1. Great Island Power Station has an IPPC license issued by the Environmental Protection Agency (EPA).

The nearest area of settlement is at Cheekpoint, County Waterford, located approximately 700 metres to the south of the site. In County Wexford, the nearest significant area of settlement is Campile, located approximately 3.75 kilometres to the east. The nearest occupied dwelling is located approximately 450 metres to the northwest of the development site. The nearest school is located approximately 5 kilometres to the north east. The nearest industrial port is Belview Port approximately 3 kilometres to the west of the facility up along the River Suir.

The surrounding area is predominantly characterised by agricultural lands. The Waterford to Wexford railway line runs under the site access road immediately north of the ownership boundary. Agricultural lands are located further north of the site and to the east. Access to the site is gained via a local road, the L8072, which connects the site to the R733, located approximately 5 kilometres to the east of the development site. The R733 connects with the N25, approximately 11 kilometres to the north east

2 Statutory Requirement

This pollution response plan has been developed to conform to the following statutory requirements

- The Chemicals Act (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 (S.I. No. 209 of 2015) (the "COMAH Regulations"), implement the Seveso III Directive (2012/18/EU). The purpose of the COMAH Regulations is to lay down rules for the prevention of major accidents involving dangerous substances, and to seek to limit as far as possible the consequences for human health and the environment of such accidents, with the overall objective of providing a high level of protection in a consistent and effective manner. In line with Regulation 10: Major Accident Prevention Policy. This document is not a Major Accident Prevention Policy (MAPP), however, it forms an integral part of SSE Greater Islands commitment to mitigate the impact of a significant incident.
- Sea Pollution (Miscellaneous Provisions) Act 2006 Part 3 Para 21 (3) 2 a and b refers which states. The operator of an offshore unit or oil handling facility shall, in relation to the unit or handling facility concerned, have in place an oil pollution emergency plan. The operator of a hazardous and noxious substances handling facility shall, in relation to the handling facility concerned, have in place a hazardous and noxious substances pollution emergency plan.
- Sea Pollution (Amendment Act) 2006 Para 35 (b) Hazardous and noxious substances' means any substance other than oil which, if introduced into the marine environment, is likely to create a hazard to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.
  Hazardous and noxious substances handling facility means a facility where hazardous and noxious substances are loaded into or unloaded from ships.
  Hazardous and noxious substances pollution emergency plan ' in relation to a harbour, offshore unit, oil handling facility, hazardous and noxious substances handling facility, Irish ship or an area of seashore in whole or in part within the functional area, or contiguous to the functional area, of a local authority, means a plan for the prevention and minimisation of damage arising out of a pollution incident by hazardous and noxious substances approved by the Minister under section 2 of this Act. Hazardous and noxious substances means any substance other than oil which, if introduced into the marine environment, is likely to create a hazard to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

3 Scope of Plan

This plan details the contingency arrangements for responding to actual or threatened oil pollution incident because of SSE Great Island operations including spills which are contained within the facility and those in the surrounding environment, if in the unlikely event that it should occur.

The plan consists of three main sections:

Part 1 (Sections 1 – 10): Describes statutory requirements and the purpose of the plan, pollution spill risk assessment which considers most likely spill scenarios as well as the worst-case scenarios, the relationship of the plan to plans of local organisations and stakeholders.

Part 2 (Sections 11 - 33): Is the action section of the plan which sets out the emergency/incident management procedures, notification procedures, reporting, and action sheets for differing roles and responses to credible spill scenarios.

Part 3(Sections 34 – Appendix 5): Is the data section of the plan which contains all supplementary information relevant to the performance of the plan such as, contact directory, where and now to access MSDS sheets, environmental and socioeconomic sensitivities, roles and responsibilities of other agencies and available response resources.

4 Interfacing Plans

This plan interfaces with many internal and external emergency response plans and WORK procedures which are detailed within this section of the Pollution Response Plan. In some instances, this plan should be activated concurrently with the other internal and external plans.

4.1 Internal Plans

- Great Island CCGT Power Station Incident Response Manual (WI-GTIS-SHE-011-001)
- Waste Management Plan (WI-GTIS-SHE-004-008)
- Great Island Emergency Response Team (WI-GTIS-SHE-011-003)

4.2 External Plans

As a user of the River Barrow SSE Great Island realises that a significant pollution event because of its operations may affect neighbouring stakeholders and river users. Therefore, even though SSE have the overall responsibility to mitigate the impacts of a pollution event surrounding stakeholders may activate their oil spill contingency plans:

- Port of Waterford OSCP
  - Response to pollution on water within their area of jurisdiction
- Shipboard Oil Pollution Emergency Plans (SOPEP)
  - Pollution originating on the vessel

4 Interfacing Plans

- Wexford County Oil Spill Contingency Plan
  - Response to shoreline contamination within their area of jurisdiction
- Waterford County Oil Spill Contingency Plan
  - Response to shoreline contamination within their area of jurisdiction
- Draft National Oil Spill Contingency Plan
  - Response to a Tier 3 nationally significant incident

In the unlikely event that a pollution enters the marine environment the Port of Waterford should be notified immediately. 051 899898 (out of hours)

5 Statutory Body Jurisdiction

5.1 The Irish Coast Guard

A division within the Department of Transport, the Irish Coast Guard has the responsibility for exercising Central Government's responsibility for counter pollution and marine casualty response within the Irish Exclusive Economic Zone (EEZ).

The Irish Coast Guard is responsible for preparedness and response to marine pollution incidents within the Irish EEZ. This includes casualty response to vessels in need of assistance and pollution response arising from the threat of or actual spillage or loss of oil, chemical or hazardous noxious substances which threatens the Irish coastline or related interests.

The Irish Coast Guard is responsible for supervising the planning and implementation of oil and HNS handling facilities oil and hazardous noxious substances pollution emergency plans and implementing the draft national oil and HNS pollution emergency plan. (Sea Amendment Act 2006).

The Irish Coastguard should be notified when an oil spill occurs in the marine environment (Section 20)

In the unlikely event a Tier 3 marine oil spill incident occurs the Irish Coast Guard will resolve and respond to the situation

5.2 The Local Authority

Local authorities have a responsibility to prepare and submit an oil and HNS emergency pollution plan to the IRCG for the prevention and minimisation of damage, arising out of an oil or Hazardous Noxious Substance (HNS) pollution incident, to any area of seashore that is in whole or in part within its functional area or contiguous thereto.

In the unlikely event that a significant incident occurs which results in oil/HNS pollution migrating off SSE's area of jurisdiction and on to neighbouring shorelines the local authority may establish a shoreline response centre (SRC) also known as an Onsite Co-ordination Centre, or local Co-ordination Centre, depending on the magnitude of the incident (Framework for Major Emergency Management).

The three local authorities which may be notified or activated following a significant spill event (Tier 2 – 3) are:

- County Waterford
- County Wexford
- County Kilkenny

5.3 The Environmental Protection Agency

The Environmental Protection Agency is directly responsible for a wide range of functions, including the regulation of large or complex activities that have significant polluting potential, for monitoring and reporting on environmental quality, and enforcing compliance with environmental protection legislation

5 Statutory Body Jurisdiction

in Ireland.

It is directly responsible for enforcing EPA licenses issued to waste, industrial and other activities. It also supervises the environmental protection activities of local authorities, through auditing their performance, providing advice and guidance, and, in appropriate cases, giving binding directions.

The EPA will authorise and issue appropriate consents for hazardous waste storage and disposal.

The guidance and approval for the disposal options, including approval of temporary waste storage sites needs to be carefully coordinated between the County Waste Officer, the EPA and the SRC, if established.

The Local Authorities are still the main bodies with responsibility for environmental protection in their own areas and issuing permits for collection and transportation of waste materials.

6 Port Area of Jurisdiction

6.1 Port of Waterford

The Port of Waterford is directly west of SSE Great Island CCGT Power Station on the River Suir. The Ports area of jurisdiction is as follows and includes the waters surrounding the SSE facility.

- The outward limits consisting of the waters of the sea and River Suir within an imaginary arc with radius of 6.44kilometres drawn seaward from a point midway between Falskirt Rock and Hook Point.
- The inward limits are an imaginary straight line extending from a point 35metres westward from the centre line of Killoteran Pill and due northwest to a position in the townland of Licketstown on the Kilkenny side of the River Suir.

Upon notification of a spill entering the waters surrounding the SSE facility the port authority may activate their Incident Management Team to, support the on-water response operations, or ensure response measures are being undertaken in a way which does not pose significant finical and reputational risk to the port.

7 Levels of Response

A prompt and effective response is essential if the impacts of pollution incident are going to be minimised. Often a tiered approach is used in pollution spill response. By categorising a spill, it should ensure that the necessary level of resources is mobilised in a timely manner.

Figure 7.1 below shows the categories that have been defined for the Great Island Generating Station. Care should always be taken when using these defined tiers, if in doubt always overestimate the impact of the incident; operations can always be scaled down.

A spill assessment checklist can be found in Section 21

7 Levels of Response

APPROACH: OVERREACT AND STAND-DOWN IF APPROPRIATE.

Tier 3 – Large continuous spill which has detrimental impact on operations and the environment. Requires additional response resources from multiple agencies.

Tier 2 – Relatively large spill with potential to have detrimental effect on operations and the surrounding environment. Incident requires additional resources from external agencies to be effectively managed

Tier 1 – Relatively small spill caused by operational activities causing minor impact. Incident can be managed with response resources onsite

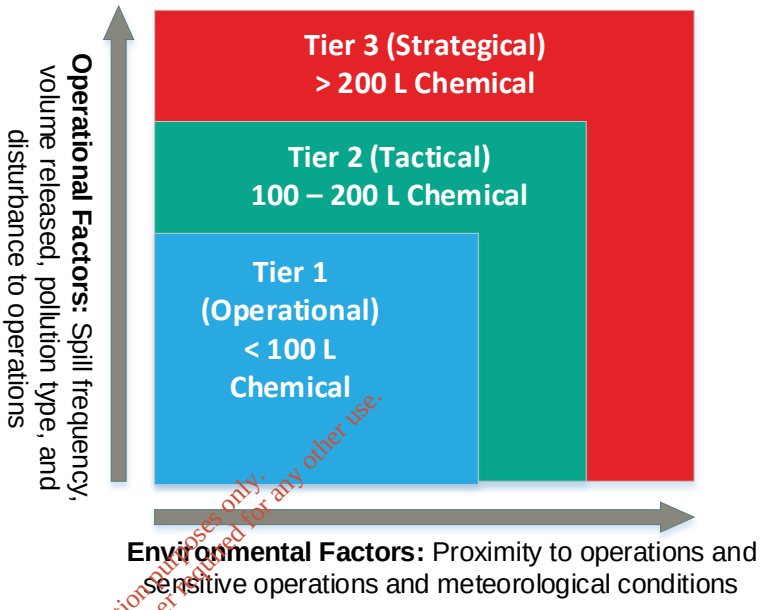


Figure 7.1 Great Island Tiered Response Concept

8 Weathering of Pollutants

8.1 Fate of Oil

When oil is released it is important to understand how it will behave in the environment to determine the best response option. The risk assessment identified a likelihood for oil to be spilled onto the terrestrial and marine environment the fate of in both environments is discussed in this section of the plan.

8.2 Marine Environment

In the event an oil-based product is released into the marine environment it will be important to monitor the movement and fate of the oil in order that the best response strategy can be used. Figure 8.1 below shows the main 'fate' processes that will affect how an oil will behave. These processes are summarised below:

8 Weathering of Pollutants

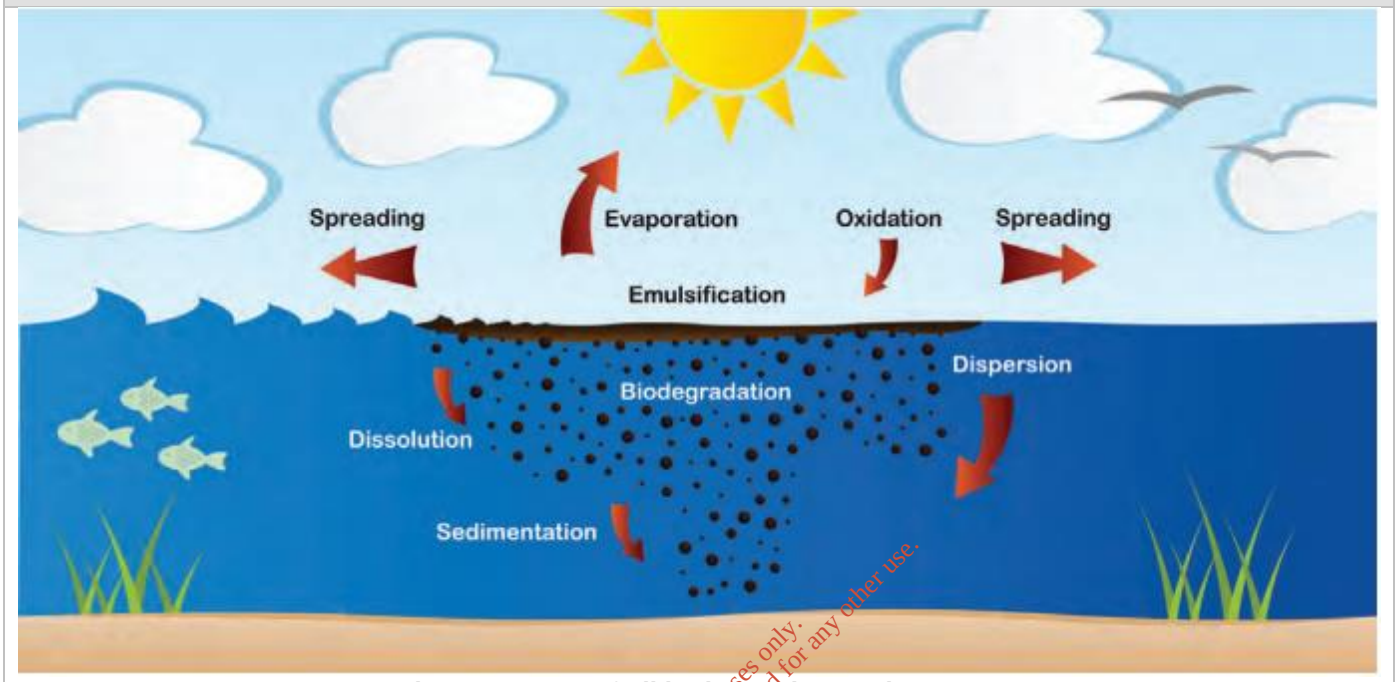


Figure 8.1 Fate of oil in the Marine Environment

Spreading: Oil tends to spread evenly in a thin film. The rate of spreading will depend on factors including oil type, weather conditions and evaporation rates.
Evaporation: This begins as soon as the oil is spilt with the 'lighter' molecules evaporating more rapidly than the heavier. Evaporation can reduce the volume significantly.
Emulsification: Wave action causes crude oils to mix with water to form a 'mouse' structure. This is unlikely to occur with heavy fuel oils and diesels.
Dispersion: Oil droplets will form and become diluted into the water column.
Biodegradation: Bacteria will breakdown the hydrocarbons back into Oxygen and water. The finer the dispersion of oil and the warmer the temperature the greater the degradation.

8.3 Terrestrial Environment

Oil based products on the shoreline/inland environment will encounter a range of sediment/substrate with differing grain size distribution and water content which will affect the behaviour of the product.

A high-water content in the sediment, saturation, can inhibit vertical migration of product due to a higher specific gravity, Figure 8.2, but promotes lateral movement (spreading), especially on inland water and ground water systems where the oil will migrate in the direction of the water flow.

Vertical migration of hydrocarbon is highly dependent on the substrate type, grain size distribution, type of oil, and presence of clay particles and minerals. As shown in Figure 8.2, the coarser the sediment the larger the grain size and therefore the easier it is for the oil to migrate vertically. Finer sediment substrate may have a higher oil retention capacity because oil molecules cannot pass through as easily and capillary action tends to hold the oil product in the smaller pore spaces.

8 Weathering of Pollutants

Oil products on sediment/substrate may undergo some similar weathering process as that observed in the marine environment such as evaporation, spreading (topography, surface, sediment dependant), oxidation, biodegradation; however, emulsification and dispersion are non-existent.

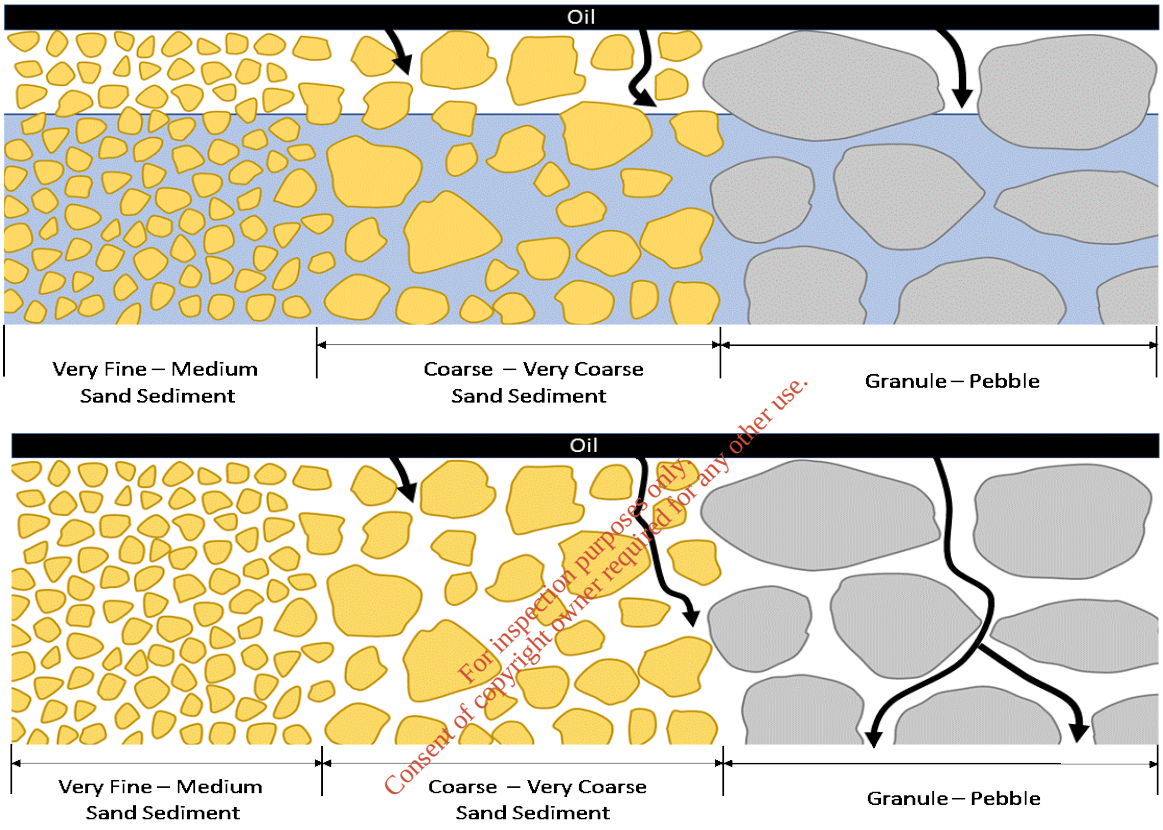


Figure 8.2 Movement of Oil in terrestrial Sediment/substrate

8.4 Fate of chemicals

Like oil it is important to understand how chemicals react in the environment to ensure the best response strategy is determined. Please note this section of the plan should be used concurrently with product Material Safety Data Sheets (MSDS). **All MSDS and Control of Substance Hazardous to Health (COSHH) assessments are kept on the web-based system Sypol. Main bulk chemical MSDS area kept with the site emergency manuals.**

When chemicals are spilt, they behave in many ways. It is important to understand this behaviour, not only so that human health and safety implications are recognised but also to decide on the most effective response.

8 Weathering of Pollutants

In simple terms, a substance behaves in one or more of five ways when spilt:
Dissolve
Evaporate
Float
Gas
Sink

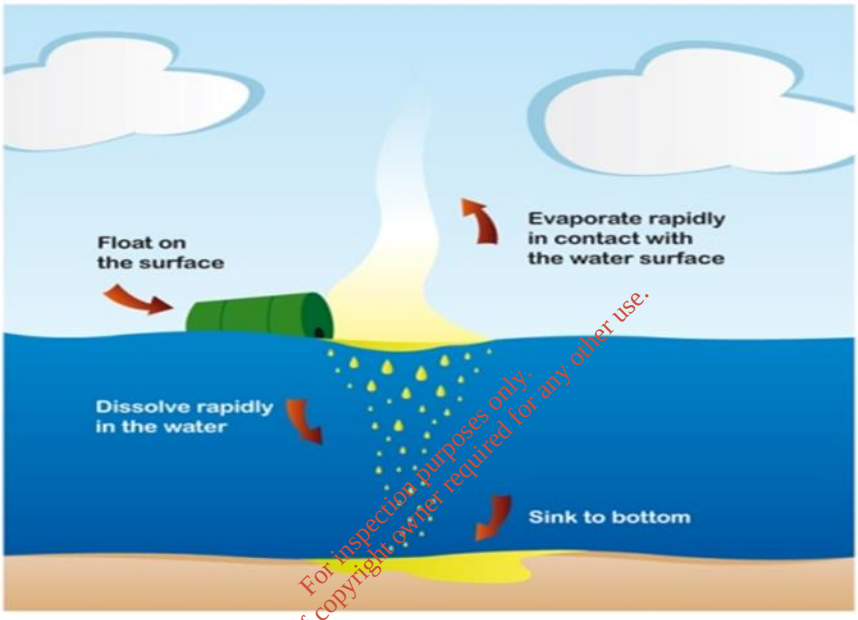


Figure 8.3 Processes that can act on a chemical spilt into the marine environment

Classifying the substances depending on the properties they exhibit when released into the environment is a useful response tool. The 'fate' of a substance is determined by the properties of volatility, solubility and density and in turn, the nature of the hazard presented by the substance (toxicity, flammability, reactivity, explosive, corrosive, etc). It also defines the most appropriate technique in dealing with it, e.g. it may be possible to contain and recover a chemical classed as a "floater" using a boom.

The European classification (

Table 8.1) system covers gases, liquids and solids. HNS showing similar behaviour in water can be grouped together and classified into the following 12 groups based on the five behavioural characteristics see

Table 8.1. However, it is important to be aware that this system only classifies chemicals according to their major property/properties relevant to spill response and a chemical may also exhibit other properties e.g. Benzene is classed according to its major property (evaporator), but it is also soluble to a certain extent and so this too may need to be considered.

8 Weathering of Pollutants

Table 8.1 European Classification System for chemicals

Property Group		Properties
G	gas	evaporate immediately
GD	gas/dissolver	evaporate immediately
E	evaporator	float, evaporate rapidly
ED	evaporator/dissolver	evaporate rapidly, dissolve
FE	floater/evaporator	float, evaporate
FED	floater/evaporator/dissolver	float, evaporate, dissolve
F	floater	float
FD	floater/dissolver	float, dissolve
DE	dissolver/evaporator	dissolve rapidly, evaporate
D	dissolver	dissolve rapidly
SD	sinker/dissolver	sink, dissolve
S	sinker	sink

9 Pollution Risk Assessment

The overarching purpose of this plan is to ensure countermeasures and response procedures are in place to mitigate the risk of a pollution incident to the surrounding environment.

A risk assessment consists of an assessment of the likelihood of a spill together with the likely severity, which is dependent on environmental and socioeconomic receptors at risk.

This plan aims to address the risks identified in the Environmental Liabilities Risk Assessment (ELRA) report which was developed in 2017 and the SSE Great Island Power Station HAZID Worksheets - MASS RAR.

A copy of the hazards and associated risks identified in the HAZID can be found in **Appendix 2**

During the ELRA risk identification, all the processes on site were identified and the risks associated with each process were listed. The risk identification process was achieved by means of a risk study facilitated by independent consultant and including site environmental, production and facility managers held in May 2016.

Table 9.1 shows the ELRA Risk Matrix which summarises the hazards and risks identified during the ERLA**.** The risk matric indicates that there are three risks in the amber zone being:

- ID18: Waste Water Handling (Failure of underground drains and leak to ground)
- ID 22: Turbine Lubrication (Leaks at connections of oil system and subsequent oil fire).
- ID 24: Waste water handling (failure of underground drains and leak to ground)

Due to SSE's commitment to incident management excellence and responsibility to mitigate risk to the

9 Pollution Risk Assessment

environment the other key risks which were identified and addressed in this plan include

- ID10: Spillage for treatment chemicals
- ID15: Oil storage and bund
- ID23: Transformer oil/coolant leaks at connections
- ID14: Fuel oil leak during delivery
- ID21: Leakage of oil from pipeline/vessel

This plan also highlights the procedures to escalate a response in the unlikely event that any of the identified potential scenarios in mentioned above and detailed in Appendix 2 are worse than foreseen.

Table 9.1 Risk Matrix from ELRA

Consequence						
Severity Rating	**Environment**					
5	**Massive**					
4	**Major**					
3	**Moderate**			18		
2	**Minor**	13,25	4,6,10,11,16, 17,19,20,23		22, 24	
1	**Trivial**		1,2,3,5,6,8, 12, 14, 16, 21			15
		Very low	**Low**	**Medium**	**High**	**Very High**
		1	**2**	**3**	**4**	**5**
		Likelihood				

Manage for continued improvement Low Risk Level **Incorporate risk reducing measures Medium Risk Level** **Intolerable High Risk Level**

10 Properties of Pollutants

When determining the appropriate response strategy to an incident, it is beneficial to have a basic knowledge on the characteristics and properties of the pollutants, Table 10.1 highlights the potential pollutants on site and their potential impact to the environment. **Note:** The impact to the environment will be dependent on exposure time, ambient weather, response undertaken and hydrodynamic conditions of the impacted waterbody. Please see Section 38 on volume of Chemicals/HNS stored on site and Appendix 1 – Facility Map showing location of Chemicals.

Table 10.1 Properties of Identified Potential Pollutants

Product	Chemical Properties		Hazards	Description
Sodium	pH	12		A chemical compound with the

10 Properties of Pollutants

Hypochlorite	Specific Gravity	1.26 @ 20 ^{0}C		formula NaClO. It is composed of a sodium cation and a hypochlorite anion, it is light greenish to yellow coloured liquid with a pungent, irritating odour. It is used to prevent the fouling of mechanical equipment. Stored in liquid solution on site. It is highly soluble and highly toxic to fresh water fish and invertebrates. Breaks down readily in the marine environment (dissolve).
	Freezing Point	-26 C (16% solution)		
	Viscosity	N/A		
	Packing Group	II or III		
	Vapour Density	N/A		
Hydrogen	pH	N/A		A diatomic gas with the formula H_2. It is a colourless, odourless, tasteless, non-toxic, non-metallic highly combustible. Stored on site in compressed gas canisters. There is on ecological damage caused by this product. Will form a gas and disperse into surrounding atmosphere having a density lighter than air.
	Specific Gravity	N/A		
	Freezing Point	N/A		
	Viscosity	N/A		
	Packing Group	II		
	Vapour Density	0.89 g/l (at STP =0 ^{0}C)		
Caustic Soda Solution (Sodium Hydroxide)	pH	14		Caustic Soda is a colourless liquid also known as Sodium Hydroxide an inorganic compound with the formula NaOH. The components of the product are not classified as environmentally hazardous. However, if released in large volumes may cause damaging effect, neutralisation will reduce toxic effect. Dissolve into the marine environment.
	Specific Gravity	N/A		
	Freezing Point	N/A		
	Viscosity	79m Pas 20(^{0}C)		
	Packing Group	II		
	Vapour Density	N/A		
Aqueous Ammonia	pH	12		Aqueous ammonia is a corrosive white liquid with the chemical formula NH_3. It causes severe skin burns and eye damage and is very toxic to aquatic life. It reacts with metals, acids and oxidizing substances. It is not classed as flammable, but is combustible but not readily ignited (there is a risk of explosion with nitrogen oxides and hypochlorite's). The product will cause damage to the mouth and throat. Will form a gas and dissolve in the water blanket. Ammonia is lighter than air and
	Specific Gravity	0.884 for 34% Aq Ammonia 15.6 ^{0}C		
	Freezing Point	N/A		
	Viscosity	N/A		
	Packing Group	III		
	Vapour Density	N/A		

10 Properties of Pollutants

				will disperse throughout the atmosphere.
Sodium Metabisulphite Liquid	pH	4.1 – 4.6 @20 ^{0}C	N/A	Sodium Metabisulphite is an inorganic compound with the chemical formula $Na_2S_2O_2$. It is a yellowish liquid with a sulphur dioxide (rotten egg) odour. It has a violent reaction when under the influence of oxidising agents and when in contact with acids liberates toxic gas. The product is miscible with water and therefore may spread in water system. Dissolve into the marine environment.
	Specific Gravity	1.32 – 1.38 g/cm^3		
	Freezing Point	N/A		
	Viscosity	N/A		
	Packing Group	N/A		
	Vapour Density	N/A		
Trisodium Phosphate	pH	11.8		Trisodium phosphate is an inorganic compound with the formula $Na_3 3PO_4$. It is a white granular odourless powder that is highly soluble in water producing an alkaline solution. It can cause severe skin burns, eye damage and may cause respiratory irritation. Do not discharge into ground or into water course. Static electricity and formation of sparks must be prevented when responding to a spill. The product reacts with strong acids. Soluble in water.
	Specific Gravity	N/A		
	Freezing Point	N/A		
	Viscosity	N/A		
	Packing Group	III		
	Vapour Density	N/A		
Genesys LF	pH	9.8 – 10.2	Not classified	Genesys LF is water treatment chemicals which is an aqueous solution of neutralised phosphate. It is soluble in water and should avoid entering the drainage system if spilt. It is incompatible with strong acids and oxidising agents.
	Specific Gravity	1.34 - 1.37		
	Freezing Point	-15 ^{0}C		
	Viscosity	N/A		
	Packing Group	Not classified		
	Vapour Density	N/A		
Corrosion Inhibitor	pH	9.5 – 12.5		The Corrosion Inhibitor is a clear yellow liquid with no distinct odour. The product causes severe skin burns and eye damage. It may be hazardous by contact do not attempt to clean-up the spill without PPE – Notify ERT. Prevent material and fire water from entering sewers or waterways. Not expected to be
	Specific Gravity	1.15 (25.5 ^{0}C)		
	Freezing Point	N/A		
	Viscosity	N/A		
	Packing Group	III		
	Vapour Density	N/A		

10 Properties of Pollutants

				harmful to aquatic organisms. Incompatible with acids my result in exothermic reaction with toxic vapour. Will dissolve in the water.
Sulphuric Acid	pH	1.0		Sulphuric acid is a colourless, odourless liquid with the chemical formula H_2SO_4. The product can cause severe skin burns and eye damage. It is not flammable but highly reactive and may release toxic fumes if heated. It can react with organic materials explosively. Do not allow environmental contamination. The liquid is highly soluble and will dissolver.
	Specific Gravity	N/A		
	Freezing Point	N/A		
	Viscosity	N/A		
	Packing Group	II		
	Vapour Density	3.4		
Gas Oil	pH			Gas oil is clear bright liquid with a hydrocarbon odour comprised of light end hydrocarbons with a small carbon chain. It is classed as a non-persistent oil as it readily weathers into the environment through the processes of spreading and evaporation. There is an ignition risk. It is known to be toxic to aquatic environment. Will readily spread on the surface of water and impermeable surfaces, dissipate into the water column, and evaporate.
	Specific Gravity			
	Flash Point	52 ^{0}C		
	Viscosity			
	Packing Group	III		
	Vapour Density			
Transformer Oil	pH	N/A	N/A	Transformer oil is a clear brown liquid. Contact may cause mild skin irritation including redness and burning sensation. The fluid will not readily ignite. Where possible prevent the product entering the marine environment. It will float in the marine environment and spread rapidly. It has a high concentration of Polycyclic Aromatic Hydrocarbons which have an infinity to bind to sediment and remain in the environment for a long period.
	Specific Gravity	0.88-0.89		
	Freezing Point	N/A		
	Viscosity	9.4 -12.0 Cst @40 ^{0}C		
	Packing Group	N/A		
	Vapour Density	N/A		
Lube Oil	pH	N/A	N/A	Lube oils are persistent as they do not readily disperse and evaporate, consequently some active clean-up is necessary. If in the marine environment they are also likely to emulsify. It is necessary to contain the oil near
	Specific Gravity	0.89		
	Flash Point	228 ^{0}C		
	Viscosity	137.6 mm2/s at 40 °C		

10 Properties of Pollutants

	Packing Group	N/A		its source of spillage. It is known to cause physical fouling to aquatic organisms.
	Vapour Density	>1		

PART 2 – Actions

11 Response Organisation and Incident Management

This section of the pollution response plan aims to demonstrate and guide the SSE Emergency Command Team (CMT) and Emergency Response Teams (ERT) in how to effectively manage a pollution incident and integrate with external organisations in the unlikely event a significant spill was to occur.

This section of the plan interfaces with the SSE Internal documents

- Great Island CCGT Power Station Incident Response Manual WI-GTIS-SHE-011-001
- Great Island Emergency Response Team WI-GTIS-SHE-011-003

The SSE Approach to an incident**: Overreact and stand-down if appropriate.**

In an emergency it is essential that all personnel know their duties and responsibilities and the actions they should take to ensure that the response is as fast and effective as possible.

11.1 Tier 1 - Operational Incident

It is envisaged that the pollution incident will require no external organisation assistance and does not have hazardous consequences outside of the SSE Facility.

The incident will be managed by the Emergency Response Team and Incident Controller the ECT might be notified and on standby but not activated.

11.2 Tier 2 – Tactical Incident

This is a significant/serious event which will require the support from external agencies being; Fire Brigade, Garda Siochana, Ambipar Response, the local authority, port authority.

11 Response Organisation and Incident Management

The Emergency Command Team will be activated to support the ERT and Incident Controller and the SSE Crisis Management Team notified.

An Operational Liaison will be assigned to liaise between the SSE Command Team and the Emergency Management teams of other parties.

Ambipar Response will provide a Technical Advisor to the Emergency Command Centre (ECC) to assist in determining the most appropriate response strategies.

Tier 3 – Strategic Incident (Major)

A major incident is defined as one which affects the safety of the site, involves a fatality, or presents a hazard beyond the site boundary. This could entail a catastrophic loss of product containment, prolonged leak of a chemical or hydrocarbon product, or an incident involving the delivery of gas oil to the facility by commercial vessel.

In this instance the ECT will be established and supported through the activation of the Crisis Management Team (CMT).

The local authority, port authority and potentially the Irish Coast will activate their incident management teams and supply additional resources in terms of equipment and personnel for a marine spill. Multiple strategic and operational liaisons maybe required depending on the magnitude of the incident and the differing parties involved.

If the pollution incident results in contamination in the marine environment the port authority may choose to be the lead agency. If this is the case SSE will support their response.

Throughout a Tier 3 incident Great Island SSE will be support by Ambipar Response

12 Emergency Command Team Establishment

The following will be the arrangement for the allocation of duties until the team is fully established.

12.1 First Arrival

The first member of the Emergency Command Team arriving at the site in response to a call out should:

- Obtain a briefing from the Emergency Commander and immediately commence the setup of the Emergency Command Centre.

12 Emergency Command Team Establishment

- Complete Initial Incident Details sheet and POLREP (for marine spills, the POLREP should be submitted to the Irish Coast Guard)

12.2 Second Arrival

The second arrival will then:

- Establish the Emergency Command Centre facility.
- Activate any equipment which requires setting up.
- Take over the role of Event Logger from the duty desk operator.
- Update the events board as information becomes available.
- Keep a record of all incoming and outgoing information.

13 Emergency Command Centre

The Emergency Command Centre where the ECT will convene to management the incident and ensure there is sufficient resources and support for the ERTs will initially be the Station Control Room and as the incident escalates will be the ECC on the 4th floor of the Administration Building see Figure 13.1.

The Emergency Command Centre has a range of incident management equipment to ensure continuous incident management support including:

- Incident Status Board
- Whiteboards
- External Telephone Lines
- Internal Telephone Lines
- Fax machine
- Internet
- Computers
- Role identifying high visibility jackets

13 Emergency Command Centre

Figure 13.1 Location of Emergency Command Centre

14 Tier 2 Response Organisation

SSE Great Island Power Station is a Tier 2 Members with Ambipar Response which entitles SSE Great Island CCGT to a range of services which includes access to a dedicated incident response organisation accredited to level 3 UKSpill and International Accreditation Association (ISAA).

In terms of resilience, Ambipar Response has access to Ambipar Plc, accessing a greater network of specialist staff to support incident responses at all levels. Expertise available from Ambipar includes Engineers, Salvage Masters, Naval Architects, Insurance Adjusters, Surveyors and Crisis/ Incident Response Advisors.

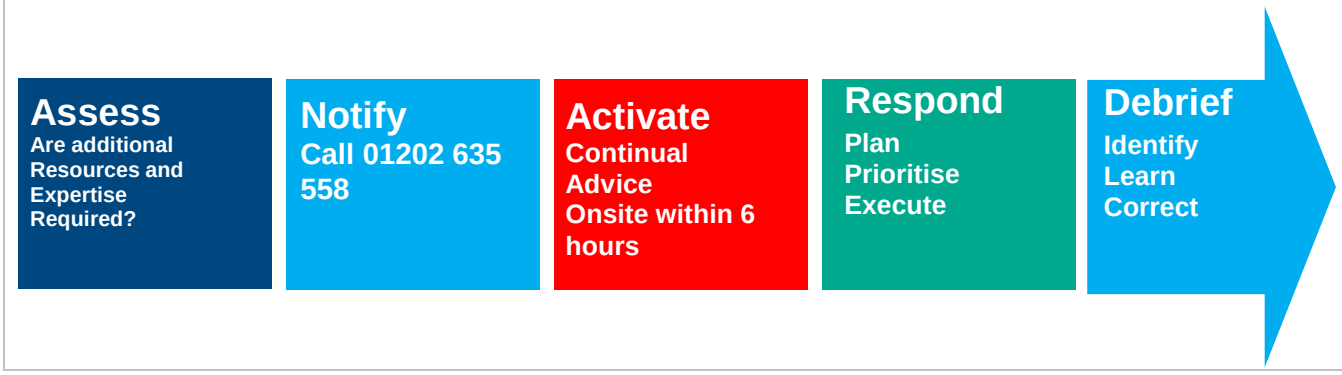
It is important to note that Ambipar Membership has a 'Tier 2 *plus*' policy, ensuring a response does not dry up onsite because resources have been expended. Any response for a member may use 30% of our resource stockpile, this level may be increased to 50% with approval from the Ambipar Response Board.

Ambipar membership also entitles: -

- Access to the 24/7/365 Emergency number.
- Immediate expert telephone advice and guidance on response equipment and strategies.
- Support from an Ambipar Technical Advisor.

14 Tier 2 Response Organisation

- Predetermined and exercised response and notification procedures.
- Mobilisation of the equipment in Section 36 within an hour of notification
- Response time within 6 hours of notification



15 Tier 3 Oil Spill - IRCG National Contingency Plan

A Tier 3 oil spill is a major spill the Irish Coastguard may decide to implement the draft Republic of Ireland National Contingency Plan (NCP) as the spill may be beyond the resources of this plan, Tier 2 Response Contractors and the County Councils.

The Republic of Ireland national oil spill contingency plan is still in draft format, but when the Irish Coastguard is activated the following can be assumed:

The statutory powers of the IRCG Director permit him/her to command of all spill response operations if thought necessary.

- When activated an incident command centre will be set up at NMOC/Marine Emergencies Room Dublin, closest MRC, SSE ECC or the Port of Waterford incident management room.
- The national Emergency Centre Co-Ordination might be set up
- Then national Parks and Wildlife Service will provide guidance in regarding environmental sensitivities.
- The incident command system in Figure 15.1 will be set up and operated under the direction of the coastguard. **It is advised that SSE supply an Operational/Strategic Liaison person to attend the Marine and Shoreline function groups.**
- They may mobilise a ship casualty assessment unit (SCAU) if the incident entails a marine shipping incident. **Personnel from both Port of Waterford Authority and SSE may be members.**
- The Department Agencies with food safety responsibility can prohibit the taking of fish or edible plants from impacted area.

15 Tier 3 Oil Spill - IRCG National Contingency Plan

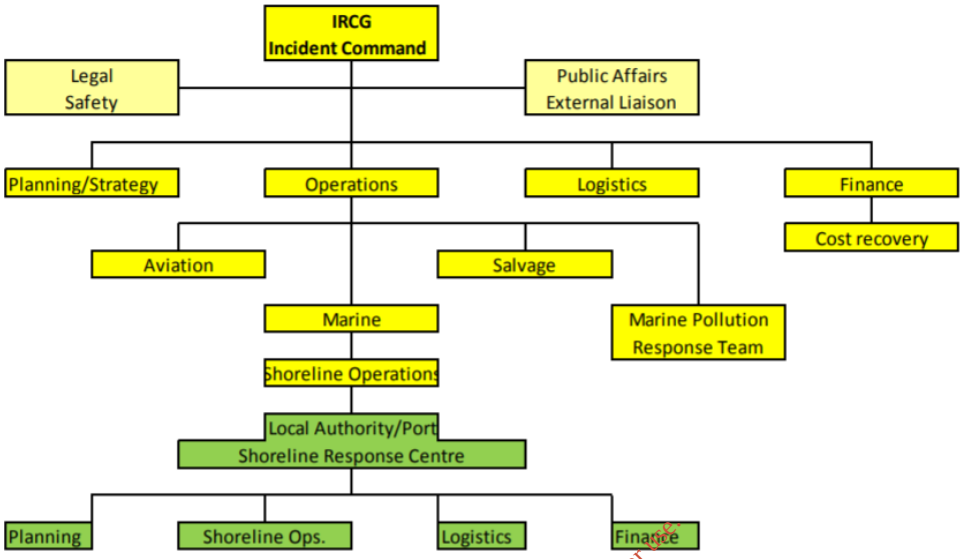
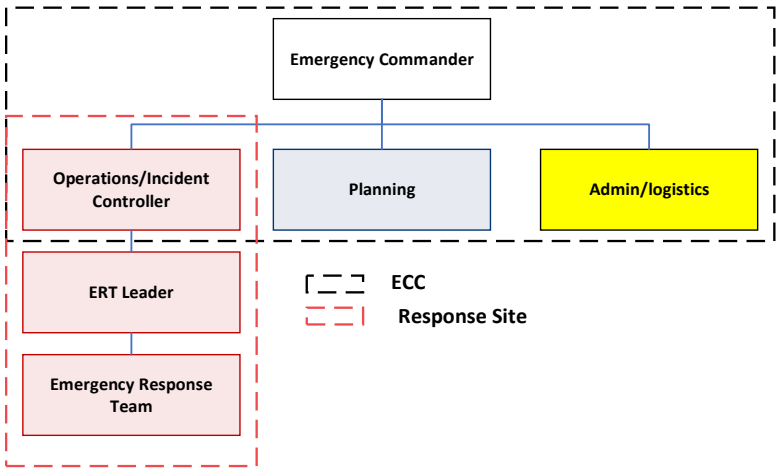


Figure 15.1 IRCG Incident Command Structure

16 Action Checklist

The following section contains action cards and checklists for members of ECT and ERT, to use during the initial six hours following a spill incident. An emergency management structure for SSE is shown below.



The action cards follow a methodical checklist style, in order that they effectively guide the person fulfilling the role through the actions that they are expected to take and the responsibilities falling upon them during a spill response incident.

16 Action Checklist

The action cards are intended to be used in conjunction with the notification/reporting flowcharts in **Sections 19 – 32.**

The job cards are split into four sections:

- ***Alert*** - This section lists the different notifications that will be required, both internally and externally.
- ***Initial Actions*** - Those that will be required to be carried out immediately to initiate the response operation.
- ***Further Actions*** - Those that will be required to be carried out when the response operation is underway.
- ***Final Actions*** - Those that will be required to be completed before the response operation can be officially stood down.

Action Cards can be found for the following Positions:

- Emergency Commander Action Checklist
- Incident Controller Action Checklist
- Emergency Response Team Leader Action Checklist
- Emergency Response Team
- Administration & Finance Department

16.1 Emergency Commander Action Checklist

Responsibilities	- Overall command on site during an emergency. - Must take an overview of the incident and make sure adequate resources are provided and steps taken to ensure safety of personnel and public. - Report to the ECC and remain there unless untenable or acting as Incident Controller at scene of incident. - There should be no undue constraints placed on the Emergency Commander; he must appraise the emergency and act on his own judgement, but in keeping with Company and Station Policy.

Step	Actions	Additional Information	Response Notes	Time and date completed

16.1 Emergency Commander Action Checklist

Alert	☐ Emergency Command Team ☐ Incident Commander ☐ Emergency Response Team ☐ Tier 2 Response Contractor ☐ Ensure External Emergency Services are notified	*Emergency/Incident Commander to proceed to the scene of the incident if safe to do so and report to ECT.* *Initial role undertaken by Shift Group Leader in the Control Room and replaced by more experienced manager if large incident.*		
Initial Actions	☐ Go to emergency command centre ☐ Verify incident details ☐ Assign initial incident category (Tier 1, 2, 3) ☐ Use the incident assessment checklist Section 22 ☐ Assign roles to Emergency Command Team ☐ Ensure external verbal notification procedure has been competed ☐ Complete initial incidents detail forms (Section 35) ☐ Initiate Event Log, see Forms (Section 35). ☐ Incident in marine environment Request IRCG POLREP if not obtained from oil spill assessment form (Section 35). ☐ Prepare IRCG POLREP for	*Complete tier level determination in consultation with incident commander.* *When more ECT area available appoint an event recorder for the responsibility of Incident Log.* *All hardcopies of Reporting forms can be found in the ECC*		

16.1 Emergency Commander Action Checklist

	marine incident. ☐ Prepare Initial response action plan to be deployed by ERT and response agencies.			
Further Actions	☐ Liaise with emergency services ☐ Brief Tier 2 response Technical Advisor. ☐ Ensure SHE notify CMT ☐ Assign dedicated Operations Liaison to communicate with Emergency Services command teams. ☐ Prepare incident action plan for next operational period	*Provide a calm and clear brief to external agencies and CMT.*		
Final Actions	☐ Submit Incident Log and personal log ☐ Attend debriefs ☐ Ensure all invoices and documentation are submitted to Administration support.	*Insure all paper work is legible*		

16.2 Incident Controller Action Checklist

Responsibilities	• Safety of personnel and preservation of life at the scene. • Control of immediate incident response at the scene. • Ensure timely and accurate information is passed to the Emergency

16.2 Incident Controller Action Checklist

	Commander. • Ensure liaison with Emergency Services and Emergency Response Team (If available).

Step	Actions	Additional Information	Response Notes	Time and date completed
Alert	☐ Emergency Command Team			
Initial Actions	☐ Investigate at scene of spill ☐ Use the incident assessment checklist see Section 22 ☐ Report back to ECT/ on duty manager extent of spill and resources required ☐ Confirm spillage has been stopped or attempt to stop spillage **IF SAFE TO DO SO** ☐ Assist in calling out ERT ☐ Investigate cause of the spillage and gain evidence – samples, photos, statements (Section 22) ☐ Initiate personal log	*Complete tier level.* *Stop pollution spill only if appropriate to do so without increasing the risk to cause harm to yourself and others.* *Pollution spill guidance and root cause analysis investigation can be undertaken by Ambipar.*		
Further Actions	☐ ECT as required – Planning. ☐ Meet and liaise with arriving external response teams ☐ Assist security in controlling the Press and Public ☐ Provide advice on response strategies and oversee and report the progress ERT to ECT.	*To gain additional information on response strategies in section 28 to 33.* ***Error! Reference source not found.***		

16.2 Incident Controller Action Checklist

Final Actions	☐ Submit personal log ☐ Attend debrief	*Insure all paper work is legible*		

16.3 Emergency Response Team Leader

Responsibilities	• Safety of personnel and preservation of life at the scene. • Command of the ERT • Control of immediate incident response at the scene. • Ensure timely and accurate information is passed to the Incident Commander. • Ensure liaison with Emergency Response Team.			
Step	**Actions**	**Additional Information**	**Response Notes**	**Time and date completed**
	☐ Emergency Response Team	*Report to control room once notified (incident Alarm) Activate ERT from ERT cabin*		
Initial Actions	☐ Obtain incident information from control room or Incident Commander ☐ In liaison with the Incident Commander assess the incident. ☐ Determine what the initial action plan is in liaison with Incident Commander ☐ Conduct Site Briefing to all ERT ☐ Issue the personal log checklists to all personnel. ☐ Issue PPE to response teams ☐ Direct response teams ☐ Provide accurate	*Stop Spill if appropriate to do so.* *For information on pollutant refer to Section 10* *Where possible try to reuse equipment, and prevent secondary contamination (waste hierarchy)*		

16.2 Incident Controller Action Checklist

	reports to Incident Commander ☐ Undertake spilt product sampling if applicable (see Section 25) ☐ Initiate personal log			
Further Actions	☐ Liaise with Ambipar Response Ltd Team Leader (Tier 2)			
Final Actions	☐ Submit personal log to the Harbour Master ☐ Demobilise response team ☐ Attend debriefs ☐ Refurbish and Re-stock Pollution Spill Equipment	*Insure all paper work is legible.*		

17 Reporting Procedures

In line with the procedures outlined in the action cards the Emergency Commander, SHE Team or delegated SSE Personnel will complete the internal and external reporting procedures outlined in Sections 19 (internal) 20 (external)

In addition, it is important that an accurate record is kept of actions taken, equipment used, and the progress made. To this end an incident log will be kept of all activity undertaken during the spill response. It will be the responsibility of the desk operator and then delegated person in the ECT to maintain the log, a copy of the form can be found in Section 35

Each person involved in the spill is also required to complete, and submit to the ECT, a personal log of actions and activities undertaken, however it is acknowledged that during emergency response activities these logs may be completed subsequently.

18 Communication Plan

This section contains details relating to the different type and means of communications that will be

18 Communication Plan

utilised during an incident covered in this plan.

Internal and external notification procedures are highlighted in Sections 19 (internal) 20 (external)

Upon the initiation of a Site Incident or Evacuation Alarm the personnel highlighted below shall exclusively utilise **Channel 3** of the Site radio system for communication purposes. Any other persons later called upon to assist in the response, if in possession of a radio, shall also be available on this channel.

- Duty Shift Group Leader (Incident Controller/Emergency Commander)
- Duty Control Room Operator
- ERT Leader

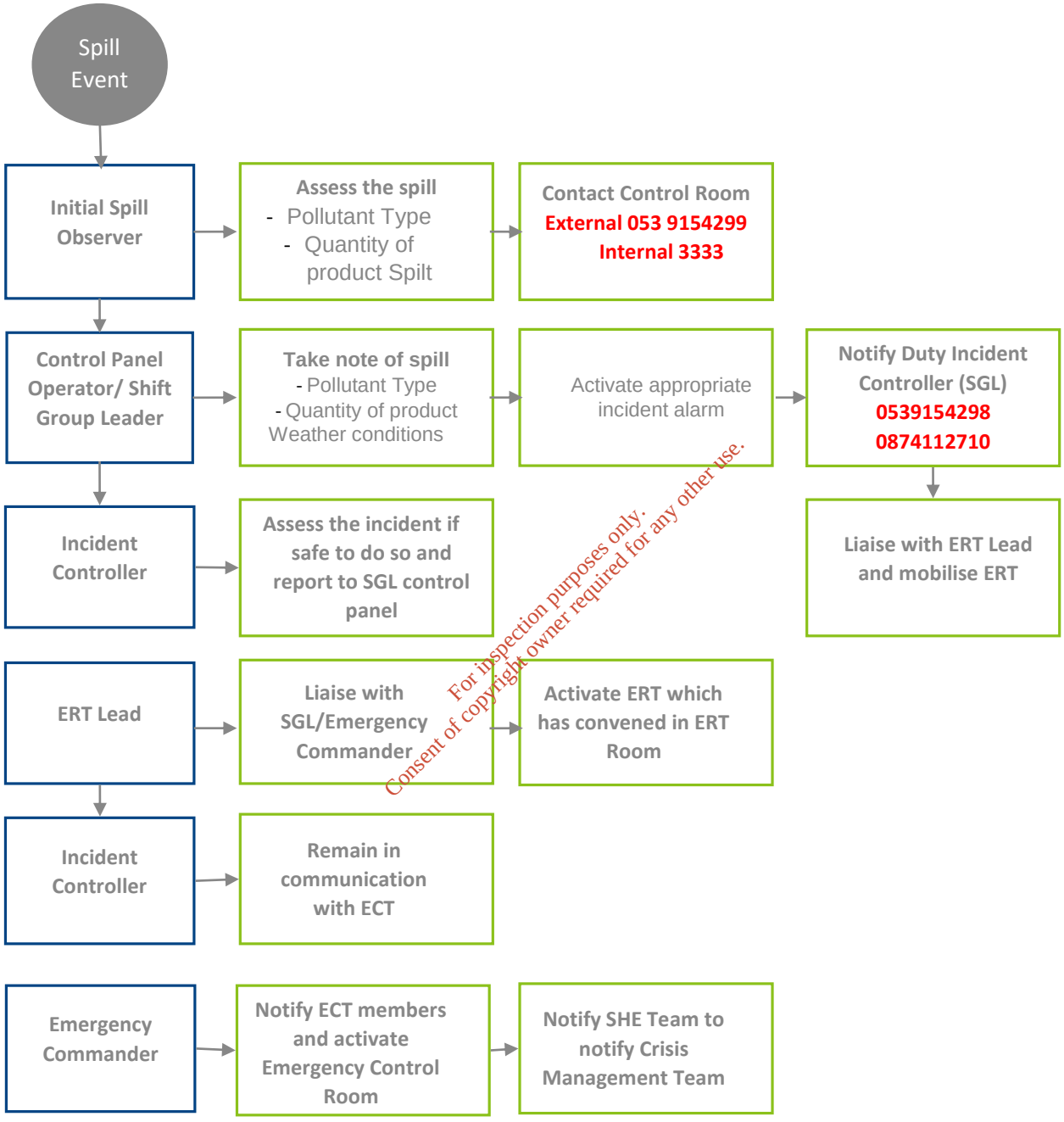
Should secure communications be required during an incident, then in place of radio, a land telephone line from Control Room or ECC is to be used.

All external Notifications are to be made by a land telephone line from the Control Room or the ECC.

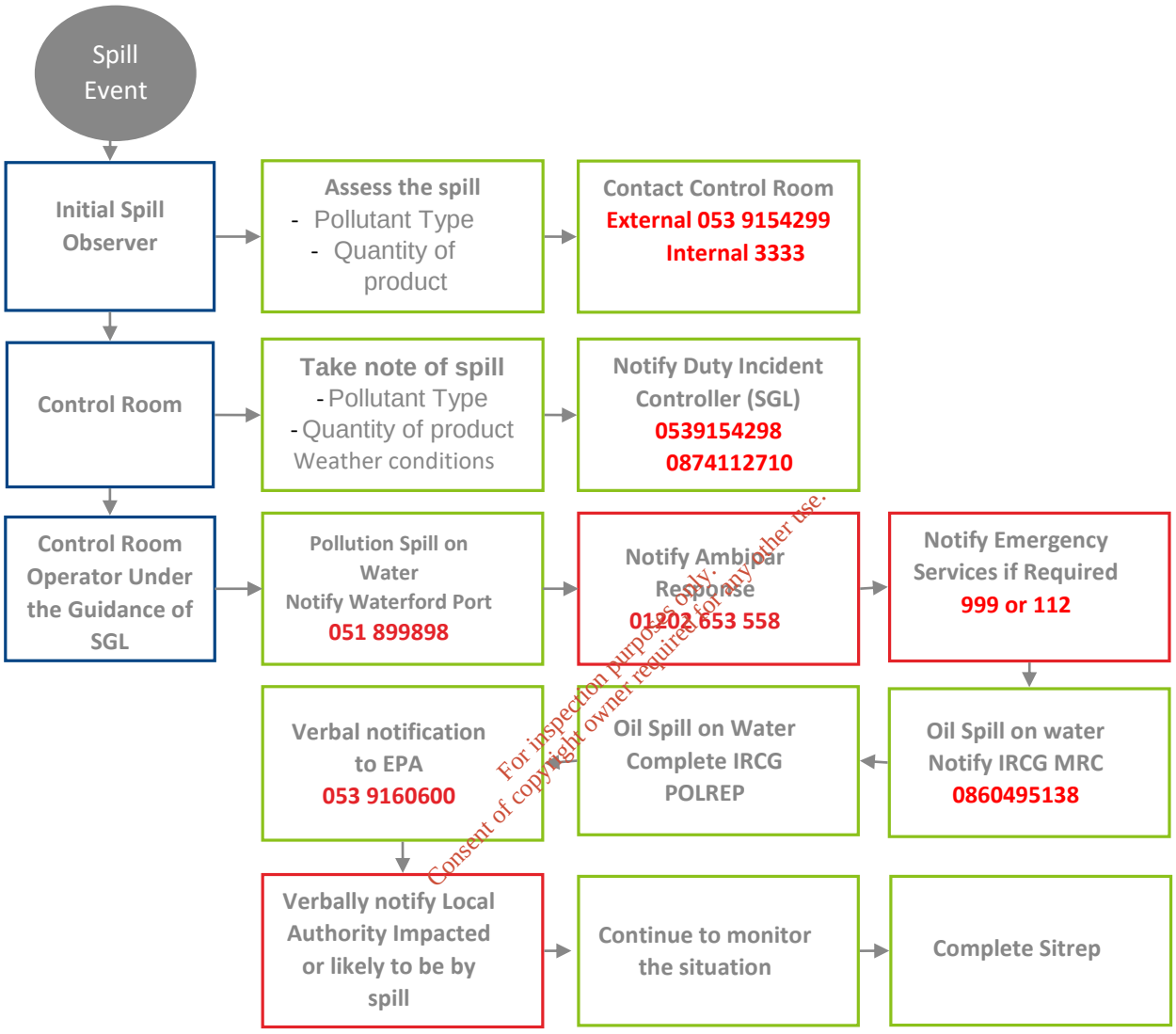
If the incident escalates to an extended clean-up response then the main switchboard within the Incident Response Centre will be manned on a 24hr basis.

The Port of Waterford will be using VHF radio channel 16/14 throughout a marine response

19 Notification – Internal



20 Notification – External



Position	Position with the SSE notification procedure
Tier 1 -3	Notification actions that must be undertaken throughout a Tier 1 -2 event
Tier 2 -3	Notification actions that must be undertaken throughout a Tier 2 -3 event

21 Pollution Spill Assessment

Date/Time Completed:	Completed By:	Reviewed by:
Incident Characteristics		
Is the source of the spill known? Specify:	☐ Yes ☐No ☐ Don't know ☐N/A	
Is the oil type known? Specify:	☐ Yes ☐No ☐ Don't know ☐N/A	
Is the total quantity of oil known or estimated? Specify:	☐ Yes ☐No ☐ Don't know ☐N/A	
Prevailing wind and current conditions assessed Specify:	☐ Yes ☐No ☐ Don't know ☐N/A	
People		
Does the incident pose a risk to the public?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any people missing?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any fatalities?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any injuries?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are additional people needed to help with the response	☐ Yes ☐No ☐ Don't know ☐N/A	
Environment		
Has there been a release of hydrocarbon product?	☐ Yes ☐No ☐ Don't know ☐N/A	
- If yes, is the release continuing?	☐ Yes ☐No ☐ Don't know ☐N/A	
- If yes, is the release contained?	☐ Yes ☐No ☐ Don't know ☐N/A	
Is there a potential for the release of product?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there sensitive resources in the vicinity?	☐ Yes ☐No ☐ Don't know ☐N/A	
Assets		
Is property at risk?	☐ Yes ☐No ☐ Don't know ☐N/A	
Nature of risk:	☐ fire ☐ explosion ☐ security ☐ flood ☐ Other:	
Are there 3rd party facilities at risk or involved?	☐ Yes ☐No ☐ Don't know ☐N/A	
Nature of risk to 3rd party facilities?	Define:	
Reputation		
Is there potential for problems with regulators?	☐ Yes ☐No ☐ Don't know ☐N/A	
Will the incident generate public and / or media interest?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any legal issues?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any weather constraints?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any security issues?	☐ Yes ☐No ☐ Don't know ☐N/A	
Are there any political sensitivities / issues?	☐ Yes ☐No ☐ Don't know ☐N/A	
Is the incident escalating	☐ Yes ☐No ☐ Don't know ☐N/A	

Approved & Reviewed by
Incident/Emergency Commander

22 Spill Quantification Guidance

Use form in Appendix 4 to support.

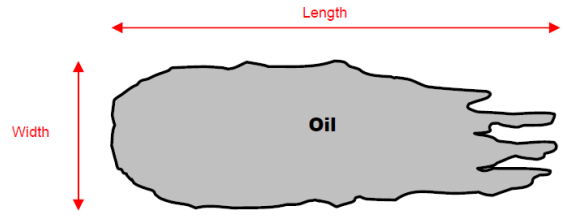
In order to determine the area of pollution, its length and width are required.

Example

Length = 16.04 m / Width = 4.31 m

Area = 69.13 m2

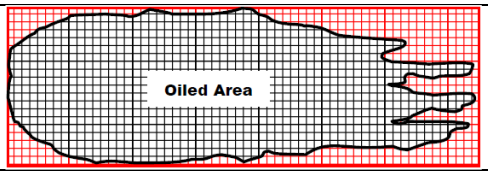
The area covered with pollutant is calculated by placing a rectangle around the slick equal to the overall length and width.



Grid overlays can be used to obtain more accurate measurements of the overall area covered by oil (in percentage).

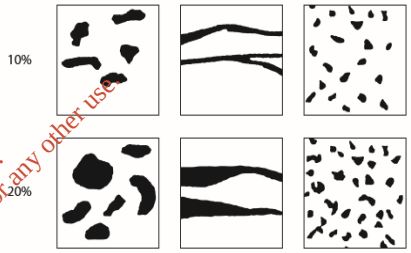
80% oil area and 20% no impacted

Oiled Area = 69.13 m^2 (overall area) x 80% (oiled area) = 55.30 m^2



If gird overlays aren't available the percentage coverage chart can to utilised to obtain an estimate of the percentage overage.

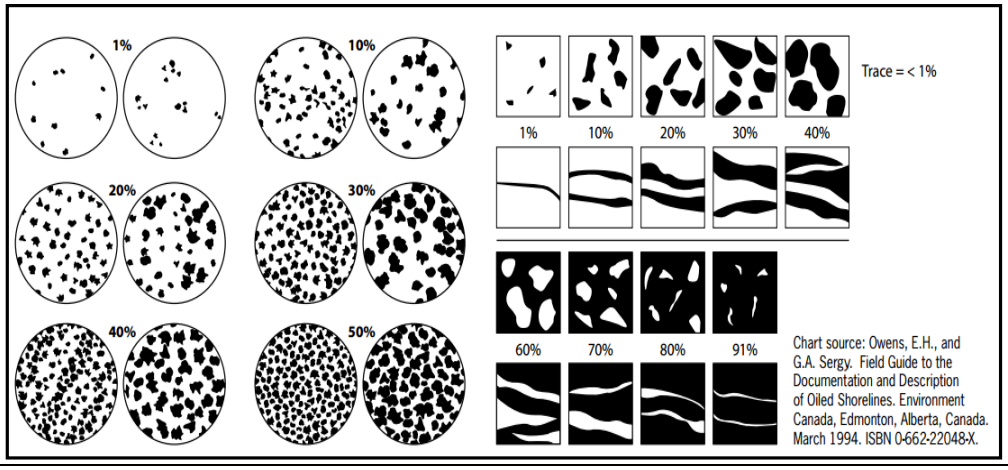
A complete copy of the percentage cover chart can be found below and used throughout estimating the pollution impact.



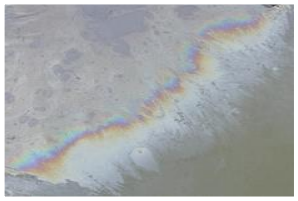
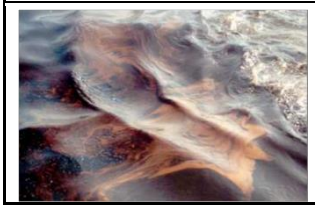
Once the area of the pollution is estimated, then the total volume of **oil** can be calculated by using the colour code as follows:

- Compare the visual appearance of the slick with the standard colour code given in use the pictures in following table and the description provided to assist with interpreting the colour codes.
- Once the correct colour code is identified refer to column 4 in Appendix 4 to obtain the volume of oil per m^2.

Care should be taken in the allocation of coverage to appearance, particularly the appearances that relate to higher thicknesses (discontinuous true colour and continuous true colour). It is generally considered that 90% of the oil volume will be contained within 10% of the oiled area (normally the leading edge up the wind side of the slick).



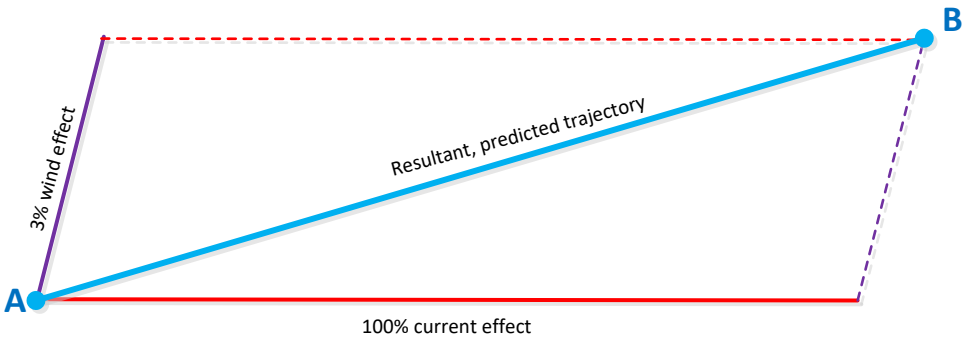
22 Spill Quantification Guidance

APPEARANCE	CODE	LAYER THICKNESS (µm)	DESCRIPTION
	1 Oil Sheen Silvery Grey	0.04 – 0.30	The very thin films of oil reflect the incoming light slightly better than the surrounding water and can therefore be observed as a silvery or grey sheen. Above a certain height or angle of view the observed film may disappear.
	2 Oil Sheen Rainbow	0.30 – 5.0	The rainbow appearance is caused by an optical effect independent of the oil type. Depending on the angle of view and layer thickness, the distinctive colours will be diffuse or very bright.
	3 Oil Sheen Metallic	5.0 - 50	Although a range of colours can be observed, (blue, purple, red and greenish) the apparent colour is not caused by the interference of light or by the true colour of the oil.
	4 Discontinuous True Colours	50 – 200	For oil slicks thicker than 50 µm the true colour will gradually dominate the colour that is observed. Brown oils will appear brown, black oils will appear black. The broken nature of the colour is due to thinner areas of oil.
	5 Continuous true oil colour	> 200	The true colour of the oil is more dominate throughout the surface of the spilled oil.

REFER TO APPENIDX 4 FOR CALCULATION FORM AND PERCENTAGE CHART

23 Oil Spill in Marine Environment Trajectory Calculation

Oil moves as a function of current and wind. The current has a 100% influence, the wind has a 3% influence.



- Obtain information on tides and direction/speed of current and wind. Oil moves on the water surface at 100% of the current/tide and 4% of the wind as per the figure above.
- Using the information on current and wind, predict the trajectory and speed of movement of the spill.
- Draw the slick on a chart (or map) with co-ordinates, showing present position and predicted direction of movement.
- Once the size and movement of the spill are known it is possible for the Incident Controller/Emergency Commander to assess the potential danger to people, resources and nearby installations and if necessary to set safety exclusion zones.

24 Chemical Spill Identification

When Identifying which chemical has spilt it is important to consider the Chemical Spill Personnel Procedure below as stated in the Environmental Emergency Preparedness WI-GTIS-SHE-011-001.

- **Get Away.** Move up wind to a safe distance from the spill.
- **Identify the spill.** Look for chemical name, UN number and other details which are detailed on the hazardous chemical signage.
- **Get Help.** Report the spill to the control room on **3333** Details such as spill size, location, presence/absence of fumes should be reported if possible.
- **Seal off Area**. Warn personnel in the immediate vicinity of the danger.
- **Spill containment.** If you have received training in chemical spill response equipment, deploy the drain blocks and specialist booms to prevent drain contamination.
- **Safety First.** Always consider your personal safety and do NOT put yourself or others at risk.

24 Chemical Spill Identification

Due to the nature of the chemicals stored at the SSE Great Island facility it is advised investigation in determining the proposed spilt chemical should be undertaken by the ERT who are trained in chemical response measures and have available the appropriate personnel protective equipment (PPE).

If a leak from a container can't be identified but there is visible product on the ground refer to Section 10 which provides a description on the appearance of the chemicals with a likelihood of being spilt.

The spill quantification guidance and form in Appendix 4 can assist in determine the extent of contamination or volume released (ignoring the colour chart).

Once the chemical is known review the guidance on the MSDS form.

All MSDS and Control of Substance Hazardous to Health (COSHH) assessments are kept on the web-based system Sypol.

Main bulk chemical MSDS area kept with the site emergency manuals.

If a significant Release Notify Ambipar Response 01202 653 558

25 Sampling Guidance

Samples of the spilt oil should be taken as soon as possible before the oil has weathered. These samples may be required as evidence in legal proceedings.

Oil spill samples can help identify the source of the oil slick therefore determining if culprit responsible for the spilt oil.

Table 25.1

Table 25.1 Oil sampling guidelines demonstrates good practice oil spill sampling.

Samples may have to be taken if a drain is impacted following a spill incident. The samples should be taken at regular intervals with the analysis being undertaken by an independent chemical laboratory.

For chemicals spill a member of the station laboratory should be consulted.

Sample bottles are available in the Station laboratory

25 Sampling Guidance

Table 25.1 Oil sampling guidelines

Oil Sampling Guide	
Action	**Notes**
1) The sample should be taken in a clean glass container	Metal and plastic containers interfere with the quality of the sample and affect the analysis.
2) Care should be taken to sample the oil only. At least 3 samples should be taken.	Sampling may be done in a variety of ways: • If the oil is sufficiently thick it should be possible to carefully skim the oil from the sea surface using a bucket or similar receptacle; more than one pass may be required to achieve a sample of sufficient size; carefully transfer oil from the bucket into a clean glass jar • Where oil is very thin an absorbent pad could be used, the contaminated pad should be then placed in a sealed container.
3) Sample jars should be labelled with time and date, as daily samples may be required throughout the response	Make sure labelling is clear and written with a permanent marker. It is also beneficial to retain one sample.
4) Carefully Store samples	Samples should be preferable stored in a cool refrigerated, secure location with correct labelling.
5) Complete accompanying lab documentation	Become familiar with the lab documentation by completing chain of custody forms and ensuring hand writing is legible.

26 Response Strategy Selection

Every pollution incident is different in terms of the type of product spilled, volume, location, time of day, weather and sea conditions. SSE's preferred response strategy is that which does not put people in danger and causes minimal impact to environmental and socioeconomic resources.

When determining the most appropriate response strategy the response priorities below should also ways be considered.

26 Response Strategy Selection

- People – harm to persons (employees or others)
- Environment- harm to land, air or water
- Assets - plant, building, facility, system or info
- Reputation – SSE's Reputation

After receiving information on a spill incident, the Incident Controller/Emergency Commander should determine the most appropriate response strategy and develop and incident action plan which can be shared with all stakeholders.

Please note that the response strategy may change throughout a response

27 Health and Safety

To be in line with employers and employee duties a site safety plan will be carried out prior to all oil spill clean-up activities. This includes:

The key risks associated with spill response are:

- Working near water
- Working from height
- Movement of plant and machinery
- Deployment and recovery of boom by boat
- Inhalation of fumes
- Fatigue
- Adverse weather conditions
- Slips trips and falls.
- Hazardous Substances

A risk assessment should be available to and completed by the ERT prior to starting a response operation.

A **Site-Specific Health and Safety Plan**: This will capture specific site hazards and the requirements for PPE. It should then for the basis of a tool box tool to be given by the site supervisor. A proforma can be found in Section 35 of this plan.

27 Health and Safety

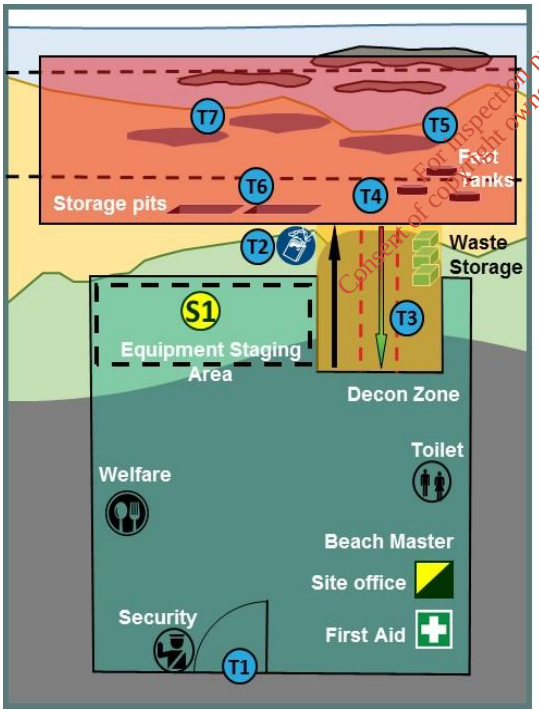
A proforma **Site Safety Briefing From** can be found in Section 35. It is envisaged that the ERT Lead, or Incident Commander will use that as a guidance document for briefing response teams.

Pollution response operational sites should be set up in a safe manner where **hot (red zones)** and **cold (green)** zones are clearly identified and joined by a decontamination area **(Amber Zone)** to reduce levels of contamination on personnel, PPE, equipment and transport.

Figure 27.1provides an example of how a 'safe site' should be laid out and the order of tasks (T1 -7) that should be carried out to ensure it is set up safely.

As can be seen in Figure 27.1decontamination zones should take personnel and equipment from the 'hot' contaminated zone through a 'warm' cleaning/decontamination zone to the 'cold' exit point from the operations area. Movement through these zones should be coordinated to reduce the possibility of cross contamination.

Figure 27.1 should be provided to ERT Leaders or Incident Controllers when setting up a Site or used by Health Safety representatives when conducting a site audit.



T1 – Establish best site entry point with easy access to road. If possible fence off and employ security to control site entry.

T2 – Undertake gas detection tests to determine PPE requirements for completing the response.

T3 – Set up decontamination chamber

T4 – Set up primary waste storage facility in hot zone

T5 – Strat recovery oil/implementing shoreline response technique

T6 – Erect storage pits for contaminated PPE/Equipment/misc.

T7 – Rehabilitate site once all contamination has been removed.

Figure 27.1 Safe Site Set-up Example

28 Marine Oil Spill Response Strategies

Introduction

The main oil/hydrocarbon at risk, albeit low, of entering the marine environment because of SSE Great Island CCGT Power Station operations is Gas Oil spilt during deliveries at the jetty. There is also a very small risk of the vessels bunkers entering the marine environment if a catastrophic incident were to occur to the vessel, such as collision, fire or explosion onboard.

Weathering of Gas Oil

Gas Oil contains a high proportion of lighter compounds increasing the concentration of product that will be susceptible to evaporation, which will be affected by the ambient temperatures and wind speed.

Once spilt in the marine environment the split product will spread rapidly in the direction of the wind and current. Gas Oil is known to disperse into the water column where sedimentation may take place. Biological degradation of the spilt product is also known to take place.

Weathering of Bunker Fuel

Heavy fuel oils are characterised by their viscous nature and persistence in the marine environment once spilt forming persistent emulsions.

When released in the marine environment can persist for long periods of time, due to the high viscosity and pour point they are very difficult to pump.

Available Response Strategies

Below is a list of response strategies available to ECT using **SSE Tier 1 equipment and Ambipar Response Equipment refer to Section 7036**

- **Monitor and Evaluate:** This response strategy is used where the spilled oil is inaccessible, where a recovery operation may cause more damage to the environment than merely leaving the oil alone and allowing nature to take its course, or if there is no real physical need to mount an active response as the oil is likely to evaporate or disperse quickly. If this strategy is employed, it is essential that the oil spill is regularly monitored and that alternative strategies can be employed if the oil begins to move to another area, where this strategy may be unacceptable.
- **Protection and Deflection Booming:** If particularly sensitive areas are under threat, it is sometimes possible to place booms, strategically positioned to deflect the oil away from the area. If this strategy is employed, care should be taken on deciding where to place the booms and their configuration. It should only be undertaken by trained personnel, otherwise there is a grave risk that the boom will fail.
- **Containment Booming:** In some circumstances, particularly larger spills of persistent oils, it may be possible to use booms to contain oil close to source. This is desirable as it may limit the overall impact of the spill.
- **Recovery of Oil:** Oil may be recovered from the water using many different recovery devices or sorbent materials. Equipment available is found in Section 36
- **Assisted Natural Dispersion:** The weathering of spilt product can be increased by physically breaking up the oil increasing the dispersion and following biodegradation and sedimentation. This action can be undertaken by propeller washing and high-pressure high-volume water spraying.

28 Marine Oil Spill Response Strategies

STRATEGY (if safe)	II	III	IV
Observe Safety Precautions	R	R	R
Monitor and Evaluate	R	R	R
Sorbent Recovery	F	F	X
Physical Energy	R	F	X
Containment and Recovery	R	R	R
Chemical Dispersion	X	R	X

KEY		OIL GROUP INDEX	
R	Recommended - preferred option	II	Diesel, Crudes (non-persistent)
F	Feasible, but not preferred option	III	Utility oils, (persistent)
X	Not recommended - either not feasible or has significant adverse effects	IV	Heavy Fuel Oil, Tar

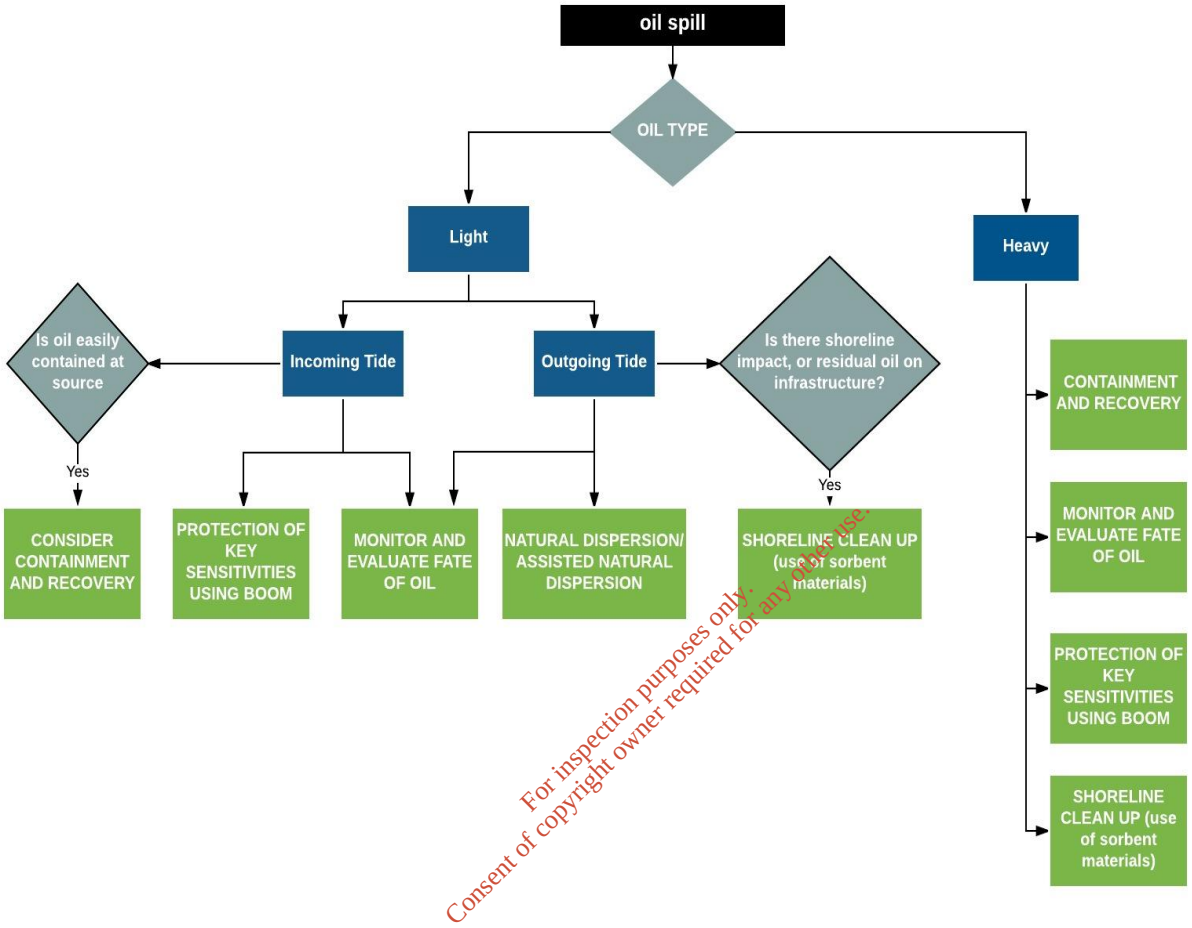
Review Action Card 33.1 For Oil Spill Around Jetty

29 Marine Oil Spill Response Strategy Selection Discussion Chart

Below is a flow chart which is aim to assist the ECT in determining the most appropriate response strategy. Equipment can be used from both Tier 1 resources please refer to FO-GTIS-SHE-011-004-001 **Spill Kit Locations,** and Tier 2 Resources Section 36.2.

Receive informaiton from the incident controller on the site assessment whilst determining the most appropriate response strategy.

29 Marine Oil Spill Response Strategy Selection Discussion Chart



Ambipar Technical Advisor can assist with the development of a shoreline clean-up strategy

30 Inland Oil Spill Response Strategy

The main risks, albeit low, of an inland oil spill because of SSE Great Island CCGT Power Station operations are:

- Gas oil release from the tank farm storage facility at the North of the site,
- Gas oil release from the pipeline which feeds the tank farm from the jetty during deliveries
- Gas oil release from the pipeline which feeds the power station from the tank farm.

There is also a very small risk of a transformer oil spill from the transformers and a lube oil spill from a storage container. Equipment can be used from both Tier 1 resources please refer to FO-GTIS-SHE-011-004-001 **Spill Kit Locations,** and Tier 2 Resources Section 36.2.

30 Inland Oil Spill Response Strategy

As the power station facility is primarily covered in asphalt, which is a semi-permeable substrate, so the primary response would be to,

- Isolate or prevent release of source if possible and safe to do so,
- Contain spill as close to source as possible
- Prevent spill entering surface water drainage
- Recover spilt oil.

1) To contain the spilt product near the source ERT can create a barrier out of absorbent booms, soil, or loose sand to prevent the migration of spilt product. This might not be available option following a significant release.

For large spills ensure the penstock valves are closed on the surface water river discharge points and ensure the water is directed to the settling pond.

2) Drain covers should be deployed to prevent the oil entering the surface water drainage system, if possible, even though all surface water drains lead to an interceptor it prevents additional contamination and removes the risk of spilt product discharging into the estuary.

Undertake olfactory and visual inspections of drains and discharge point for hydrocarbon contamination.

3) Depending on the volume of oil contained recovery of pooled free product from within the created barriers can be undertaken absorbent application or absorbent granules. If contained volume of product is high notify **Tier 2 Response Contractor to provide pumps to recover any free product into an IBC.**

For a Spill on Permeable (Soil) Ground Notify Tier 2 Response Contractor

For extended response efforts an impermeable tarpaulin would be used to cover the spill area, whenever access was not required, to prevent continued rainwater washing any residual oil contamination off the spill area.

See Waste Management Section 32 and Action Cards 33.2 – 33.5 for Inland Response Scenarios

31 Chemical/Hazardous Noxious Substance Spill Response Strategy

The primary objective of a chemical/HNS response is the safety of personnel with the spillage area the ERT and Incident Controller should:

- Avoid personal contact
- Wear appropriate PPE
- Avoid vapour inhalation, keep upwind of spill
- Keep area clear of other personnel and report on situation at site regularly.
- Be trained in chemical response

Before responding to chemical incident, the MSDS should be consulted for appropriate PPE (generally section 8) and response measures following accidental releases (generally Section 6).
All MSDS and Control of Substance Hazardous to Health (COSHH) assessments are kept on the web-based system Sypol. Main bulk chemical MSDS area kept with the site emergency manuals.

The primary response strategy for chemical/HNS spill response is to contain and prevent the product migrating in to surface water drainage as there is a very high change it will pass through the interceptor, if the penstock value is not closed, and into the surrounding environment.

Place drainage covers on drains. If product migrates to the drainage system dilute with fire water. (discharge of the effected drain should be sampled at regular intervals)

Sulphuric Acid reacts violently with water and water should not be added to dilute in a bunded area or confined space.

The MSDS (Section 6) will determine the best product to safely contain spilt chemical/HNS product this could be, chemical absorbents, sand or soil. (Tier 1 Response Resources are in Section 36)

Once the chemical/HNS product is contained the risk of causing harm is reduced and the product can be treated and removed off site in a safe manner. In the case of the contained chemical, do not attempt to neutralise the spillage, or add any other substance to the spillage (e.g. water) without the assistance of chemical response personnel.

Chemical/Safety/Environmental Procedure

- Assess the extent of the spillage and formulate a proposed strategy to effectively eliminate the threat posed to both personnel and the environment.
- Warn all personnel of the dangers associated with the chemical and ensure that adequate protective clothing is issued to all who require entry to the cordoned-off zone.
- Supervise the deployment of the spill containment equipment, and in the case of minor chemical spills initiate a clean-up/chemical treatment process.
- Consult with the station management regarding the necessity of contacting relevant environmental agencies and harbor authorities.

If there is a considerable Spillage or Uncertainty of the nature of the chemical spilled, do not hesitate to call the fire brigade on 999 or 112

32 Waste Management

Introduction

Waste management is of strategic importance to all spill response operations. Pollution incidents can result in the generation of large quantities hazardous and non-hazardous waste.

This section of the pollution response plan is to assist SSE ECT in escalating the waste management procedures which are currently in place in the SSE Great Island CCGT Waste Management Work Instruction WI-GTIS-SHE-004-008.

Tier 1

The Waste Management Work Instruction is developed around the day to day operational running of the power plant and contains more than adequate procedures for Tier 1 spill events.

The main points within the Waste Management Work Instruction which will be relevant during and after a Tier 1 operational spill event are as follows:

- **ALL** waste movements must be recorded in **FO-GTIS-SHE-004-008-001** Waste Register. Information to be submitted in the document includes
    - Name of the Waste Stream
    - Volume of Waste
    - Name of Waste Contractor
    - Documentation number of associated Waste Forms.
    - The driver's licence and checking of Hazchem licence
    - Date of disposal of waste
- The Waste Collection Area for the site is located outside the old turbine hall loading bay door. There are bins here for the following waste streams;
    - General non-hazardous waste
    - Mixed Dry Recyclables
    - Oily waste
    - Oily rags
    - Used filters
    - Batteries
    - Fluorescent bulb tubes
- Hazardous Waste will be removed off site by a designated and approved hazardous Waste Contractor.
- A Waste Transfer From must be completed for the disposal of hazardous waste and will require

32 Waste Management

the following information.

- Date of Shipment
- Quantity of Waste being shipped
- Waste Generator
- EWC Codes and description of Waste *(please see Table below for EWC codes in reference to oil spill response waste streams and click* ***http://adlib.everysite.co.uk/resources/000/025/664/Consolidated_EWC.pdf***

  For chemical spill EWC codes)
- Consignee (person acceping waste) must confirm details
- Signature of Notifier and Carrier

EWC Code	Description
05 01	**Wastes from petroleum refining**
05 01 05*	Oil Spills
13	**Oil wastes and wastes of liquid Fuels**
13 05 01*	Solids from grit chambers and oil/water separators
13 05 06*	Oil from oil/water separators
13 05 07*	Oily Water from oil/water separators
13 05 08*	Mixtures of wastes from grit chambers and oil/water separators
15 02 02*	Absorbents, filter materials (including oil filters not otherwise specified), wiping cloths, protective clothing contaminated by dangerous substances
17	**Construction and demolition wastes (including excavated soil from contaminated sites)**
17 05 03*	Soil and stone containing hazardous substances
19	**Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use.**
19 02 04*	Pre-mixed wastes composed of at least one hazardous waste
19 02 07*	Oil and concentrates from separation
19 02 08*	Liquid combustible wastes containing dangerous substances
19 02 09*	Solid combustible wastes containing dangerous substances

Tier 2 – 3

In the unlikely event a Tier 2 – 3 pollution spill event occurs at the SSE Great Island facility the ECT may have to develop an incident specific waste management strategy which will account for the type of incident, product spilt and planned response strategy. The Environmental Protection Agency. And Local Authority will be consulted with during the development of the waste management strategy.

The waste management strategy should be considered in the early stages of the response as a poor

32 Waste Management

response strategy can inhibit the overall effectiveness and efficiency of a response.

Ambipar Response Technical Advisor and Waste Management contractors will be able to assist in developing a comprehensive incident specific waste management strategy

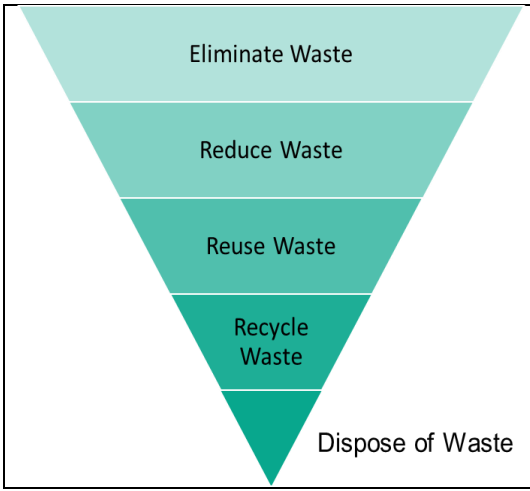
It is envisaged the incident specific waste management strategy will be developed based on the guidelines and procedures specified in the SSE Great Island CCGT Waste Management Work Instruction WI-GTIS-SHE-004-008.

It is imperative that responders and the ECT consider the waste hierarchy in Figure 32.1 when developing an incident specific waste management strategy following the waste hierarchy can assist in reducing the generation of waste, increase the safety of the response and reduce the overall cost of the response.

The waste management strategy checklist in **Appendix 5 provides a checklist of items to consider when developing an incident specific waste management strategy**. Following the waste management strategy checklist will help ensure that all particulars are identified and considered when developing an incident specific waste management strategy for a Tier 2 – 3 incidents.

During the initial phases of a response clean-up efforts can be hindered due to logistical issues with removing high volumes of waste off site. To prevent these issues occurring it can prove beneficial to establish a large intermediate waste storage facility. Figure 32.2 shows the proposed location to establish a temporary intermediate waste storage facility. The temporary waste storage tank should be constructed with impermeable membrane sheeting with contingency measures in place to prevent or control leachate and a cover to prevent rain water contamination.

Refer to The Waste Management Strategy Checklist in Appendix 5 when developing an incident specific waste management plan



Eliminate: Consideration should be first given to techniques that avoid or eliminated the production of waste
Reduce Waste: Development of efficient methods to minimise the amount of material used and/or contaminated.
Reuse Waste: The reuse of an item for its original purpose (clean up equipment, PPE)
Recycle Waste: The production of marketable product from waste by recovering calorific value.
Dispose: Of waste that cannot be dealt with and maybe achieved through landfill, incineration, or composting

Figure 32.1 Waste Hierarchy

32 Waste Management

Figure 32.2 Proposed Intermediate Temporary Waste Holding Facility

33 Tactical Response Cards

33.1 Tactical Response Card: Spill During offloading of Gas Oil

Leak during offloading **Location: Jetty and vessel** **Oil Type: Gas oil**	
Primary Strategy: Contain the spill where possible, vessel to activate their SOPEP. SSE to support with onsite resources where possible.	**Secondary Strategy**: Notify Port of Waterford, Response Contractor, EPA, Fisheries and work with them on containment and recovery operations on water. Clean up jetty and shoreline where necessary.
Overview: Diesel oils evaporate very readily and as such are referred to as a 'light' oil. Spills of diesel will typically evaporate very quickly, if spread out, then within 24 hours. If diesel enters the estuary it will continue to evaporate and disperse readily, however there may be a short-lived toxic impact on ecosystems.	
Safety: • Stop all operations in the area • Prohibit smoking and Naked Flames • Ensure all personnel wear full PPE • Persons using vessels / working on the water's edge should use lifejackets.	
Response Action: • If possible, contain the spillage close to its source. • Oil on vessel and Jetty to be cleaned up using sorbents and where necessary specialised pumping equipment (**Refer to Tier 2 response contractor equipment list**) will be deployed from the jetty or vessel. • Oil in the water should be monitored from the land as far as possible. • As soon as possible the Port of Waterford (PoW) should be notified and asked to assist with response measures SSE to support with technical advice and resource wherever possible including response contractor, onsite temporary storage of waste. • Containment and recovery on the water should be the primary response; however, with light on the success will be dependent on the efficient of sorbent boom deployment. • Where possible carry out clean up using sorbent material available. • Where possible protect sensitive areas near the power station. • Ensure Tier 2 contractor is mobilised as soon as possible to assist and advise with clean up • Be prepared to undertake a joint response with the PoW • SHE to notify crisis management team and media team as there is likely to be media interest in a spill originating from the generating station into the estuary. • Notify all relevant authorities (submit POLREP to Irish Coastguard)	
Considerations/Requirements: • Port of Waterford Oil Spill Response Plan	

33.2 Tactical Response Card: Leak on Filling Line between Jetty & Oil Tank Farm

Leak on filling line between Jetty & Oil Tank Farm **Location: South and North side of station buildings** **Oil Type: Gasoil**	
Primary Strategy: Prevent the spread of oil and ensure that oil does not reach the estuary and site drainage system. Close penstock valves for offsite water discharge from the drainage system if significant release. Isolate the source of the leak	**Secondary Strategy**: Recover oil using sorbents and specialised pumping equipment as necessary. If possible create a barrier to contain oil spill in location. Notify Tier 2 response contractor. If oil does enter the estuary, advise Port of Waterford immediately and monitor the movement of the oil.

Overview:

The spread of gas oil must be contained, it will typically evaporate creating potentially toxic vapours, gas monitoring should be undertaken. All areas where this pipe travels are impermeable and have drain systems with interceptors installed, if possible cover drains and if a significant release occurs close penstock valves for offsite discharge from interceptor preventing release into estuary.

Contact Tier 2 response contractor to assist with clean-up operations and waste management contractor to assist with recovery of oil from interceptor.

If oil is uncontained and contaminates permeable soil and the shoreline environment notify response contractor as sediment sampling, site investigation and ground decontamination works may be required.

Safety:

- Stop all operations in the area
- Prohibit smoking and naked flames
- Ensure all personnel wear full PPE

Response Action:

- If tanker is unloading, inform ships officer to stop pumping immediately.
- Ensure that all isolating valves are closed
- Close storage tank inlet isolating valve
- Close isolating valve at inlet to oil farm.
- Notify response contractor
- Use oil boom or sandbags to create a barrier to prevent oil reaching cooling water outlet culvert.
- Use oil boom or sandbags to contain leak in a small an area as possible.
- Use recommended absorbent material to absorb as much oil as possible
- Take units off load and trip cooling water pumps, if leakage into outfall has occurred or is likely to occur.
- Place a boom across outfall and discharge points to minimise leakage into the river if oil has entered the culvert or drainage system. This can be deployed as proactive contingency strategy.
- If oil enters the estuary notify the PoW. Monitor and evaluate fate of the oil where possible.
- Be prepared to undertake a joint response with the PoW
- SHE to notify crisis management team and media team as there is likely to be media interest in a spill originating from the generating station into the estuary.
- Notify all relevant authorities (submit POLREP to Irish Coastguard if water enters marine environment)

Considerations/Requirements:

- Review drainage and pipeline plans.

33.3 Tactical Response Card: Leak in Oil Farm

Leak from Oil Farm targets **Location: Oil Farm** **Oil Type: Gasoil**	
Primary Strategy: Prevent the spread of oil and ensure that oil does not reach the estuary. Isolate the source of the leak	**Secondary Strategy**: Recover oil using sorbents and specialised pumping equipment as necessary. If oil does enter the estuary, advise Port of Waterford immediately and monitor the movement of the oil.

Overview:
The spread of gas oil must be contained, it will typically evaporate creating potentially toxic vapours, gas monitoring should be undertaken. All areas where this pipe travels are impermeable and have drain systems with interceptors installed, if possible cover drains and if a significant release occurs close penstock valves for offsite discharge from interceptor preventing release into estuary.
Contact Tier 2 response contractor to assist with clean-up operations and waste management contractor to assist with recovery of oil from interceptor.
An incident resulting in a loss of hydrocarbons from the tank farm may result in high volumes of hydrocarbon released contact waste contractor and Tier 2 responder to assist in resourcing ADR tankers for removal of product offsite. The two contractors might be able to support the control of contaminated fire water if the incident is fire related.
If oil is uncontained and contaminates permeable soil and the shoreline environment notify response contractor as sediment sampling, site investigation and ground decontamination works maybe required.

Safety:
- Stop all operations in the area
- Prohibit smoking and naked flames
- Ensure all personnel wear full PPE

Response Action:
- Close oil bund drains isolating valve at the south west corner of the oil farm
- Place sandbags over drain inlet to prevent contamination of the drain with oil.
- If possible, isolate source of leak.
- If oil spill is due to damage to an oil tank, start transfer pumps and transfer oil to any available tank as quickly as possible.
- Use oil boom or sand to contain the oil spill
- If necessary place a boom across offsite discharge points to minimise leakage into the river
- Notify Tier 2 response contractor is as soon as possible to assist and advise with clean up
- Be prepared to undertake a joint response with the PoW
- SHE to notify crisis management team and media team as there is likely to be media interest in a spill originating from the generating station into the estuary.
- Notify all relevant authorities (submit POLREP to Irish Coastguard if water enters marine environment)

Considerations/Requirements:
- EPA will have to be consulted if intermediate waste storage facility is required.

33.4 Tactical Response Card: Delivery & Storage of lube Oils

Lube oil leak into the outfall **Location: Station Buildings** **Oil Type: Hydraulic Oils**	
Primary Strategy: Prevent the spread of oil. Isolate the source of the leak.	**Secondary Strategy**: Use sorbent material to recover the oil. If required call in specialist pumping equipment.

Overview:

Lube oils maybe persistent so despite their appearance (they are not a 'black' oil) they do not readily disperse and evaporate, consequently some active clean-up is necessary. If in the marine environment they are also likely to emulsify. For oil spills like this, it is necessary to contain the oil near its source of spillage and then to actively recover the oil using sorbents and pumping equipment where necessary.

Safety:

- Stop all operations in the area
- Prohibit smoking and Naked Flames
- Ensure all personnel wear full PPE
- Sides of the outfall are steep and can be very slippery. Great care must be taken if it is decided to position an oil boom at the outfall.

Response Action:

- Contain the leak where possible using natural barriers and/or sorbent materials
- Block the leak
- Recover oil using sorbent materials or pumping equipment if necessary.
- Transfer remaining oil into another container.
- Dispose of damaged container
- If required, ensure Tier 2 contractor is mobilised as soon as possible to assist and advise with clean up

Considerations/Requirements:

- Refer to Material Safety Data Sheet.

33.5 Tactical Response Card: Leak on Oil Lines between Oil Farm tanks and Station

Leak on oil lines between oil farm tanks and station (above and below ground) **Location: Oil Farm & Station building** **Oil Type: Gas oil**	
Primary Strategy: Prevent the spread of oil and ensure that oil does not reach the estuary. Isolate the source of the leak. If oil is seeping from underground pipework isolate section asap.	**Secondary Strategy**: Recovery oil using sorbents and specialised pumping equipment as necessary. Depending on source of spill divert oily water to settling pond. If oil is underground then find source of spill and repair.
Overview: If oil penetrates the soil, or for spills from underground pipework, specialist expertise will be required to predict the movement of this oil and advise on recovery techniques. **Notify Tier 2 Response Contractor**	
Safety: • Stop all operations in the area • Prohibit smoking and Naked Flames • Ensure all personnel wear full PPE	
Response Action: **Gas Oil Supply Lines from Tank Farm** Note: A major leak on pipelines will necessitate the shutting down of the unit being supplied by the leaking oil line • Shut down the effected unit, keeping a check on fuel oil pump suction. • Trip oil pumps if they show indications of losing their prime, • Isolate the leaking pipeline in the tank farm, • Strip leaking gas oil pipeline using recirculating oil pumps, • Notify response contractor Ambipar Response, • If there is danger of oil escaping into the estuary close penstock valves. • Depending on the location of the spill the oily water/pollution can be diverted into the settling pond where It can be recovered with absorbents or contractor's specialist oil recovery equipment (spilt volume dependant). • Control spill using oil booms or sand bags where possible prevent oil migrating to cooling water outlet culvert, • Use absorbent boom, and dust to absorb sitting oil. If necessary notify contractor to mobilise contractor's specialist pollution recovery equipment. • If oil does enter the estuary notify Port of Waterford immediately and monitor the movement and fate of the oil.	

33.5 Tactical Response Card: Leak on Oil Lines between Oil Farm tanks and Station

- If leak is from underground pipework:
  - Contact Ambipar Response to assist with site investigation to determine extend of contamination and source of leak.
  - Submit borehole logs to Ambipar Technical Specialist

Considerations/Requirements:

- Borehole Logs for any underground pipeline spills.

PART 3 – Information and Data

34 Environmental and Socioeconomic Sensitivities

Geology/Hydrogeology

Regarding site groundwater vulnerability, the CCGT section of the site is rated E (extremely vulnerable) with the surrounding old HFO plant area rated X, (where X signifies that the aquifer is extremely vulnerable due to karst being at or near the land surface) this is as per GSI Datasets Public Viewer Draft Bedrock Aquifer Map and National Vulnerability Map. The site sits on a regionally important aquifer with fissured bedrock. The soil type at the CCGT site is made ground and this is surrounded by shallow well-drained mineral soil which is mainly acidic. There are no emissions to groundwater.

Surface Water Bodies

Surface or storm water is collected through a series of storm water drain networks around the site from building rooves, roads and all hard-standing areas. The storm water drains flow directly via buried gravity sewers to the estuary via an oil separator.

Storm water is tested monthly. Sampling is carried out by a flow proportional composite sampler on SW13. A visual inspection of storm water is carried out daily. Emission Point References SW1, SW3 and SW4 refer to the outfalls for storm water.

Process waste waters are directed to the on-site waste water treatment plant. Acidic and basic waste streams are mixed and neutralized prior to discharge at this point to the cooling water and then to the estuary. The CCGT Process wastewater comprising boiler blowdown, water treatment plant effluent discharge, and condensate drains is discharged to the estuary post treatment via SW13.

The Estuary is adjacent to the southern boundary of the site. Surface water run-off (SW1, SW3, SW4 and SW12) is discharged to the estuary. The estuary at this point (Barrow Nore Estuary and Lower Suir Estuary) is classified by the EPA as having ‘unpolluted’ transitional and coastal water status.

Natural Habitats

The surrounding area is predominantly characterised by agricultural lands. The disused Waterford to Wexford railway line runs under the site access road immediately north of Great Island power plant. Agricultural lands are located further north of the site and to the east. The site is located at the confluence of the River Suir and River Barrow, on the shores of Waterford Harbour. The Barrow River Estuary is a proposed Natural Heritage Area for wildlife.

The River Barrow, River Nore and Lower River Suir are designated Special Areas of Conservation (SAC – the prime wildlife conservation designation). The Map in Section 34 below shows the locations of pNHAs, SACs and one SPA at Tramore Strand.

34 Environmental and Socioeconomic Sensitivities

Socio-economic

The nearest area of settlement is at Cheekpoint, Co. Waterford, located approximately 700 metres to the south of the site. In County Wexford, the nearest significant area of settlement is Campile, located approximately 3.75 kilometres to the east. Several one-off houses are in proximity to the site boundary, the nearest occupied dwelling is located approximately 450 metres to the northwest of the site. There are no schools, hospitals or churches located within a 1-kilometre radius of the CCGT plant.

Effects of oil on Invertebrates

In the event of a spill, oil will not readily penetrate mud. However, the chambers made by burrowing organisms such as marine worms, will provide easy routes for contamination. When this occurs, oil takes a very long time to degrade and the substrate becomes toxic. Any subsequent movement in this sediment will then cause re-suspension of pollutants within the water column.

Effects of oil on Sea birds

Apart from fouling of beaches, which if severe can lead to destruction of much of the intertidal population, one of the major threats, which would occur from oil pollution, is to seabirds. Oil readily penetrates and mats their plumage, making flight impossible leading to loss of buoyancy and heat insulation. Any attempt to preen would then lead to ingestion and gut irritation.

Effects of Oil Pollution on Organisms

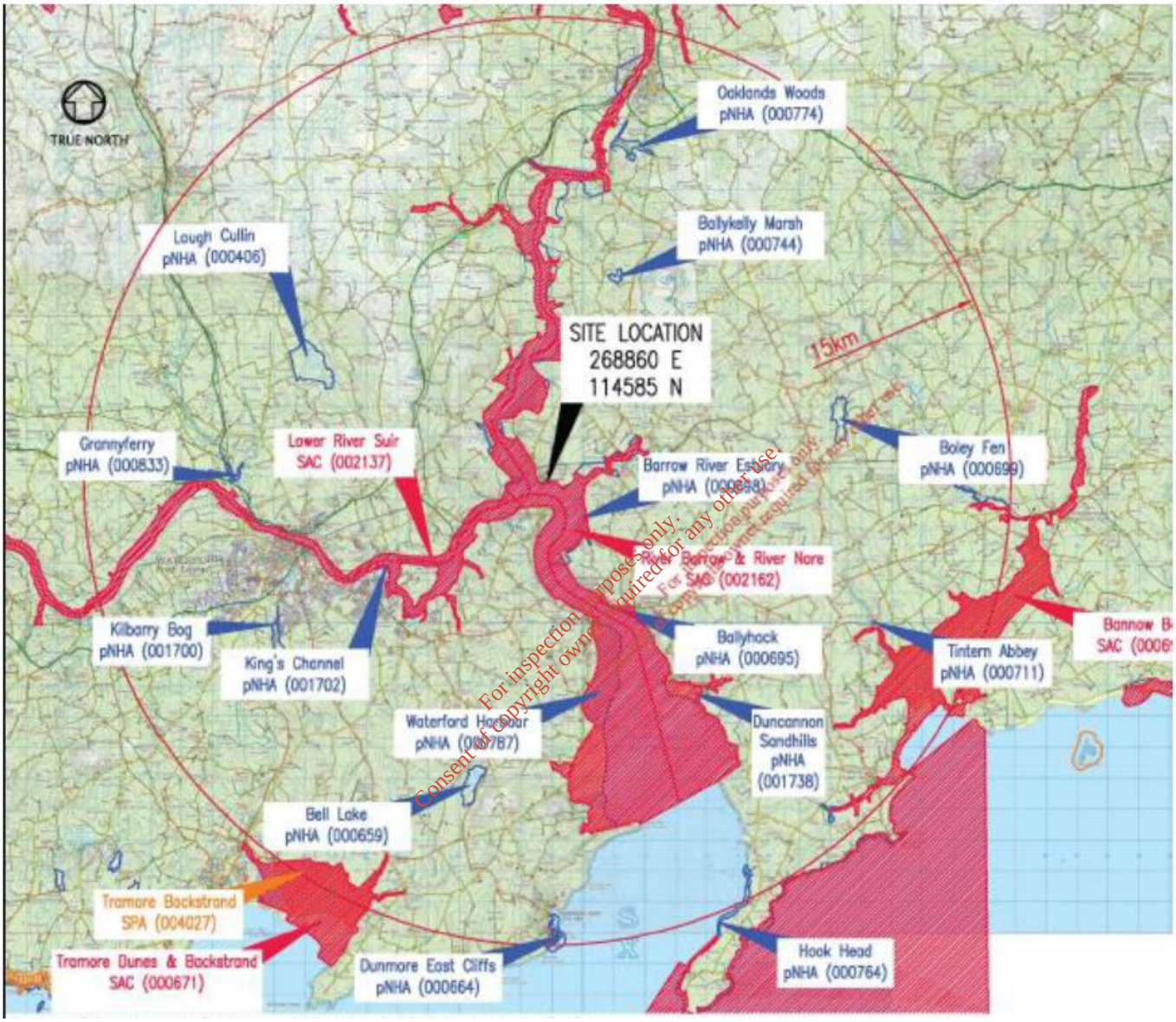
The impact of oil on marine organisms depends on the life stage of the organism and the characteristics of the oil spilt. These include its toxicity, viscosity, amount spilt and the time of exposure to the organism. The direct toxicity of oil to marine organisms is attributable mainly to light aromatic compounds. Light oils do tend to evaporate quickly however, oil reaching the shore soon after spillage is likely to be far more poisonous to the intertidal population than if it had been afloat for a longer period.

Typically, organisms live in zones along the shore. Different levels of shore are therefore occupied by different assemblages of plants and animals, each species living at the edge of its physical tolerance. Light oils can have direct lethal effects and can also cause deaths by inducing a state of narcosis, in which animals become dislodged from their substrates. Although some species may recover and re-establish themselves, others succumb through being washed into the strandline where they are unable to survive.

Effects on Flora

Destruction of zonation patterns and to flora along the shoreline will have knock on effects to the rest of the ecosystem. For example, if sea grasses or salt marsh were to be destroyed then migrating birds or nesting birds would suffer loss of habitat, in a similar manner any adverse impact to burrowing marine worms or periwinkles would result in a loss of food substance for birds and the like.

34 Environmental and Socioeconomic Sensitivities



35 Forms

35.1 Initial Incident Details

INITIAL INCIDENT DETAILS

DATE:		WEATHER FORECAST	
TIME:		WIND SPEED & DIRECTION	
PERSONS ON SITE		TEMPERATURE	
INCIDENT DETAILS AND ACTIONS TAKEN			
MUSTER DETAILS			
NUMBER UNACCOUNTED			
KNOWN CASUALTIES AND INJURIES			
KNOWN HAZARDS			
ESCALATION RISK			
IRT ACTIVATED INCIDENT CONTROLLER		TIME: NAME:	
ECT ACTIVATED EMERGENCY COMMANDER		TIME: NAME:	
GOLD COMMAND/CMT ACTIVATED TEAM LEADER		TIME: NAME:	
EMERGENCY SERVICES CALLED		TIME:	
EMERGENCY SERVICE ON SITE VEHICLES & PERSONNEL		FIRE: POLICE: AMBULANCE:	
STRATEGY			

35.2 IRCG POLREP

The information below should be provided as an initial pollution report and forms part of the Incident/Emergency Commander Notification Check list

To: **IRISH COAST GUARD, Form IRCG POLREP.**
From: **SSE Great Island Powerplant.**

Marine Rescue Co-ordination Centre:	Tel: +353-(0)1-662-0922
Dublin (24 Hours)	Telex: 93039 IMES EI

A. **CLASSIFICATION** of report:

(i) Doubtful (ii) Probable (iii) confirmed

(Delete as necessary)

B. **DATE:** _____ **TIME:** _____ pollution observed / reported,

IDENTITY of observer / reporter. _____

C. **POSITION** of pollution _____

(If possible, state range and bearing from some prominent landmark)

EXTENT of pollution. _____ litres/barrels/tonnes.

SIZE of polluted area _____ **from** _____

(estimated amount of pollution e.g., size of polluted area, number of tonnes of oil spilled. When appropriate, give position of observer relative to pollution).

D. **WIND Speed** _____ knots and **Direction**. _____

TIDAL status at time pollution observed: _____ **Hrs. after / before HW/LW**.

E. **WEATHER** conditions and **Sea State**:

_____ **sea state / wave height** _____ **metres**

F. **CHARACTERISTICS** of pollution.

Type, _____

e.g. oil (crude or otherwise), packaged or bulk chemicals. For chemicals give proper name or United Nations Number if known.

Appearance, _____

e.g. liquid, floating, solid, liquid oil, semi-liquid sludge, tarry lumps, weathered oil, discoloration of sea, visible vapour etc.

G. **SOURCE** of pollution _____

e.g. from vessel of other undertaking.

CAUSE of pollution, _____

If from vessel, say whether as a result of apparently deliberate discharge or a casualty. If the latter, give a brief description. Where possible, give name, type, size, nationality and Port of Registry of polluting vessel. If vessel is proceeding on its way, give course, speed and destination.

35.2 IRCG POLREP

Side 2 IRCG POLREP Pollution Report Form

Continuation .....

H. **Details of VESSELS IN THE AREA**_____

_____

To be given if the polluter cannot be identified and the spill is considered to be of recent origin.

J. **PHOTOGRAPHS** have been taken yes / no.

SAMPLES taken for analysis. yes / no.

K. REMEDIAL ACTION taken, or intended, to deal with the spillage _____

_____

_____

L. **FORECAST** of likely effect of pollution _____
(e.g. arrival on beach), with estimated timing)

_____

_____

M. **NAMES** of those informed other than addressees. _____

_____

_____

_____

N. **OTHER relevant information** (e.g. names of other witnesses, reference to other instances of pollution pointing to source. _____

_____

_____

_____

_____

NOTES

1. POLREPs should be used for oil, chemical or dangerous substances spillages and for illegal discharges of garbage.
2. All messages should be pre-fixed by the codeword POLREP followed by a serial number issued by the originator. Subsequent updating or amplifying reports should repeat this information and add a SITREP number, e.g. 'POLREP 21/SITREP 1' would be followed by 'POLREP 21/SITREP 2". The first report is assumed to be Sitrep 1 with subsequent reports being numbered sequentially.
3. Groundings, collisions or breakdowns of oil tankers or other vessels carrying pollutants, including bunkers, should be treated as potentially serious incidents with a classification of "PROBABLE" until proved otherwise. The use of link calls or Inmarsat calls to Masters of ships is often the best method of obtaining information.
4. IR Coastguard to inform the County Oil Pollution Officer (HARBOURMASTER) or the appropriate authority where there is an immediate or potential risk of oil coming ashore in their area.
5. Care should be taken to avoid undue escalation of UNCONFIRMED pollution incidents with consequent misleading publicity.

35.3 Event Log

EVENT LOG

TIME	NAME	EVENT LOG

35.4 Site Safety and Operation Form

Site Safety and Operation Survey Form				
Incident: -				
Site Name: -				
Location : -				
Surveyor Name: -				
Time : -		**Date : -**		
A. Weather Conditions				
A1 Temperature				
A2 Wind speed	☐ High	☐ Moderate	☐ Low	
A3 wind direction				
A4 Cloud Cover	☐ High	☐ Moderate	☐ Low	
A5 Precipitation	☐ Moderate – High	☐ Moderate – low	☐ Non	
A6 Humidity	☐ High	☐ Moderate	☐ Low	
A7 Climate	☐ Hot	☐ Moderate	☐ Cold	
B. Sea Conditions				
B1 Wave Height	☐ High	☐ Moderate	☐ Low	
B2 Current Strength	☐ High	☐ Moderate	☐ Low	
B3 Current Direction				
B4 Sea Temperature				
C. Shoreline Features				
C1 Shoreline Type	☐ Cliffs	☐ Bedrock	☐ Boulders (>10cm)	
	☐ Pebbles (1-10cm)	☐ Gravel (2mm – 1 cm)	☐ Sandy	
	☐ Mud	☐ Shoreline Wall	☐ Marsh/Mangrove	
	☐ Docks	☐ Other		
C2 Shoreline Use	☐ Commercial	☐ Industrial	☐ Farming	
	☐ Public	☐ Recreational	☐ Residential	
	☐ Other			
C3 Load Bearing	☐ Firm	☐ Good	☐ Soft	☐ Very Soft
C4 Shore Access	☐ Metalled Road	☐ Track	☐ Pathway	
	☐ Steps	☐ Slipway	☐ Car Park	
	☐ Boat	☐ Other		
D. Vessel Features				
D1 Response Equipment	☐ Yes	☐ No		
D2 Waste Storage	☐ Yes	☐ No		
E. Ecological				
E1 Considerations	☐ Important Habitant	☐ Rare Species	☐ Birds	
	☐ Marine life	☐ Dunes	☐ Protected Marine Area	
	☐ Protect Coastal Area	☐ Breeding Area		
	Description....			
F. Storage/ Parking				
F1 Parking areas	☐ Yes	☐ No		
F2Equipment/waste storage	☐ Yes	☐ No		
F3 Security Required	☐ Yes	☐ No		
	Description...			

35.4 Site Safety and Operation Form

G. Planned Operation			
G1 Operation	☐ Containment	☐ Protection Booming	☐ Equipment recovery
	☐ Manual Recovery	☐ Heavy Plant recovery	☐ Vacuum Recovery
	☐ Shoreline Survey	☐ Open Water Survey	☐ Waste extraction
	☐ Trenching	☐ Other…	
H. Hazards			
H1 Identified Hazards	☐ Boot Safety	☐ Chemical Hazards	☐ Cold
	☐ Drum Handling	☐ Electrical Hazards	☐ Endemic Diseases
	☐ Equipment Operations	☐ Fatigue	☐ Fire, explosion
	☐ Fumes	☐ Heat	☐ Helicopter
	☐ Humidity	☐ Insects/animals	☐ Lifting
	☐ Manual Handling	☐ Motor Vehicles	☐ Noise
	☐ Overhead utilities	☐ Open Water	☐ Pumps and Hoses
	☐ Slips, trips and falls	☐ Steam and Hot water	☐ Tides
	☐ Trenches, excavation	☐ UV Radiation	☐ Visibility
	☐ Weather	☐ Other	
I. Safety			
I1 Air Monitoring	☐ O_2	☐ LEL	☐ Benzene
	☐ H_2S	☐ Other…	
I2 PPE	☐ Foot Protection	☐ Impervious Suits	☐ Eye Protection
	☐ Coveralls	☐ Ear Protection	☐ Head Protection
	☐ Life Jacket	☐ High Visibility	☐ Hand Protection
	☐ Respirator	☐ Other…	
I3 Site Facilities Required	☐ Sanitation	☐ First Aid	☐ Decontamination
I4 Emergency Plan Requirements	☐ Alarm System	☐ Evacuation Plan	
I5 Contact Details required	☐ Fires ☐ Doctor ☐ Ambulance ☐ Police		☐ Hospital
	☐ Other		
J. Additional Notes			

35.4 Site Safety and Operation Form

Sketch map of area (Plan view and shore profile/s)

Have you included the following?

Band A,B,C.	☐		
North arrow	☐	Scale	☐
Boom anchor points	☐	Pits	☐
Photo locations	☐	% Cover	☐
Access points	☐	Key landmarks	☐
Likely disposal sites	☐	Oil Distribution.	☐
Position H/L tide	☐	Slope	☐
Backshore features	☐	Access restrictions	☐

KEY

Site: Date:

35.5 Site Safety Briefing Form

Site Safety Briefing Sheet	
Incident:	**Project Code:**
Site Name:	**Location/Map Ref.**
Date:	**Time:**
Briefing Conducted by:	

Topics covered:

- Weather Conditions ☐
- Injuries and Illnesses ☐
- Corrective actions/precautions ☐
- First aid ☐
- Site Emergency Plan ☐
- Site Hazards ☐
- Oil/Chemical Hazards ☐
- PPE to be worn ☐
- Decontamination procedures ☐
- Other topics (list below) ☐

Comments:

Responders Signatures:	
Printed:	**Signed**

36 Pollution Equipment Resources

36.1 SSE Powerplant Equipment Resources

SSE have a range of chemical and oil spill response absorbent booms, pads and granules at the locations shown throughout the site. The ERT has access to a hand tools and hazardous waste bags for the recovery of spent absorbent. Spill kits are listed in **FO-GTIS-SHE-011-004-001** Spill Kit Locations. All spill kits must have contents list inside.

The ERT has all necessary PPE and communication systems.

Table 36.1 Location of Tier 1 Spill Kits at SSE Great Island Facility

Spill Kit Location
WTP Chemical
Basement Oil
Hypochlorite House Oil
Mech Workshop
Operating Floor Oil
CW Pumphouse Chemical
WTP Oil
Basement (1) Oil
Operating Floor (1) Oil
Laboratory Chemical

36.2 Tier 2 Response Contractor Equipment (Ambipar Response)

QTY	Detailed Description	Location
Skimmers		
1	Vikoma Komara 12K Oleophilic disk skimmer 3”	Belfast
1	Dragonfly stainless steel weir skimmer 2”	Belfast
Powerpacks		
1	Vikoma diesel driven powerpack with built in spate pump	Belfast
1	Vikoma diesel driven powerpack	Belfast
Pumps		
1	Honda water pump 2”	Belfast
1	Sandpiper air driven Wilden pump 2”	Belfast
1	Hand operated whale pump	Belfast
Boom		
1	Vikoma sea sentinel 200mx650mm boom on manual reel (10x20m lengths)	Belfast
6	Vikoma shore sealing 15m boom	Belfast
Temporary Waste Storage		
1	Fastank 2000 10m3 temporary storage tank	Belfast
1	Fastank 5 5m3 temporary storage tank	Belfast
1	Fastbund 1mx2m 500litre temporary storage bund	Belfast
Sorbent		
20	AOB8 3m sorbent boom	Belfast
2	Pom-Poms sorbent	Belfast
4	Oil pads (packs)	Belfast
12	Small oil roll	Belfast
6	Large oil roll	Belfast
2	Sorbent granules (bags)	Belfast
Ancillaries		
2	Honda hand held boom inflator	Belfast
2	Tow bridles for boom	Belfast
6	15kg anchor sets	Belfast
2	220m rope sets	Belfast
1	Inflatable boat	Belfast
1	Outboard 4hp engine for inflatable boat	Belfast
4	Floodsax (20sacks per box)	Belfast
1	Hydraulic winch	Belfast
2	Boxes of hazardous waste bags (200 bags)	Belfast
1	Twin axle IFOR Williams box trailer (Boom trailer)	Belfast
1	Canvas sided twin axle trailer (Recovery trailer)	Belfast

37 Contact Directory

Organisation	Role	Name	Telephone	Mobile	Fax	Email
37.1 External Notifications						
Ports						
Port of Waterford	Reception	Belview Port, Slieverue, Waterford	051 874907		051 874908 fax	info@portofwaterford.com
	Harbour Master	Capt. Darren Doyle	051 874907	087 2224961		dd@portofwaterford.com
	Harbour Office	Out of Hours	051 874307	051 301400	051 874908	info@portofwaterford.com
Port of New Ross	Harbour Master	Capt. Luke Foley	051 421303	087 2581069		
County Councils						
Wexford Country Council	County Oil Pollution Officer	John Carley	05391 96301			John.Carley@wexfordcoco.ie
	Ass Marine Harbour Master	Phil Murphy	05391 22300			Phil.Murphy@wexfordcoco.ie
Kilkenny County Council	County Oil Pollution Officer					
Waterford County Council	County Oil Pollution Officer					
Government Bodies						

37 Contact Directory

Irish Coastguard	Counter Pollution	Dave McMyler	016782305	Via Coast Guard	087 2246509 (24hr)	Dial Emergency Services 112
Environmental Protection Agency	Headquarters Johnstown Castle, Wexford.		053-9160600		053-9160699	
	Hazardous Waste Officer	Brian Meaney	05391 9160600		05391 9160600	
	EPA Office of Licensing & Guidance	Dr Jonathan Derham	091 5391 9160 600		091 5391 60699	
Health and Safety Authority	Regional Office					
Shell Fisheries Rep. BIM Bord Iascaigh Mhara	Southeast Aquaculture Rep	Brian O'Loan	087-2626578	087-2626578		oloan@environ.ie **enquiries@srfb.ie**
	Southeast Wild Fisheries Rep	John Hickey	087-6295047	087-6295047		hickey@bim.ie **enquiries@srfb.ie**
Medial Emergency Services						
Wexford Hospital			053-9153000			
Waterford Regional Hospital			051-842000			
Caredoc			1850334999			
Duncannon Medial Practice	Duncannon		051-389215			
General Emergency Services						
Garda Siochana	New Ross		051-426030			

37 Contact Directory

Fire Brigade						
Local Wildlife Conservation Bodies						
ISPCA Wexford	Specialist	Ms B Ben	053-9131264			
ISPCA New Ross	Specialist	Mr W Delaney	051-422911			
Contractors						
Tier 2 Response	Ambipar Response Line	24/7 Response	+44 (0)1202 653 558		+44 (0)1202 653 558	Sitrep@Ambipar.com
	In Country Manager	Martin Iversen	087 973 8760	087 973 8760	087 973 8760	Martin.iversen@Ambipar.com
	General Enquiries		+44 (0)203 142 4350			Response.info@Ambipar.com
Waste Management						
Equipment Hire						

37.2 Internal Contacts

Station Personal Contacts						
SSE	Control Room			3333		
	SGL	Duty		086 4132752		
	Station Manager	Padraig Dunleavy	01522 702356 (Home)	087 2274751	07584 011085 (Mobile)	
	Production Manager			087 2850189	07584 011085 (Mobile)	

37 Contact Directory

	Engineering Manager	Ian Coughlan	01522 702356 (Home)	086 0269692	07584 011085 (Mobile)	
	Process Support Manager	Pat McGovern		087 1207162		
	Safety Officer	Tony O' Regan		086 4181431		
	Environmental Coordinator	Jonathan Storey	053 9154280		086 4116368	
Business Heads/Directors						
SSE	Head of Thermal Generation	Mark Hayward	0044151 47957775 (Office)			
	Director of Thermal	Stephen Wheeler	stephen.wheeler@sse.com			
Emergency Numbers						
	Incident Reporting (30-minute rule)		1800 805 827 (IRE)			
	Press Office		0044870 9000410			
	Security Threat		00442392 624050			

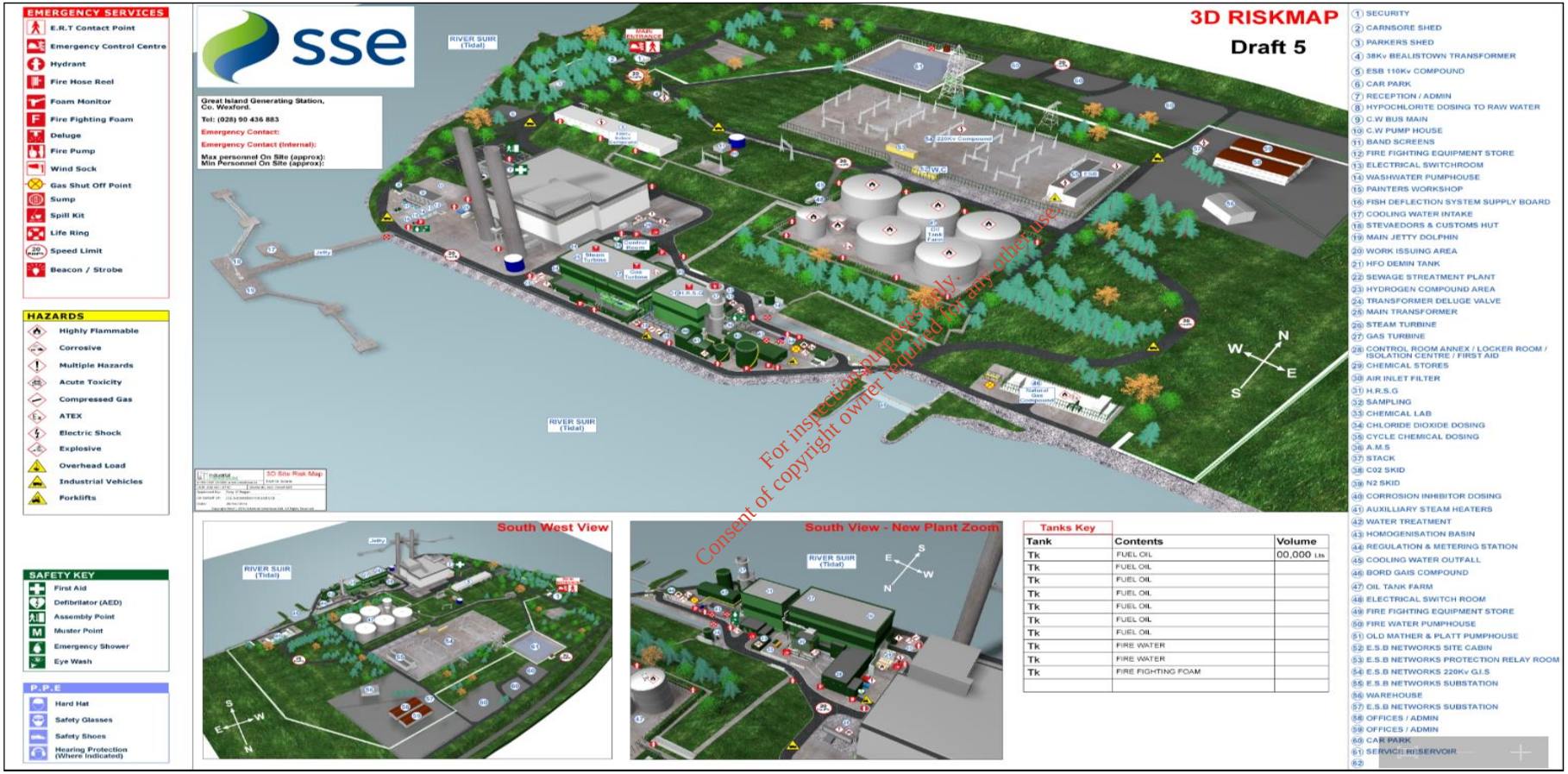
38 Additional information on Potential Pollutant Chemicals

Chemical product	Application	Total volume Stored (litres)	Main Store Room autonomy (months) (5)	Chemical Product Storage Life	Location on map (Appendix 1)	Compatibility
Caustic Soda *NaOH (50%)*	WTP & WWTP pH control	2,000	2 (6)	12 months	31 & 44	Strong base. Separate storage from acids
Sulfuric Acid *H_2SO_4 (98%)*	WTP & WWTP pH control	2,000	1 (6)	stable	31 & 44	Strong acid and oxidant. Separate storage from Reducers, strong oxidants, strong bases & metals
Sodium Hypochlorite *NaClO (15%)*	WTP Raw Water disinfection	43,000	4 (6)	(4)	8	Strong Oxidant & Strong Base. Separate storage from strong acids and Reducers. Sunlight contact shall be avoided
Sodium MetaBisulphite *$NaHSO_3$ (40%)*	WTP antioxidant	2000	3 (6)	(4)	31 & 44	Strong Reducer. Separate storage from oxidants (NaClO) & acids
Ammonia *NH_4OH (15-25%)*	HRSG pH control	2,000	6	(4)	31 & 43 & tank 7	Base. Separate Storage from acids. Violent reaction with metals.
Trisodium Phosphate *Na_3PO_4*	HRSG protection against corrosion	3,000	> 7 days	6 months	31 & tank 8	Strong Base. Separate storage from strong acids. (Avoid freezing)
Corrosion Inhibitor (commercial conc.)	Close Cooling Water Circuit corrosion protection	2,000	3	6 months	31 & 42	Base. Separate storage from strong acids and strong oxidants (not flammable or combustible, avoid freezing)
Sodium Hypochlorite *NaClO (15%)*	Drinking water disinfection	43,000	3	(4)	8	Strong Oxidant & Strong Base. Separate storage from strong acids and Reducers. Sunlight contact shall be avoided
Gas Oil	Power	10,000	N.A	N.A	49	Fuel Oil. Hydrocarbon

38 Additional information on Potential Pollutant Chemicals

Transformer Oil	Transformers	110,000	N.A	N.A	26	oil in transformers. Hydrocarbon
Lube	Operational	34,000	N.A	N.A	28	Lube Oil. Hydrocarbon

Appendix 1- Facility Map with Chemical/HNS/Oil Locations Shown



Appendix 2 - MASS RAR Hazard Register

Area		Risk Assessment Register (RAR)						
ID	Name	Description of Activity	Description of Initiating Event	End Event Ref No.	Severity (Health & Safety) S	Severity (Environ-mental) SE	Frequency F	Risk Rating (Health & Safety) R = S x F
1	Bulk Oil Storage	Storage of gasoil	Corrosion/erosion	1 - 6	1	1	3	3
1	Bulk Oil Storage	Storage of gasoil	Mechanical impact	1 - 5	1	1	2	2
1	Bulk Oil Storage	Storage of gasoil	Overfilling of tank	1 - 5	1	1	2	2
1	Bulk Oil Storage	Storage of gasoil	Domino effect (projectile/explosion) from CCGT accident	1 - 5	1	1	1	1
1	Bulk Oil Storage	Storage of gasoil	Operator error (valving error)	1 - 5	1	1	0	0
1	Bulk Oil Storage	Storage of gasoil	Subsidence	1 - 5	1	1	2	2
1	Bulk Oil Storage	Storage of gasoil	Catastrophic failure	1 - 8	1	4	1	1
1	Bulk Oil Storage	Use of gasoil	Corrosion/erosion	1 - 7	1	1	2	2
1	Bulk Oil Storage	Use of gasoil	Mechanical impact	1 - 7	1	1	3	3
1	Bulk Oil Storage	Use of gasoil	Line overpressure (valve slam shut)	1 - 7	1	1	3	3
1	Bulk Oil Storage	Use of gasoil	Poor maintenance resulting in leak at flanged connections	1 - 7	1	1	3	3
1	Bulk Oil Storage	Storage of gasoil	Fire attack resulting in elevated temperature in storage tank	1 - 8	2	2	3	6
1	Bulk Oil Storage	Storage of gasoil	Loss of containment to bund simultaneous with drain valve being left open	1 - 10	1	2	3	3
3	Boiler Water Treatment	Storage of Ammonia	Tank overfill resulting in spill to surface of bund	3 - 3	3	1	3	9
3	Boiler Water Treatment	Storage of Ammonia	Loss of containment due to corrosion or failure at valve / flange	3 - 3	3	1	3	9
3	Boiler Water Treatment	Storage of Ammonia	Mechanical impact to tank or overheads	3 - 3	3	1	2	6
3	Boiler Water Treatment	Transfer of Ammonia	Loss of containment at pump connection	3 - 4	3	1	2	6
3	Boiler Water Treatment	Transfer of Ammonia	Corrosion / erosion	3 - 4	3	1	3	9
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Forklift operator error resulting in damage to IBC	3 - 5	2	1	3	6
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Corrosion / pinhole leak	3 - 6	2	1	2	4
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Failure at valve on IBC or valve opened in error	3 - 6	2	1	3	6
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Forklift operator error when unloading IBC from truck, resulting in loss of containment	3 - 6	3	3	3	9
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Forklift operator crashes on route between truck and Boiler Water Treatment area	3 - 6	3	3	1	3
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	IBC is dropped when being placed within the bund tray	3 - 6	3	3	2	6
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Pinhole leak in IBC resulting in jet release	3 - 6	3	3	1	3
3	Boiler Water Treatment	Delivery of materials to Boiler Water Treatment Area	Rupture of transfer hose	3 - 6	3	3	3	9
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Corrosion/erosion	6a - 1	1	1	3	3
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Mechanical impact	6a - 1	1	1	3	3
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Overfilling of tank	6a - 1	1	1	0	0
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Domino effect (projectile/explosion) from CCGT accident	6a - 1	1	1	1	1
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Operator error (valving error)	6a - 1	1	1	0	0
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Subsidence	6a - 1	1	1	2	2
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Catastrophic tank failure	6a - 2	1	4	1	1
6a	Cooling Water Intake	Storage of Sodium Hypochlorite	Mechanical impact	6a - 2	1	4	2	2
6a	Cooling Water Intake	Cooling water treatment	Corrosion/erosion	6a - 3	1	1	2	2
6a	Cooling Water Intake	Cooling water treatment	Mechanical impact	6a - 3	1	1	3	3
6a	Cooling Water Intake	Cooling water treatment	Line overpressure (valve slam shut)	6a - 3	1	1	3	3
6a	Cooling Water Intake	Cooling water treatment	Poor maintenance resulting in leak at flanged connections	6a - 3	1	1	3	3
6a	Cooling Water Intake	Cooling water treatment	Spill to bund while drainage valve is left open	6a - 4	1	3	3	3

Risk Assessment Register (RAR)

Area		Description of Activity	Description of Initiating Event	End Event Ref No.	Severity (Health & Safety)	Severity (Environmental)	Frequency	Risk Rating (Health & Safety)
ID	Name				S	SE	F	R = S x F
6a	Cooling Water Intake	Delivery of Sodium Hypochlorite	Rupture of transfer hose	6a - 5	1	3	3	3
6a	Cooling Water Intake	Delivery of Sodium Hypochlorite	Improper connection between tanker and hose	6a - 5	1	3	3	3
6a	Cooling Water Intake	Delivery of Sodium Hypochlorite	Road tanker driveaway	6a - 5	1	3	2	2
08b	Water treatment	Water treatment	Corrosion/erosion	08b - 1	1	1	0	0
08b	Water treatment	Water treatment	Mechanical impact	08b - 1	1	1	1	1
08b	Water treatment	Water treatment	Overfilling of tank	08b - 1	1	1	3	3
08b	Water treatment	Water treatment	Corrosion/erosion	08b - 2	1	1	0	0
08b	Water treatment	Water treatment	Mechanical impact	08b - 2	1	1	3	3
08b	Water treatment	Water treatment	Poor inspection regime resulting in leak at flanged connections	08b - 2	1	1	3	3
08b	Water treatment	Water treatment	Corrosion/erosion	08b - 3	1	1	0	0
08b	Water treatment	Water treatment	Mechanical impact	08b - 3	1	1	6	6
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Pipeline rupture due to missile/projectile impact	7 - 1	4	1	1	4
7	Hydrogen MCP & Bulk Storage	Hydrogen supply to cooling system on turbines	Pipeline failure due to vehicle impact - not credible to impact line, but possible risk of impact to MCP/Bulk Storage dislodging connection between cylinder and line	7 - 1	4	1	2	8
7	Hydrogen MCP & Bulk Storage	Hydrogen supply to cooling system on turbines	Driver attempts to driver away with MCP that is still connected up	7 - 1	4	1	2	8
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Catastrophic failure of line	7 - 1	4	1	2	8
7	Hydrogen Bulk Storage	Unloading of Hydrogen via road tanker	Collision/impact with road tanker	7 - 1	4	1	2	8
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Pipeline rupture due to missile/projectile impact	7 - 2	4	1	1	4
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Pipeline failure due to vehicle impact - not credible to impact line, but possible risk of impact to MCP dislodging connection between cylinder and line	7 - 2	4	1	2	8
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Forklift operator attempts to driver away with MCP that is still connected up	7 - 2	4	1	2	8
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Catastrophic failure of line	7 - 2	4	1	2	8
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Leak at flange, valve	7 - 3	3	1	2	6
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Pipeline leak due to corrosion	7 - 3	3	1	4	12
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Release due to mal-operation - failure to isolate following maintenance work	7 - 3	3	1	2	6
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Mechanical impact by forklift	7 - 4	4	1	3	12
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Catastrophic vessel failure	7 - 4	4	1	2	8
7	Hydrogen MCP/Bulk Storage	Hydrogen supply to cooling system on turbines	Domino effect - missile or fire attack	7 - 4	4	1	1	4
8	Pipelines and associated pumps	Transferring oil to/from site	Leak at flange, valve, resulting in release of oil.	8 - 1	1	2	4	4
8	Pipelines and associated pumps	Transferring oil to/from site	Pipeline leak due to settlement resulting in release of oil.	8 - 1	1	2	2	2
8	Pipelines and associated pumps	Transferring oil to/from site	Pipeline leak due to corrosion resulting in release of oil.	8 - 1	1	2	2	2
8	Pipelines and associated pumps	Transferring oil to/from site	Release due to mal-operation - failure to isolate following draining or sampling - resulting in release of oil.	8 - 1	1	2	3	3
8	Pipelines and associated pumps	Transferring oil to/from site	Mechanical impact to pipeline	8 - 1	1	2	3	3
8	Pipelines and associated pumps	Transferring oil to/from site	Pipeline rupture due to sabotage resulting in release of oil	8 - 2	1	4	2	2
8	Pipelines and associated pumps	Transferring oil to/from site	Pipeline rupture due to missile/projectile impact or thermal attack resulting in release of oil	8 - 2	1	4	1	1
8	Pipelines and associated pumps	Transferring oil to/from site	Pipeline failure due to vehicle impact resulting in release of oil	8 - 2	1	4	2	2
8	Pipelines and associated pumps	Transferring oil to/from site	Catastrophic failure of pipeline	8 - 2	1	4	3	3

Risk Assessment Register (RAR)

Area ID	Area Name	Description of Activity	Description of Initiating Event	End Event Ref No.	Severity (Health & Safety) S	Severity (Environmental) SE	Frequency F	Risk Rating (Health & Safety) R = S x F
9	Pipelines and associated pumps	Transferring oil to/from site	Chronic leak from u/g line	9 - 3	1	3	2	2
9	Pipelines and associated pumps	Transferring Ammonia	Leak at flange, valve, resulting in release of Ammonia solution.	9 - 4	2	2	4	8
9	Pipelines and associated pumps	Transferring Ammonia	Pipeline leak due to settlement resulting in release of Ammonia solution.	9 - 4	2	2	2	4
9	Pipelines and associated pumps	Transferring Ammonia	Pipeline leak due to corrosion resulting in release of Ammonia solution.	9 - 4	2	2	2	4
9	Pipelines and associated pumps	Transferring Ammonia	Release due to mal-operation - failure to isolate following draining or sampling - resulting in release of Ammonia solution.	9 - 4	2	2	3	6
9	Pipelines and associated pumps	Transferring Ammonia	Mechanical impact to pipeline	9 - 4	2	2	3	6
9	Pipelines and associated pumps	Transferring Ammonia	Pipeline rupture due to sabotage resulting in release of Ammonia solution	9 - 5	3	3	2	6
9	Pipelines and associated pumps	Transferring Ammonia	Pipeline rupture due to missile/projectile impact or thermal attack resulting in release of Ammonia solution	9 - 5	3	3	1	3
9	Pipelines and associated pumps	Transferring Ammonia	Pipeline failure due to vehicle impact resulting in release of Ammonia solution	9 - 5	3	3	2	6
9	Pipelines and associated pumps	Transferring Ammonia	Catastrophic failure of pipeline	9 - 6	3	3	3	9
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Leak at flange, valve, resulting in release of Sodium Hypochlorite solution.	9 - 8	1	2	4	4
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Pipeline leak due to settlement resulting in release of Sodium Hypochlorite solution.	9 - 8	1	2	2	2
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Pipeline leak due to corrosion resulting in release of Sodium Hypochlorite solution.	9 - 8	1	2	2	2
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Release due to mal-operation - failure to isolate following draining or sampling - resulting in release of Sodium Hypochlorite solution.	9 - 8	1	2	3	3
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Mechanical impact to pipeline	9 - 8	1	2	3	3
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Pipeline rupture due to sabotage resulting in release of Sodium Hypochlorite solution	9 - 9	2	4	2	4
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Pipeline rupture due to missile/projectile impact or thermal attack resulting in release of Sodium Hypochlorite solution	9 - 9	2	4	1	2
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Pipeline failure due to vehicle impact resulting in release of Sodium Hypochlorite solution	9 - 9	2	4	2	4
9	Pipelines and associated pumps	Transferring Sodium Hypochlorite	Catastrophic failure of pipeline	9 - 9	2	4	3	6
10	Jetty	Delivery of oil to site	Leak at moving joint on connection, improper mooring of vessel	10 - 1	1	3	2	2
10	Jetty	Delivery of oil to site	Loss of containment due to improper connection to ship - not credible release outside of ship	10 - 1	1	3	0	0
10	Jetty	Delivery of oil to site	Corrosion / abrasion / pinhole leak	10 - 1	1	3	3	3
10	Jetty	Delivery of oil to site	Leak at flange connection	10 - 1	1	3	2	2
10	Jetty	Delivery of oil to site	Catastrophic mechanical failure	10 - 2	1	4	2	2
10	Jetty	Delivery of oil to site	Hose rupture due to significant movement between ship and jetty	10 - 2	1	4	1	1

Appendix 4 – Spill Estimation Calculation Form

Spill Estimation Calculation Form			
1.0 Average Width (m)		**2.0 Average Length (m)**	
Total Area (Width x Length) m^2			
3.0 From the total area calculated estimate what area is actually impacted. i.e. assess the area covered by the slick as a % of the total area (km^2)			

4.0 Following the colour chart estimate the area affected by each colour of oil as a % of the area covered by the slick **(4)** (e.g. 60% silver, 30% rainbow, 10% metallic).
5.0 From this calculate the area covered in km^2 for each colour.

Code/Colour	**% of area affected**	**Area covered (km^2)**
• Oil Silvery Sheen		
• Oil Rainbow		
• Oil Metallic (sky colour)		
• Discontinuous True Oil Colour		
• True Oil Colour		

Using the layer thicknesses associated with the colour chart determine the possible volumes; minimum and maximum, associated with each colour code by multiplying area covered by the minimum and maximum layer thicknesses given below.

Colour	**Layer thickness range**		**Volume spilled**	
	Minimum thickness (m^3 / m^2)	**Maximum thickness (m^3 / m^2)**	**6.0 Minimum volume (m^3)**	**7.0 Maximum volume (m^3)**
Oil Silvery Sheen	0.04	0.3		
Oil Rainbow	0.3	5		
Metallic (sky colour)	5.0	5		
Discontinuous True oil colour	50	200		
True oil colour	200	200		
8.0 **Total volume (m^3)** (add all the quantity by colour figures to get total quantity of oil/m^3)				
9.0 **Total mass (tonnes)** (volume in m^3 x hydrocarbon specific gravity)				

Appendix 5 - Waste Management Strategy Checklist

Waste Management Strategy Considerations Checklist				
No.	**Item**	**Consideration**	**Check**	**Time**
Throughout Incident	**Health & Safety**	• Risk assessment complete by ERT and response contractors • Gas/plume monitoring • PPE for all responders and waste contractors • Cordoning off site (hot, warm, cold zones)	☐ ☐ ☐ ☐	
	Stakeholder Engagement	• Liaise with local authorities (County Council, EPA) • If temporary waste storage facility is required may require a license from EPA.	☐ ☐	
1	**Volume and Type of pollution**	• Identify pollutant properties • Estimate volume spilt • Potential and impacted location/substrate/water	☐ ☐ ☐	
2	**Response Strategy**	• What is the response strategy and will it generate additional waste (i.e. substrate removal, dilution, flushing, sorbent materials etc)? **Note*** Response strategy should maximise effectiveness and reduce waste generation	☐	
3	**Waste streams**	• Identify differing waste streams • Define appropriate and adequate storage at the site for differing waste streams (hot zone). Note* storage equipment, fast tanks, IBC's, waste bags, chemical overpacks, impermeable membrane. • Outline site setup (hot, warm, cold) and ensure there is adequate space in hot zone for on-site waste storage • Decontamination protocols for personnel, equipment and transport. • Determine final disposal route with waste contractor.	☐ ☐ ☐ ☐ ☐	
4	**Transport and handling**	• Identify if any plant is required on the site (excavator, fork lift truck, dump truck etc.) • Determine transportation from site to final disposal and available frequency. This will help determine if an intermediate storage facility is required.	☐ ☐	
5	**Documentation**	• Ensure all parties are familiar with the SSE documentation procedure as identified in WI-GTIS-SHE-004-008 ○ All waste movements recorded in the FO-GTIS-SHE-004-008-001 **Waste Register** ○ Completion of waste transfer forms	☐	
6	**Waste Hierarchy**	• Has the waste hierarchy been followed?	☐	
7	**Intermediate Storage**	• Identify an area where intermediate waste site can be established. Note*this will have to be in consultation with County Councils and EPA. • Design and construct intermediate waste storage facility in consultation with response and waste management contractor.	☐ ☐	
	Signature:		**Date:**	

Definitions/Acronyms

The following are definitions adopted by Great Island CCGT Power Station

CCGT	Combined Cycle Gas Turbine
CMT	Crisis Management Team
ECC	Emergency Command Centre
ECT	Emergency Command Team
EEZ	Exclusive Economic Zone (EEZ)
ELRA	Environmental Liabilities Risk Assessment
EPA	Environmental Protection Agency
ERT	Emergency Response Team
HNS	Hazardous Noxious Substance
HRSG	Heat Recovery Steam Generator (HRSG)
IRCG	Irish Coast Guard
MRC	Marine Response Centre
MSDS	Material Safety Data Sheets
NMOC	National Maritime Operation Centre
OSCP	Oil Spill Contingency Plan
SCAU	Ship Casualty Assessment Unit
SHE	Safety Health and Environment
SOPEP	Ship Onboard Pollution Emergency Plan
SSE	Scottish & Southern Energy
SRC	Shoreline Response Centre

Reference

Key references required to follow this instruction.

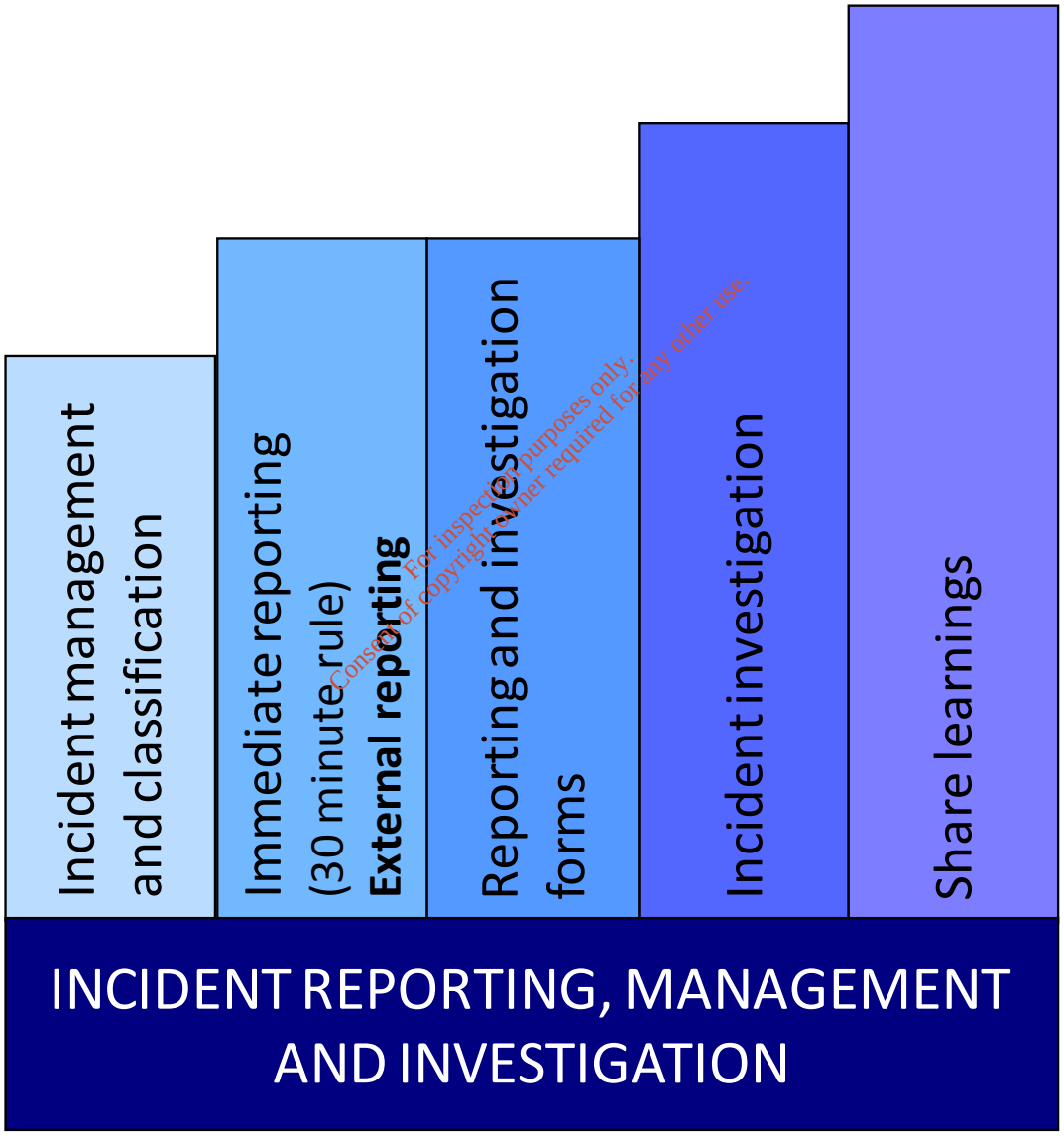
WI-GTIS-011-001	Incident Response Manual.
WI-GTIS-SHE-004-008	Waste Management
WI-DTIS-SHE-011-003	Great Island Emergency Response Team
484-X0003 –	HAZID Worksheets MASS RAR

The author / owner of this document is:	This document has been approved for Issue by:	Date of Issue:	Review Date:
Carl Milner	Mark Patterson, Group SHE Manager	February 2020	February 2023

Incident Reporting, Management and Investigation Standard

Who is this Standard for?

This Standard is for anyone who is involved in the reporting, management and investigation of incidents.



Summary

What does this Standard do?

It explains the accountabilities that all staff and managers have to report and manage incidents. It sets out the requirements for immediate reporting and details the forms that should be used to investigate incidents.

This Standard sets out how incidents are defined, including Process Safety incidents and RTCs, and which incidents should be escalated to government agencies by the Group SHE team.

Why do we need this Standard?

This Standard reinforces SSE's core value: ***We believe all accidents are preventable, so we do everything safely and responsibly or not at all.***

Timely and accurate reporting and investigation of SHE Incidents helps to ensure:

- Continual improvement in SHE performance;
- Preventing the recurrence of incidents; and
- Meets statutory obligations to report incidents with certain levels of severity.

What is the process used in this Standard?

This Standard sets out the accountabilities; process, and definitions to ensure that incidents are reported, managed and investigated appropriately (See Fig. 1 below).

The steps to apply this process are described in terms of 30 Mandatory Requirements, in addition, a number of optional Recommendations have also been provided as additional guidance for managers.

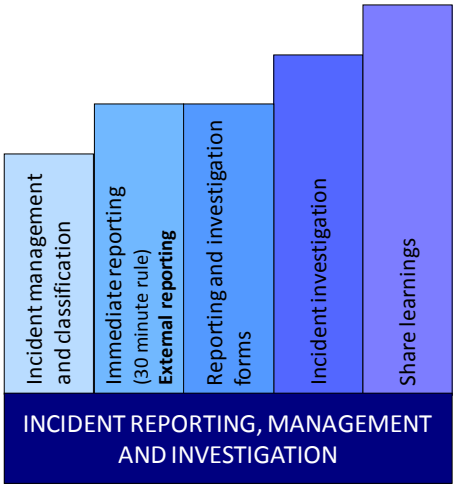


Fig 1: Incident reporting, management and investigation.

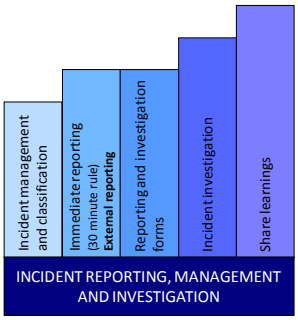
Scope, Business, Legislation, Deviation, Review and Language	
Scope	This Standard shall be applied to Businesses operated or wholly owned by SSE.
Business	In this standard, the term Business is used to represent a discrete operation within the SSE Group; each Business is led by a Managing Director.
Legislation	In cases of conflict between this Standard and applicable legislation within the country of operational activity then that legislation shall take precedence and be complied with. In cases where this Standard is more onerous than this legislation then this Standard shall apply.
Deviation	Deviations from this standard shall be agreed in writing between the Business Managing Director and the Group SHE Manager.
Review	The Group SHE Manager shall make arrangements to review the effectiveness and applicability of this standard every 3 years as a minimum.
Language	In this Standard, the following terms apply: • 'Mandatory Requirement' describes the steps required to achieve compliance with the requirements of the standard; • 'Recommendation' describes additional requirements, which could be implemented to further enhance the effectiveness of the standard; • 'Shall' is used where a requirement is mandatory; • 'Should' is used where a recommendation is preferred; and • 'May' is used where alternatives are acceptable.

1 Accountabilities

Intent

To ensure that the accountabilities for incident reporting and incident management are clear.

Mandatory Requirements



1. **Managers shall ensure that all staff are aware of requirements to inform their line manager or supervisor immediately, or as soon as possible, when any incident has occurred. In addition, that they shall also instigate the initial SEAR and shall assist with all aspects of the investigation.**

2. **Managers shall ensure that work related incidents are:**
   - Reported;
   - Managed;
   - Investigated; and the resulting
   - Learnings shared.

3. **Managers shall ensure that any contractor staff, working on behalf of SSE, are aware of the requirement to inform their SSE point of contact immediately, or as soon as possible, when any incident has occurred and that they shall assist with all aspects of the investigation.**

4. **Site Managers/Landlords shall put a process in place to ensure that any visitors to SSE sites are aware of the requirement to inform their SSE host immediately, or as soon as possible, when any incident has occurred.**

5. **The Heads of SHE in each Business shall ensure that:**
   - incidents are thoroughly investigated and reported throughout the Company;
   - assistance is provided, when appropriate, during investigations;
   - investigation levels are appropriate to the actual or potential severity of the incident; and
   - incidents are reported in compliance with statutory requirements.

6. **Legal Services shall ensure that advice is provided to Businesses on matters of Legal Professional Privilege (LPP).**

Recommendations

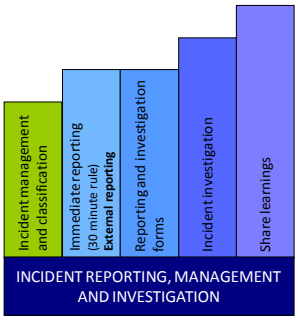
- None

2 Incident management and classification

Intent

To ensure short-term actions are taken to manage, report and investigate an incident based on its actual and potential severity.

Mandatory Requirements



7. **Managers shall ensure that when an incident is reported the priorities are that:**
   - any injured persons are treated;
   - incidents do not escalate. This may involve the instigation of emergency procedures designed to limit the impact;
   - the incident scene is protected so far as is practicable to ensure evidence is preserved for subsequent investigation.
8. **Managers shall ensure that when a work-related incident is reported they shall assess its actual and potential severity and then report the incident in accordance with this standard.**
9. **The actual and potential impacts of SHE incidents shall be categorised as follows:**
   - People, Environment, Assets and SSEs Reputation (PEAR) using the Table in Appendix A;
   - Process Safety Incidents using the Table in Appendix B; and
   - Road Traffic Collision (RTC) using the agreed definitions.

Recommendations

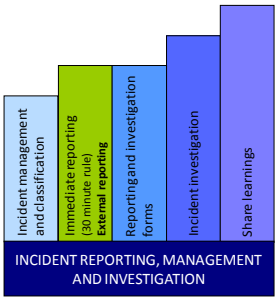
- Managers should be aware that in the most serious incidents, the scene may well be controlled by the Police or other statutory body e.g. HSE, HSA, ORR, SEPA. EPA, EA or Civil Aviation Authority.
- If an incident actual and potential (PEAR) impacts both equal impact level 0 (None) i.e. nothing has nor is likely to happen, a SEAR report should not be made. Managers should review such events and determine requirements to record.
- The categorisation of Process Safety Incidents is described further within TB-MS-SHE-010-002, Process Safety Incidents.

3 Immediate reporting – 30-minute rule

Intent

To ensure that actual or potential significant incidents are escalated quickly to enable provision of effective and appropriate support and management.

Mandatory Requirements



10. **Managers shall ensure that significant or potentially significant incidents are immediately reported and escalated through the Business management chain within 30-minutes of their occurrence and reported to the Group SHE Manager (See Figure 2).**

    The following 24-hour number must be used to report SHE related incidents:

    - UK - 0800 107 3207 (Option 2)
    - RoI – 1800 927 219 (Option 2)

11. **The Group SHE Manager shall assess wider implications of the incident and:**

    - provide support in managing the incident effectively; and
    - determine an appropriate level and method of investigation to be agreed with the Business.

Recommendations

- If in any doubt managers should report incidents following the "over react and stand down" principle defined within MS-SHE-011, Emergency Planning and Response. This requires proportionate judgement to determine potential severity of the incident.
- Typical examples of significant incidents to be reported include:
  - Medical Treatment Injuries;
  - Potential Lost Time Injuries (or worse);
  - Anyone leaving site for treatment e.g. hospital, doctors etc;
  - Reportable Injuries, Diseases or Dangerous Occurrences;
  - Level 3 or above Process Safety Incidents;
  - Potential Class 1 Road Traffic Collisions;
  - All HV electrical incidents and reportable electrical incidents defined within ESQCR;
  - Requiring call out of Emergency Services including site emergency responders;
  - Involving the carriage of dangerous goods;
  - Marine incidents;
  - Loss of contain of hazardous substances requiring deployment of spill clean-up contractor, in-house spill response team or notification to EA/SEPA/NRW/EPA;
  - Reportable excursions from environmental permit conditions; and
  - Cyber threats to essential services in SSEN, Thermal Energy or SSE Renewables (0800 107 3207 Option 5 Cyber Security).

Recommendations (continued)	• Training aides supporting reporting SHE incidents under the 30-Minute rule are available: ○ CA-SHE-010-001 Incident Reporting and Management – Employee Risk Card (PowerPoint version); and ○ CA-SHE-010-001 Incident Reporting and Management– Employee Risk Card (PDF version for laminated card).

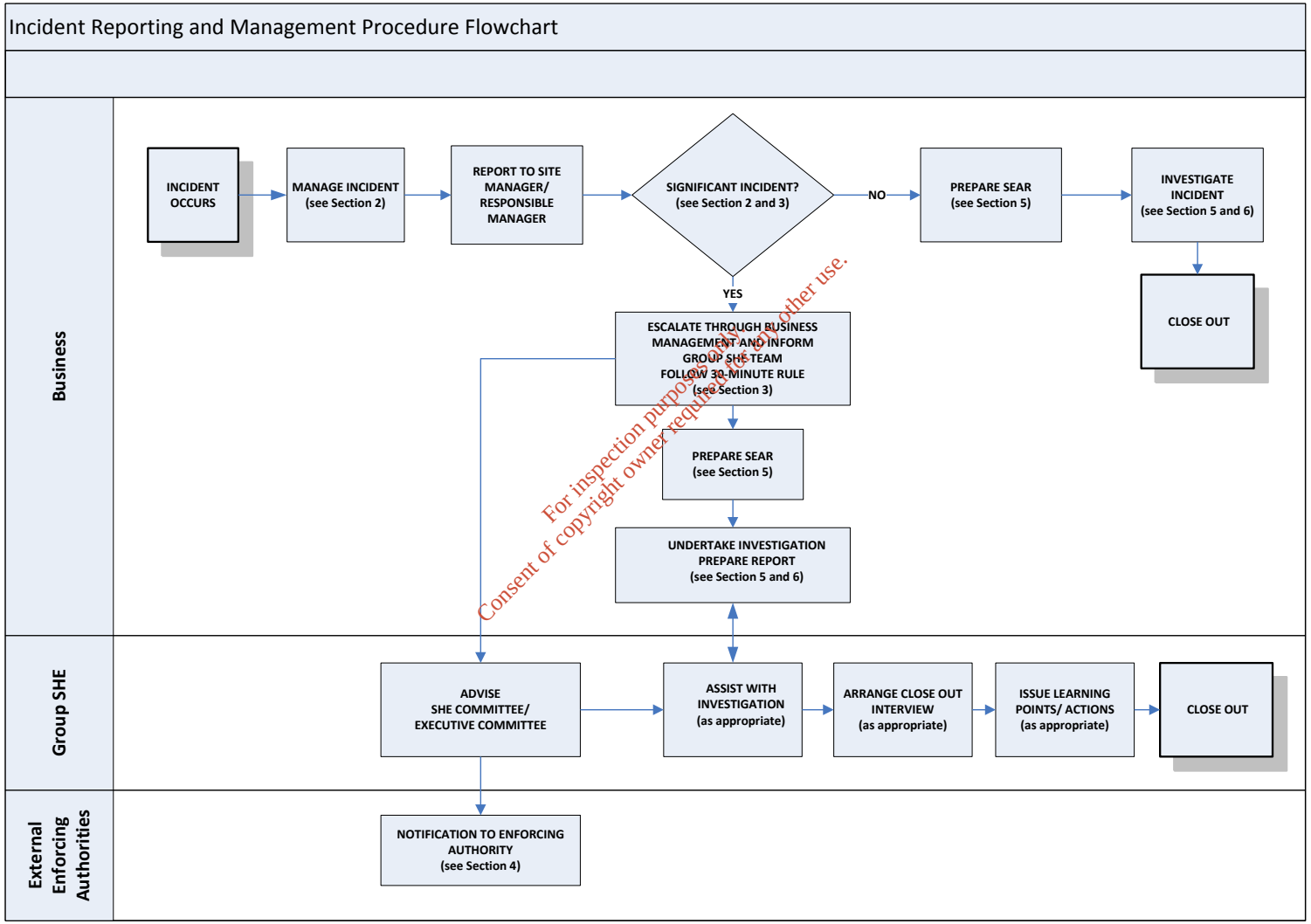


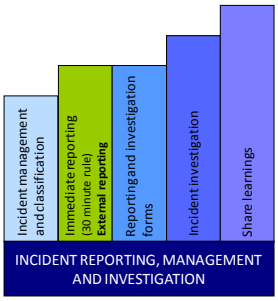
Fig 2: Incident reporting and management procedure flowchart

4 External reporting

Intent

To ensure that incidents which require escalation are reported to statutory bodies in the appropriate way.

Mandatory Requirements



12. Incidents shall be reported as follows:

RIDDOR - Group SHE shall formally report incidents or diseases to the HSE or HSA. Details contained in the submitted report form shall be agreed between the Group SHE and local Business manager prior to submission. The report forms are:

- F2508 - Injuries and Dangerous Occurrences
- F2508A – Diseases
- IR1 – Reportable Accidents (Republic of Ireland)
- IR3 – Dangerous Occurrences (Republic of Ireland)

Reporting of incidents relating to gas installations shall be submitted using form (F2508G) by the Business and copied to the Group SHE Team.

Marine Incidents - Group SHE shall escalate incidents to the HSE, Marine Coastguard Agency, Civil Aviation Authority or other relevant bodies, as required. Incidents may require formal reporting to more than one body.

Carriage of Dangerous Goods Regulations - Group SHE shall escalate incidents to the HSE and / or the Department of Transport in conjunction with the appointed Dangerous Goods Safety Advisor (DGSA).

Environmental Permits - Businesses shall escalate incidents that breach a site's environmental permit. Where a site does not have an environmental permit then it shall report environmental incidents to Group SHE who will escalate to the appropriate body.

ESQCR - Businesses shall report ESQCR events to the System Control Manager who will enter the event into their database and ensure the appropriate enforcing authorities are informed.

NIS Directive – Potential cyber events to Operators of Essential Service (Transmission/Distribution/Thermal Energy/SSE Renewables) need to be reported to SSE Group Security and Group IT. Incidents may require formal reporting to more than one regulatory body.

Recommendations

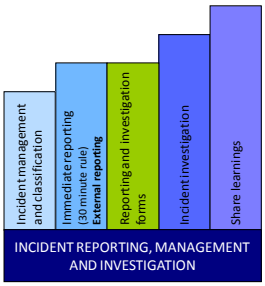
- None

5 Reporting and investigation forms

Intent

To ensure that incidents are reported and investigated rigorously and consistently.

Mandatory Requirements



13. **Businesses in the UK shall ensure that approved "Accident Books" are made available, used and retained:**
    - A standard "Accident Book" (reference BI 510) shall be used and is available from the Group SHE Team;
    - Business units shall ensure there are an adequate number of "Accident Books" available and readily accessible to staff;
    - For each "Accident Book" Business Units shall ensure a manager is responsible for its use and security; and
    - All injury incidents shall be entered into an 'Accident Book' as soon as possible after the event, preferably by the injured person or if unable, his/her supervisor or colleague.
14. **Managers shall ensure that the "Accident Book" is regularly monitored and that the records are removed and kept securely. The book and records must be kept for three years after the last recorded entry.**
15. **SEARs reporting:**
    - All hazards, incidents and RTCs, with actual or potential PEAR impact of Incidental or above, shall be recorded using the SEARs database. Completing the SEAR allows reporting, investigation and identification of recommendations to prevent recurrence; and
    - In the event of an incident within the workplace being classified as not-work related, evidence should be obtained (e.g. photographs) to support the classification and be attached to the SEAR.
16. **Incident Investigation Form (FO-SHE-010-003) shall be used for all:**
    - Significant "PEAR" incidents e.g. actual impact level of "minor" / potential impact level of "serious" or above (see Appendix A).
    - Process Safety Incidents with actual / potential impacts of "serious" or above (see Appendix B).

    The Group SHE Manager shall review the details and confirm the final PEAR impact level.
17. **RTC Investigation Form (FO-SHE-010-004) shall be used for all actual/potential Class 1 RTCs**. The Group SHE Manager shall review the details and confirm the final RTC classification.
18. **Incident Investigation Form (FO-SHE-010-012) shall be used for all cases of Occupational Ill-health.**

Recommendations

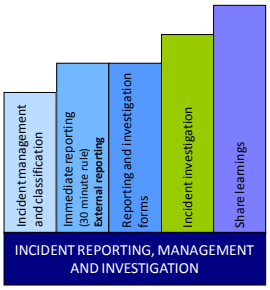
- A record should be entered onto the SEARs database within 24 hours.
- A form (FO-SHE-010-008) to record a witness statement, where required as part of the investigation, is provided for this purpose.
- The internal investigation report from a serious SHE incident may be subject to legal privilege. Investigation reports subject to legal privilege should not be stored as part of the SEAR (in 'Supporting Information' for Incidents and Hazards (Tab 5), or RTCs (Tab 7)).
- A bookmark form, stating that the report is subject to legal privilege, is provided to confirm that the Investigation Report has been completed. The form FO-SHE-010-010 Legally Privileged Investigation Report SEARs Bookmark, should be stored in SEARs.

6 Incident investigation

Intent

To ensure that incidents are investigated so that lessons can be learned, and actions put in place to prevent recurrence.

Mandatory Requirements



19. **Managers shall ensure that incidents are investigated, and a report prepared within 20 working days so that the immediate, underlying and root causes are identified and understood. If this is not practicable for incidents with an impact of Serious or above, then an appropriate time-period shall be agreed with the Head of SHE in each Business.**

20. **Managers shall ensure that Safety Representatives are notified of incidents within their workplace and are given the opportunity to independently investigate or be involved in any investigation of work-related incidents, near hits, or operational incidents.**

21. **Personnel leading investigation teams shall be competent in the techniques for incident investigation, root cause analysis and Human Factor contributions to incidents.**

22. **The investigation team leader/manager shall:**
    - confirm that the correct level of investigation is planned. If the incident had a potential impact level of serious or greater inform the Group SHE Manager and Senior Line Manager and agree the size and membership of the team;
    - confirm that the correct incident reporting process has been followed and that the requirement for '30-minute' reporting has been met;
    - ensure that a record exists on the SEARs database;
    - follow the process specified in RF-SHE-426 SSE Just Culture, where Human Failure is identified as a contributory factor in the incident; and
    - pass the completed investigation report to the responsible line manager for agreement and sign-off.

23. **The line manager and his/her team shall agree the appropriateness of the actions and timescales. If they require to be amended, this shall be completed with the agreement of the investigation team leader.**

24. **When the Business manager is satisfied with the completed report, he/she shall ensure that any actions are progressed to completion.**

25. **For incidents notified to the SHEC the completed report shall be sent to the Group SHE Manager who shall review the report and apply any recommendations at Group level.**

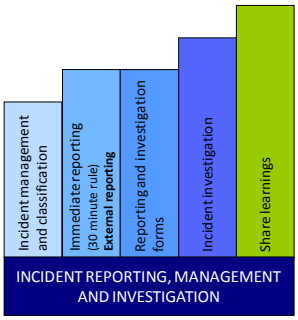
Recommendations	• The investigation team composition should reflect the actual or potential impact of the incident; generally: ○ Major – Independent Panel of Inquiry, including Group SHE; ○ Serious – Senior Manager with additional SHE resources; ○ Minor – Team Manager; and ○ Incidental – Supervisor.

7 Share learnings

Intent

To share learnings and good practices to ensure continual improvement in SHE performance and prevent the recurrence of incidents within SSE.

Mandatory Requirements



26. **Actions taken following incidents shall be communicated to those impacted by the event to demonstrate what action has been taken to reduce the risk of this incident or similar incidents occurring in the future.**

27. **Managers shall ensure that relevant Operational restrictions are implemented without delay and that all affected parties are notified, and their understanding is confirmed.**

28. **Managers shall ensure that they share learnings from incidents and good practices as soon as practicable.**

    SHE Alerts (use FO-SHE-010-005) **shall be considered for:**

    - specific SHE incident (severity level 4 e.g. fatality) requiring SSE locations to take immediate action; and
    - specific SHE issue that without immediate action being taken could result in a major impact in terms of PEAR, e.g. when dangerous equipment, processes, procedures or substances are identified during or after an investigation, or as the result of a notification from Regulatory Authority or from within the Industry.

29. **Any SHE Alert report shall be progressed though the process defined in each Business whereby:**

    - Business/Group SHE shall select incidents that require reports to be prepared and determine which type;
    - Business shall prepare a draft report which shall be checked/agreed with Group SHE prior to issue;
    - Agreed reports shall be issued to an internal business specific communications network; and
    - Reports shall be stored on the Document Library.

30. **Having consulted with Business managers the Group SHE Manager shall notify certain incidents to trade bodies e.g. Energy Networks Association (ENA), Energy UK or Generators Safety and Integrity Programme (GENSIP).**

Recommendations	• Each Business may wish to communicate within the business incidents with lesser severity or other good practices. A template form is provided for this purpose FO-SHE-010-009, Business SHE Communication – Template. • Administration for Business SHE Communications is the responsibility of the originating business e.g. providing unique document reference, up-loading to the relevant business folder in SSE Document Library etc.

Definitions

The following are definitions adopted by SSE which reflect:

- US Occupational Safety & Health Administration (OSHA) recordkeeping and general recording criteria;
- UK Health and Safety Executive and RoI Health and Safety Authority definitions, reporting, recording and investigation criteria as detailed in RIDDOR and other guidance;
- The incident classification and compliance assessment criteria of the Environment Agency (EA) and Scottish Environment Protection Agency (SEPA); and
- Acronyms in common use within the process and utility industries sectors.

Accident	An incident that leads to injury or ill health.
Accident Frequency Rate (AFR)	The Accident Frequency Rate (AFR) is the Reportable Major Injury and Lost Time Injury Rate (not including Medical Treatment Incidents (MTI)) expressed per 100,000 hours. **AFR** = (Number of Reportable Major and Lost Time Injuries) X 100,000 hours hours worked
Carriage of Dangerous Goods Regulations	Some incidents may involve the transport of dangerous goods. There are statutory obligations to report certain incidents not only under RIDDOR but potentially to the Department of Transport under the Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations. Incidents likely to be reported are those **DIRECTLY** related to the dangerous goods being transported. These are where any of the following occurs: • dangerous goods (above Dangerous Goods and Use of Transportable threshold limits) were released; • there is an imminent risk of loss of product; • there is any personal injury caused by the dangerous goods; • there is any material or environmental damage; or • any external authorities are involved.
Environmental Impact Descriptors	Detailed definition for environmental impact descriptors used in Appendix A PEAR Impact Levels is provided in RF-SHE-404 Environmental Impact Classification.
Environmental Permits	A generic term for environmental and planning authorisations, permissions, consents and licences. Permits include PPC Permits, CAR Licences, Abstraction Licences, Wildlife Licences, Planning Permissions, Electricity Act Section 36 and 37 consents, Discharge Consents, Waste Management Licences and Waste Carrier Registration.

ESQCR ***(Electricity Safety, Quality and Continuity Regulations)***	ESQCR Regulation 31 requires SSE to report any event whereby a third-party contacts our electrical network. Events likely to be reported are: • Fatalities from electric shock when contacting our network; • Injury including electric shock and burns from our network; • Contacting an overhead line reducing its clearance without injury from the network; • Fire, explosion or implosion contacting our network; • Fatality from the presence of energy on the customers' side of supply terminals; • Damaging underground cables without injury or death. The network comprises any overhead lines, underground cables and Company fuse, cables and metering. These events do not apply to SSE staff or contractors working on our behalf on our network.
Fatality	The death of any person arising out of or in connection with work; including where the deceased has suffered a reportable injury which is the cause of death within one year of the accident date.
First Aid Injury	An injury which requires simple medical treatment that is self-administered or by a first aider, doctor or nurse but does not result in lost time or long-term medical care. These include: • using a non-prescription medication at non-prescription strength; • tetanus immunisations; • cleaning, flushing or soaking wounds on the surface of the skin; • wound coverings such as bandages, Band-Aids, gauze pads etc. or using butterfly bandages or steri-strips; • Use of surgical glue as a precaution to prevent infection - Note: If the surgical glue is being used to seal the surface of a minor wound to keep the wound clean and prevent infection then this is First Aid. If the surgical glue is being used to close a wound i.e. as a substitute for a suture or staple then this is a Medical Treatment Injury; • hot or cold therapy; • non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc; • using temporary immobilisation devices while transporting an accident victim (e.g. splints, slings, neck collars, back boards, etc.); • drilling of fingernail or toenail to relieve pressure, or draining fluid from a blister; • using eye patches; • removing foreign bodies from the eye using only irrigation or a cotton swab; • removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means; • using finger guards e.g. tubular dressing, or stalls. Use of a finger guard providing rigid support is a Medical Treatment Injury; • massages other than physical therapy and chiropractic treatment; • drinking fluids for relief of heat stress.

Hazard	A hazard is a condition or a situation where there is a potential to cause an incident. It is important to remember that "nothing has happened and no harm has occurred". Typical examples include: • slip or trip hazards in the work area; • vehicles parked in contravention of accepted practice e.g. double yellow lines, on pavements etc • damaged or unsecured walkways or scaffold at height; • unsecured excavations; • damaged/missing handrails or machinery guards; • unsecured objects likely to fall; • equipment out of test date; • operating plant outside the operating envelope; • bare electrical conductors which are live; • fire hazards such as storage of gas bottles near hot surfaces, waste build-up, flammable dust build-up etc; • health hazards such as dead pigeons, food waste, high dust levels, soiled equipment, hypodermic needles etc; • environment e.g. un-bunded oil storage, rainwater in a bund, or waste deposited in the wrong container.
High Potential event (HiPo)	An event with the realistic potential to cause major harm to People, the Environment, Asset or SSE's Reputation (potential PEAR Impact Level 4, fatality, process safety, RTC or environmental incident).
Incident	An incident is defined as being any unplanned and/or undesired circumstances which lead to or has the potential to cause harm to either: • Persons e.g. injury or ill health to employees, contractors or members of the public • Environment e.g. pollution of air, land or water; • Asset e.g. plant, apparatus, equipment, property • Reputation of the Company e.g. adverse reaction by media, investors Typical examples include: • any reportable dangerous occurrence; • a chemical, hazardous substance or oil spill; • pressure relief valve lift; • loss of containment e.g. release of steam, gas or fluid under pressure; • fires/explosion; • incorrect classification of waste on transfer note; • road traffic collision; • collapse of pole / tower structure; • operation of safety trip devices which shut plant down; • damage to buried services e.g. electric, gas, water, telecoms etc; • property damage e.g. barriers, buildings.

Incident - Outside Work	This is an incident which has happened to an employee, while not at work and includes: • voluntary participation in exercise, wellness programmes or a fitness/recreational activity; • the employee is present as a member of the public at the time of the illness or injury; • injury or illness is solely the result of an employee doing unauthorised personal tasks (unrelated to their employment) at the location outside of the employee's assigned work hours; • signs or symptoms of illness or injury at work but result solely from a non-work-related event or exposure that occurred outside the work environment. • the injury or illness is solely the result of self-medication for a non-work-related condition or is intentionally self-inflicted (note: injuries sustained as a result of the failure or malfunction of equipment or facilities provided by the employer are considered work related).
Incident – Work-related	An incident is work related if the event or exposure leading to the illness or ill-health takes place on Company premises or Company business. A case is presumed work related if: • an event or exposure in the work environment is a discernible cause of the injury or illness or of a significant aggravation to a pre-existing condition; • the way the work was carried out; • any machinery, plant, substances or equipment used for the work; or • the condition of the site or premises where the accident happened.
Injury	Harm to someone's body. Usually the result of contact with a source of energy or substance, which is above the threshold limit of the body. This could either be an immediate reaction e.g. cuts or delayed ill-health effects.
Just Culture	A culture in which employees are not punished for actions, omissions or decisions taken by them which are commensurate with their experience and training, but where gross negligence, wilful violations and destructive acts are not tolerated. This approach is centred around a series of simple questions shown below: **What influenced the people involved to do what they did?** • Judgment impaired? • Lapse of concentration? • Did they know the 'rule' existed? • Did they know they were violating a rule? • Was it possible to follow the rule? • Did the violation outweigh the risk? • Did they believe that the violation was minor or justified? **Would someone else with the same training and experience have done the same?**

Lost Time Injury	Any injury arising from a work-related incident which is not reportable but results in an absence from work less than eight days. The first day of absence starts from the day after the incident and is continuous thereafter. Saturdays and Sundays are always included even if they are not part of a normal working week. For SSE incident recording; 'Minor' impact is a Lost Time Injury of 1-3 days and 'Serious' impact >3 (4-7) days.
Lost Time Injury - Reportable	Where any person at work is incapacitated for routine work for more than seven consecutive days (excluding the day of the incident) because of an injury resulting from a work-related incident. A report to the relevant enforcing authority is required as soon as practicable and in any event within 15 days of the incident. In the Republic of Ireland/Northern Ireland, a work-related injury that results in the employee being unable to carry out their normal work duties for more than three consecutive days, excluding the day of the incident. In the Republic of Ireland non-fatal accidents should be reported to the HSA within ten working days of the event.
Marine Incidents	An incident **in the marine environment** which includes: • any 30-minute rule events; • incidents involving vessels e.g. collisions or near hits; • incidents involving helicopters including refuelling and procedural non-compliance; • incidents involving personnel transfer (include those which wouldn't be reported otherwise as occurrence during personnel transfer raises the potential).
Medical Treatment Injury	Management and care of a patient to combat disease or disorder but does not result in a lost time injury. It **DOES** include: • using prescription medications or non-prescription medications at prescription strength on the recommendation of a physician or other licensed health care professional; • administering immunisations e.g. Hepatitis B or rabies; • wound closing devices such as sutures, staples, surgical glue etc. • devices with rigid stays or other systems designed to immobilise parts of the body; • physical therapy or chiropractic treatment for a work-related injury. It **DOES NOT** include: • visits to a physician or other licensed health care professional solely for observation or counselling; • the conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g. eye drops to dilate pupils); • exercise recommended by a health care provider for employees who do not exhibit signs or symptoms of an injury or illness; or • first-aid.

Near Hit	A near hit is any incident which **could have** resulted in a work-related accident but did not either by chance or timely intervention. Typical examples include: • a chemical, hazardous substance or oil spill; • an object falling from a height; • stepping into the path of a moving vehicle; • commencing works on incorrectly identified plant and equipment; • observed dangerous behaviour (unsafe acts). For SSE SHE performance reporting (the 'Safety Triangle') Near Hits are SEAR Incidents where the actual outcome for people are 'No Treatment Accident' and 'No Effect'.
NIS Directive	The EU Security of Networks & Information Systems (NIS) Directive addresses the cyber security threats posed to network and information systems. SSE is an Operator of Essential Service (Transmission, Distribution, Thermal Energy, Gas Storage, and SSE Renewables) and need to report potential cyber events in the same way as any other major incident.
No Treatment Injury	An accident under which no treatment was required but physical pain has been endured. Typical examples include minor slips or trips, struck by object, bump to head etc.
Pre-existing injury	A pre-existing condition is an injury or illness resulting solely from a non-work-related event or exposure. A pre-existing condition is not where an employee has experienced a recorded injury or illness of the same type which affected the same part of the body but had recovered completely (i.e. all signs and symptoms had gone and the employee was performing the full range of normal duties).
Process Safety	Process safety is concerned with the prevention of harm to people, the environment and assets from major accidents such as fires, explosions, releases of hazardous substances or stored energy. Generally focussed on major accident hazards associated with process industries e.g. petrochemical, chemical, oil and gas, mining or power generation. Characterised by a substance being extracted, processed or treated with the aim of readying it for some purpose. This substance is either inherently hazardous or the process renders it so e.g. storing flammable gas, combustion processes, chemical reactions, reservoirs, and kinetic or potential energy.
Process Safety Incident	An unplanned event which, either results in, or has the potential to cause an injury (including illness), environmental impact or asset damage through an uncontrolled release of energy and/or hazardous substances.

Process Safety Incident Rate	Process Safety Incident Rate (PSIR) is the Recordable Process Safety Incident rate per 100,000 hours worked. **PSIR** = Number of Recordable Process Safety Incidents X 100,000 hours Hours worked (SSE + contractor)
Recordable Injury	Used for TRIR calculation. These are any Reportable Injuries, Lost Time Injuries and Medical Treatment Injuries.
Recordable Process Safety Incident	Used for PSIR calculation. These are any Process Safety Incidents at Level 3 or above (see Appendix B).
Reportable Dangerous Occurrences	A dangerous occurrence that has been specified by the national statutory body for health and safety legislation. Users should refer to appropriate guidance for their country of operation: • UK - Health and Safety Executive (HSE) under RIDDOR; or • RoI - Health and Safety Authority (HSA), "General Application Regs" and Safety, Health and Welfare at Work (General Application) (Amendment) (No.3) Regulations 2016.
Reportable Diseases	A reportable disease that has been specified by the national statutory body for health and safety legislation. Users should refer to appropriate guidance for their country of operation: • UK - Health and Safety Executive (HSE) under RIDDOR; or • RoI - Health and Safety Authority (HSA), "General Application Regs"

Reportable Major Injury	For **England, Scotland and Wales** an injury or condition specified as:
	• fractures, other than to fingers, thumbs and toes
	• amputations
	• any injury likely to lead to permanent loss of sight or reduction in sight
	• any crush injury to the head or torso causing damage to the brain or internal organs
	• serious burns (including scalding) which:
	  ○ covers more than 10% of the body
	  ○ causes significant damage to the eyes, respiratory system or other vital organs
	• any scalping requiring hospital treatment
	• any loss of consciousness caused by head injury or asphyxia
	• any other injury arising from working in an enclosed space which:
	  ○ leads to hypothermia or heat-induced illness
	  ○ requires resuscitation or admittance to hospital for more than 24 hours
	
	For **Northern Ireland** an injury or condition specified as:
	• fracture other than to fingers, thumbs or toes;
	• amputation;
	• dislocation of the shoulder, hip, knee or spine;
	• loss of sight (temporary or permanent);
	• chemical or hot metal burn to the eye or any penetrating injury to the eye;
	• injury resulting from an electric shock or electrical burn leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours;
	• unconsciousness caused by asphyxia or exposure to harmful substance or biological agent;
	• acute illness requiring medical treatment, or loss of consciousness arising from absorption of any substance by inhalation, ingestion or through the skin;
	• acute illness requiring medical treatment where there is a reason to believe that this resulted from exposure to a biological agent or toxins or infected material; and
	• any other injury leading to hypothermia, heat induced illness or to unconsciousness; or requiring resuscitation; or requiring admittance to hospital for more than 24 hours.
	
	For the **Republic of Ireland** any accident occurring at a place of work as a result of which any person carrying out work is prevented from performing his normal work for more than three consecutive days, excluding the day of the accident, but including any days which would not have been working days. In the case of any person who is not at work but who as a result of an accident related to a place of work or a work activity suffers any injury or condition as a result of an accident which results in the person requiring treatment from a registered medical practitioner or in a hospital.

RIDDOR	Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013.

Road	A road refers to a public highway used for travel and transportation and within SSE is taken to mean roads which are maintained by public bodies such as councils, highways agency, local authority etc. It does not include other roads such as roadways on large sites, access roads across country to remote sites, construction site access tracks etc.
RTC	Road Traffic Collision (RTC) are work-related when involving a company vehicle whilst on business or arising out of, or in connection with work. A Company vehicle is any car, van, lorry or any from of transport that operates on public roads; this includes pool cars, hire cars, company cars or cars purchased under the Car Ownership Scheme or cars bought under the cash alternative scheme. Work-related RTC involving a company vehicle, includes: • any subsequent journey after the start of their working day where employees are site based and contracted to travel to different sites; or • significant deviation from the work travel route Work-related RTC involving a company vehicle, excludes: • any regular commute to or from a normal place of work; or • the first/last journey where employees are site based and contracted to travel to different sites and begin/end work at specified time(s). Where a work-related RTC results in Medical Treatment Injury or Lost Time Injury, the incident will be reported and recorded as both a RTC and a Medical Treatment or Lost Time Injury as appropriate.
RTC Class 1	**Potential for Major harm to people and the environment** These are incidents involving an SSE member of staff with a high potential for major injury and are normally defined by the following: • when someone requires Medical Treatment; • vehicle (SSE or third party) completely leaves the road or overturns; • significant damage to vehicle (SSE or third party) which as a result is unsafe to drive or requires to be towed or transported from the scene; • vehicle roll-away of >3m or vehicle roll-away results in any of the above; • trailer or load being towed (SSE or third party) leaves the road, overturns or becomes detached; or • items fall from a moving vehicle, trailer or load being towed.
RTC Class 2	**Potential for Serious harm to people and the environment** These are incidents where the SSE vehicle is in motion and are normally defined by the following criteria: • when someone requires first-aid treatment; • vehicle (SSE or third party) partially leaves the road; • moderate damage to vehicle (SSE or third party) - including body work repairs; or • damage to SSE vehicle following large animal strike (deer, horse, cow, ass, mule, pig, sheep, goat or dog).

RTC Class 3	**Incidental damage – vehicle in motion** These are incidents where the SSE vehicle is in motion and are normally defined by the following criteria: • minor damage to vehicle (SSE or third party) – including wing mirror(s) and paintwork • damage to SSE vehicle following small animal or bird strike • damage to SSE vehicle when temporarily stationary.
RTC Class 4	**Incidental damage – vehicle parked** These are incidents where the SSE vehicle is parked.
SEAR	Safety and Environmental Awareness Report (SEAR).
Significant	A significant Incident is an incident with an impact level of 2 (Minor) or above across any of the PEAR categories. A potentially significant incident is an incident with a potential impact of level 3 (Serious) or above across any of the PEAR categories.
Significant aggravation	A significant degree of aggravation is required before a pre-existing injury or illness becomes work related. A pre-existing injury or illness has been significantly aggravated, when an event or exposure in the work environment results in any of the following: • loss of consciousness or death, provided that the pre-existing injury or illness would not have resulted in death or unconsciousness, but for the occupational event or exposure; • medical treatment in a case where no medical treatment was recorded for the injury or illness before the workplace event or exposure, or a change was necessitated by the workplace event or exposure; or • one or more days away from work, or days of restricted work, or days of job transfer, that otherwise would not have occurred but for the occupational event or exposure. Whilst not part of the definition, determination of significant aggravation may require review of diagnostic or clinical findings, or objective test results.
TRIR	Total Recordable Injury Rate (TRIR) is the Recordable Injury rate per 100,000 hours. **TRIR** = Number of Recordable Injuries X 100,000 Hours / Hours worked

Reference

Key references used to develop this Standard.

SI-2013/1471	SO	The Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
SI-2002/2665	SO	The Electricity Safety, Quality and Continuity Regulations 2002
SI 1993/44	DAIL	Safety, Health and Welfare at Work (General Application) Regulations 1993
SI-2016/370	DAIL	Safety, health and Welfare at Work (General Application) (Amendment) (No. 3) Regulations 2016
website	HSE	Guidance on the Reporting of Injuries, Diseases and Dangerous Occurrences Regulations 2013
HSG245	HSE	Investigating accidents and incidents
INDG453	HSE	Reporting Accidents and Incidents at Work
HSA0451	HSA	Guidance on the Safety, Health and Welfare at Work (Reporting of Accidents and Dangerous Occurrences) Regulations 2016
1904	OHSA	1904 - Recording and Reporting Occupational Injuries and Illness

Appendix A – PEAR Impact Levels

No.	Descriptor	People	Environment	Asset	Reputation
4	Major	♦ Fatalities ♦ Serious disability	♦ Major environmental Impact ♦ Major Permit breach	♦ Damage to key operational component ♦ Disruption to operation (<1 year)	♦ Regional media coverage ♦ Prohibition notice or similar/Business unit prosecution
3	Serious	♦ Reportable Injury ♦ Reportable disease	♦ Serious environmental impact ♦ Serious Permit breach ♦ Prohibited activity	♦ Damage to major item ♦ Disruption to operation (<1 month)	♦ Prolonged local media coverage ♦ Other enforcement 'notice' from SHE Regulator
2	Minor	♦ Medical Treatment Injury ♦ Lost Time Injury (Not Reportable)	♦ Minor environmental impact ♦ Minor Permit breach	♦ Damage to large stock item ♦ Disruption to operation (< 1 week)	♦ Local media coverage ♦ Fee For Intervention (material breach) or equivalent from SHE Regulator
1	Incidental	♦ First-aid injury ♦ No treatment accident	♦ Incidental environmental impact	♦ Damage to small stock Item	♦ Complaints from neighbours ♦ Informal corrective action from SHE Regulator
0	None	♦ No Effect	♦ No Effect	♦ No Effect	♦ No Effect

- Note 1 – Cells across each row are not equal impacts e.g. "first aid" does not equal "Incidental Environmental Impact".
- Note 2 – Items within a cell are equal impacts and to satisfy that impact level only one criterion needs to be met.
- Note 3 – Minor impact level for People includes Non-reportable Lost Time Injury events; the duration of absence to make the incident reportable varies, in the UK this is<7 days and Republic of Ireland <3 days.
- Note 4 – Additional information on incident classification for Environmental incidents is included in RF-SHE-404, Environmental Impact Classification.

Appendix B – Process Safety Incident Levels

PS Level *	Category	Process Safety Incidents	Record system
6	Catastrophic	Catastrophic process safety incident leading to impact ranking 6* High potential process safety incident which could lead to a catastrophic incident.	Escalation 30 minute rule SEARS
5	Severe	Severe process safety incident leading to impact ranking 5* High potential process safety incident which could lead to a severe incident.	
4	Major	Major process safety incident leading to impact ranking 4* High potential process safety incident which could lead to a major incident. In service failure on demand of an electrical, mechanical or control system SHE critical protective device. In service failure on demand of fire, explosion or gas detection and protection equipment.	
3	Serious	Serious process safety incident leading to impact ranking 3* High potential process safety incident which could lead to a serious incident. Reportable process safety incident. Critical fault on electrical, mechanical or control system SHE critical protective device detected during testing or Critical fault on fire, explosion or gas detection and protection equipment found during testing or inspection.	
2	Minor	Minor process safety incident leading to impact ranking 2* Not reportable but uncontained process safety incident. In service operation of an electrical, mechanical or control system SHE critical protective device. In service operation of fire, explosion or gas detection and protection equipment.	Site system (as appropriate) e.g. SEARS Maximo Excel OPRA Log EFOR
1	Incidental	Incidental process safety incident leading to impact ranking 1* Not reportable but contained process safety incident. False operation of an electrical, mechanical or control system SHE critical protective device. False operation of fire, explosion or gas detection and protection equipment. Unexpected challenges to asset integrity detected during operation, inspection or maintenance.	

Contained	Plant or equipment used to mitigate the initial uncontrolled release of energy and/or hazardous substances. Examples include: • equipment designed to withstand explosion; • temporary containment (installed prior to incident) – drain covers, booms; • permanent containment - bunds, oily water separators, dump tanks, demisters; • buildings designed to retain liquids; • flares or venting systems, or • scrubber or other abatement device.
Critical Fault	Any fault which would prevent that SHE critical protective device from operating on demand.

High potential process safety incident	An event with the realistic potential to cause major harm to People, the Environment, Asset or SSE's Reputation (potential PEAR Impact Level 4, fatality, process safety, RTC or environmental incident). Typical examples for process safety include: • Release of flammable substances that could catch fire / explode, failure of secondary containment when required; • Use of the final layer of protection / safeguard which prevents uncontrolled release of energy and/or hazardous substances e.g. relief stream device, ESD / HIPPS, well control safety devices, bund / sump / lagoon; • Significant unplanned event involving process plant e.g. fires involving bunker, transformers or turbine, dropped straddle into well, major failure of primary containment even if contained, process plant struck by falling object; • In service failure of HV & EHV components e.g. arcing, explosion etc.; • Failures of SHE Critical Safe System of Work (SSOW) e.g. isolations, ignition source controls; and • Uncontrolled / unauthorised inhibit to electrical, mechanical or control system SHE critical device which prevents its operation on demand.
Reportable	Process safety incident that requires reporting to safety or environmental regulator.
SHE Critical	Consequences of failure or malfunction may result in or prevent the mitigation of Major impact on People, Environment, Asset and Reputation (PEAR). This equates to Level 4 severity or above as defined in MS-SHE-003, SHE Risk Management. Typically applied to plant, equipment, component, processes, information, training, instruction, supervision, communication, documents or tasks.
Unexpected challenges to asset integrity	Events or situations arising which could compromise the asset integrity. Example include: • operating beyond safe operating limits (not normal operating limits), • failures of agreed SSOW detected during maintenance or commissioning, or • unexpected or greater than expected faults detected during inspection, testing or maintenance.

The author / owner of this document is:	This document has been approved for Issue by:	Date of Issue:	Review Date:
Tony O'Regan	Padraig Dunleavy	May 2018	May 2021

1.0 Summary

Why do we need this Instruction?

This Work Instruction is for anyone who is involved in making decisions and prioritising resources to support Safety, Health and Environmental (SHE) risk management at Great Island CCGT and for those who need to understand the risk management process and the various methodologies.

Safety, Health & Environment Risk Management (SHERM) shall be used to identify hazards and their impact and likelihood, evaluate risks and develop methods to control significant hazards associated with plant operations, record, prioritise, take action, monitor and review.

Scope, Legislation, Deviation, Review and Language

Scope	This Work Instruction shall be applied to Great Island CCGT.
Deviation	Deviations from this Work Instruction shall be agreed in writing by Management in advance of any deviation taking place.
Review	This WI shall this WI every 3 years as a minimum.

2.0 Accountabilities

Intent

To define roles and responsibilities to help ensure that all staff understand the roles required and their involvement to ensure compliance with this work instruction.

Responsibilities

Station Manager:

- Ensure the risk management processes described in this WI are implemented at Great Island CCGT.

Process Support Manager:

- Maintain the effectiveness and availability of the COSHH Sypol system.
- Provide support and advice to the management team on the subject of risk management.
- Implement corporate initiatives and software relating to risk management.

Safety Officer

- Monitor the application of risk assessment methodologies within the various departments.
- Ensure there are sufficient numbers of competent risk assessors for the various risk assessment methodologies required by the department.
- Monitor the risk management system for overdue risk assessments.

Team Managers:

- Promote the application of relevant risk assessment methodologies within their teams.
- Ensure there are sufficient numbers of competent risk assessors to complete the required risk assessments.
- Shall ensure that employees are involved in the risk assessment process to provide support to the trained risk assessor.
- Shall monitor overdue risk assessment actions and ensure they are reviewed and updated.
- Shall ensure that the results from the risk assessment process are effectively communicated to relevant employees, contractors and visitors.

Risk Assessors:

- Shall complete risk assessments collaboratively according to their training and always within the scope of their

2.0 Accountabilities

competency.

- Shall ensure that actions from risk assessments are allocated to individuals and due dates are agreed and recorded on the risk assessment system.
- Are responsible for ensuring risk assessments are reviewed before the stated review date.

Supervisors:

- Shall ensure that no person is set to work on a task or in an area that does not have an appropriate risk assessment.
- Shall ensure that all people under their scope of their responsibility understand the risk they face and the controls required to work and be safe.

Action Owners:

- Shall close-out actions allocated to them within the agreed time frames.
- Shall inform their line manager as soon as possible any concerns or obstacle they have that may prevent them closing out the action within the agreed time frames.

Employees:

- Shall follow their training and consistently implement agreed controls from risk assessments that are applicable to the work they are completing or the area they are working in.
- Have the responsibility to report to their line manager any difficulties with implementing the controls they have been trained to use/follow.

3.0 Process

Intent	To identify, assess and document Great Island CCGT risk methods so that they can be managed effectively.
Process	Great Island CCGT risk assesses all activities through various methodologies which must be identified and recorded on a local work instruction in order to describe how the various activities are risk assessed and through what particular methodology and also to understand how to use the various the methodologies. The list below is a non exhaustive list which identifies the various elements and activities that use various risk assessment methodologies. **3.01 Health & Safety** SSOW (MAXIMO) Risk Register Maintenance Confined Space Excavation Fire Hot Work Noise COMAH EMF Legionella PHR COMAH EPD **Environmental** Legal Aspects Register Chemical Risk Assessments All risk assessments are located in the SHERM folder as per the file path below:

S:\GICCGT\3 - SHERM\3.2. Risk Assessments

SSOW & Risk Register

Hazard Identification

Great Island CCGT shall have a process in place to identify, maintain and communicate an up-to-date record of its SHE risks.

The hazard identification process will take the form of many different methodologies that complies with the HSA's three Steps to Risk Assessment. Persons required to complete risk assessments shall be competent and nominated by senior management.

The following factors shall be among those considered when identifying hazards.

- Process safety hazards e.g. toxicological / flammable properties of substances produced as part of the processes' operation and substances brought on site, temperature, pressure or other forms of stored energy;
- Occupational safety hazards e.g. work at height, confined space, work on unstable surfaces, extreme weather, heavy objects;
- Occupational health hazards e.g., noise, vibration, hazardous substances;
- Environmental hazards e.g. oil, chemicals, disturbance of plants or animals, discharges to water, air or land;
- Hazards identified from investigations, audits and incident findings;
- Hazards identified through engineering reviews;
- External events (e.g. regulatory changes, security).
- Audit / incident findings, more detailed assessments such as HAZOPS;
- Legislation, design codes or other standard requirements;
- Proximity and potential impact from and to neighbours;
- Operations outside safety defined limits.

The following is provided as a guide to the selection of risk assessment tools and illustrates their relative relationship.

Identification of Impact and Likelihood

Each hazard identified shall be further expanded and a description of credible scenarios documented.

SSE's concept of PEAR, People, Environment, Asset and Reputation, shall be applied to each documented scenario.

Great Island CCGT shall use regular workplace tours, inspections, audits, behavioural programmes and SEARs reporting to determine

if the workforce has become accustomed to hazardous scenarios, e.g. poor housekeeping or pump leaks, etc. Feedback should be provided to the workforce on the findings and toolbox talks used to reset higher levels of expectation.

Evaluate Risk and Controls

All risk assessment methodologies shall have a process to allow each hazard to be evaluated using a combination of likelihood and severity to produce a risk factor. The risk matrix below shall be applied when calculating a risk ranking and establishing a risk factor for SSOW and the Risk Register here at Great Island.

The risk assessment methodology shall establish what existing controls are present for each hazard and calculate the risk level based on this.

In some cases further studies maybe necessary to further understand the nature and significance of the risk.

When a risk level is calculated and is not ALARP additional controls shall be identified and recorded on the risk assessment record.

When considering the most appropriate way to reduce the risk to reach the point where the risk is as low as is reasonably practicable (ALARP). The following shall be considered:

- Is short term risk mitigation required while longer term risk reduction measures are put in place?
- Ensure compliance with the Company Risk Standards for specific risks.
- Risk reduction measures shall be considered in the following order of preference:
  - Elimination – Can the hazards be removed completely?
  - Reduction – Can the quantity of materials be reduced or activities performed less frequently?
  - Isolation – Can the hazard be isolated e.g. operate remotely?
  - Control – Can engineering or administrative controls be used?
  - Personal – Can people be protected e.g. personal protective equipment or blast walls?
  - Rigour – Ensure persons apply rigour to using controls;
  - Emergency Response – Develop controls in case an incident happens to reduce the impact.

When a risk has been identified with the potential for multiple

fatalities advice should be sought from Station Manager to determine if a more in depth analysis is required to assess the risk.

Recording Risk Assessment Results and Communication

All risk assessments shall be recorded on an agreed format and stored in a secure location. All risk assessment records shall be easily retrievable by authorised persons.

Results of risk assessments shall be communicated to persons who require this information to work safely. These persons shall confirm their understanding of the risk assessment and the controls they need to comply with, a record of this communication shall be kept.

SHE risks shall be plotted graphically on a risk matrix. This shall show the residual risk and shall support the understanding and communication of these risks.

The impact of the risk shall be shown identifying it as related to potential impact to People, Environment, Assets or Reputation.

Risk register

Great Island CCGT shall develop and maintain a risk register tailored to the site risk profile.

The risk register is an agglomeration of the higher level risks skimmed from all of the various risk assessment methodologies used at Great Island CCGT.

The risk register shall be updated as the source risk assessment is reviewed. The risk register shall be reviewed regularly, at no greater intervals.

The goal of SHE Management is to reduce risk to ALARP level over time, the risk register shall be used to plot the direction of risk levels and demonstrate the effectiveness, or otherwise, of the risk management process.

The Business SHE risk matrix shall be displayed at key locations. To support the understanding of these risks it shall be communicated to staff.

The risk register is based on the 6x6 matrix methodology as shown below.

		Likelihood					
		Almost never	Hardly ever	Unlikely	Possible	Likely	Almost certain
		Never heard of in industry / work type	Heard of in industry / work type	Occurred within SSE	Occurs several times within SSE	Occurs on site	Occurs several times on site
Impact		A	B	C	D	E	F
Catastrophic	6	M	H	H	VH	VH	VH
Severe	5	M	M	H	H	VH	VH
Major	4	L	M	M	H	H	VH
Serious	3	L	L	M	M	H	H
Minor	2	L	L	L	M	M	H
Incidental	1	L	L	L	L	M	M
		10^{-6} - 10^{-5} /yr	10^{-5} - 10^{-4} /yr	10^{-4} - 10^{-3} /yr	10^{-3} - 10^{-2} /yr	10^{-2} - 10^{-1} /yr	>10^{-1} /yr

Risk Factor		Action Required	Review Period (guide only)
L	Low	Continuous risk management must be embedded in the Business's SHE activity with the aim of reducing the risk.	1 to 3 Years
M	Medium	Short term risk mitigation shall be implemented while the appropriate Business leader's approval is obtained to manage the risk as part of an overall program of continuous risk reduction.	6 Months to 1 Year
H	High	For continued operation the appropriate Business leader shall be promptly notified. A short term risk mitigation plan shall be implemented promptly while the appropriate Business leader's approval is obtained for a longer term risk mitigation plan.	1 to 3 Months
VH	Very High	For continued operation the appropriate Business Head and the Group SHE manager shall be promptly notified. A short term risk mitigation plan shall be implemented promptly while the Business Heads approval is obtained for a longer term risk mitigation plan.	Daily/Weekly

Maintenance Risk Assessments

Maintenance Risk Assessments were developed for maintenance work taking place within the workshop environment. The risk assessment methodology was developed through a pictorial format while using a score rating system of low/medium/high/extreme.

This system is used specifically for the maintenance department as it was agreed that this type of format is most suited to maintenance work and the hazards associated with the use of machinery/ equipment is communicated most effectively through a pictorial risk assessment.

Confined Space Risk Assessment

The confined space risk assessment form uses the SSE 6 X 6 risk assessment matrix as detailed above. All confined spaces must be risk assessed through the standard confined space risk assessment form FO-GEN-SHE-101-003 by the Confined Space Selected Person.

Excavation Risk Assessment

The excavation risk assessment form uses the SSE 6 X 6 risk assessment matrix as detailed above through the use of down arrows in the Pear Impact section. All excavations must be risk assessed through the standard excavation risk assessment form by the Excavation Selected Person.

Fire Risk Assessment

Fire risk assessments are developed by an outside contractor and follow a specific international standard format (Pas 79:2012 Annex B). The Pas 79 Fire Risk Assessment Template is used to fire risk assess all areas of the plant and any actions identified are tracked through to closure on the CAPA register.

Pas 79 risk assessments are rated using the following matrices:

FIRE RISK ASSESSMENT

The following simple fire risk level estimator is based on a commonly used health and safety risk level estimator.

Likelihood of fire	Potential consequences of fire		
	Slight harm	Moderate harm	Extreme harm
Low	Trivial risk	Tolerable risk	Moderate risk
Medium	Tolerable risk	Moderate risk	Substantial risk
High	Moderate risk	Substantial risk	Intolerable risk

Risk level	Action and timescale
Trivial	No action is required and no detailed records need be kept.
Tolerable	No major additional fire precautions required. However, there might be a need for reasonably practicable improvements that involve minor or limited cost.
Moderate	It is essential that efforts are made to reduce the risk. Risk reduction measures, which should take cost into account, should be implemented within a defined time period. Where moderate risk is associated with consequences that constitute extreme harm, further assessment might be required to establish more precisely the likelihood of harm as a basis for determining the priority for improved control measures.
Substantial	Considerable resources might have to be allocated to reduce the risk. If the premises are unoccupied, it should not be occupied until the risk has been reduced. If the premises are occupied, urgent action should be taken.
Intolerable	Premises (or relevant area) should not be occupied until the risk is reduced.

Hot Work Risk Assessment

The hot work risk assessment form uses a checklist format and must be completed by the hot work risk assessor. All hot work must be risk assessed through the standard hot work risk assessment form FO-GTIS-SHE-003-002-001.

Noise Survey

Noise is risk assessed through a survey based format by an outside Contractor. Noise levels are measured using a decibel meter and are measured against the minimum statutory limit values:

(a) exposure limit values:

LEX,8h = 87 dB(A) and ppeak = 140dB(C) in relation to 20 µPa.,

(b) upper exposure action values:

LEX,8h = 85 dB(A) and ppeak = 137dB(C) in relation to 20 µPa.

(c) lower exposure action values:

LEX,8h = 80 dB(A) and ppeak = 135dB(C) in relation to 20 µPa

COMAH

Control measures are developed depending on the threshold levels of the noise survey in the various locations.

Control of Major Accident Hazards (COMAH) is risk assessed through Major Accident Scenario Sheets (MASS) and through the Risk Assessment Register (RAR) and Risk Reduction Register (RIR).

Calculation of Risk Rating

The HAZID&RA Team calculated numerical Risk Ratings for each scenario identified in the course of the exercise using the following equations:

RH =SH X L and RE=SE X L

Where: RH is the overall Risk Rating with respect to health and safety for a scenario.
RE is the overall Risk Rating with respect to the environment for a scenario.
SH is the Severity Rating with respect to health and safety for an end event.
SE is the Severity Rating with respect to the environment for an end event.
L is the Likelihood Rating for a specific initiating event – end event combination.
The Risk Ratings for each scenario were assessed using the SSE 6 X 6 matrix (as above).

A Risk Reduction Register (RRR) was then completed for each scenario on the back of this assessment. This was used to set out any specific scenarios or locations at the site where the HAZID&RA Team identified or recommended additional risk reduction or mitigation measures.

EMF

A Electromagnetic Field survey is measured through field strengths for comparison with the guideline safety limits and is calibrated in appropriate units. As the equipment is broadband the power from different sources is summed and the combined power level is displayed. The levels are compared against standard threshold limit values and any areas of concern are addressed.

Guideline Exposure Limits for the Power Frequency Range of 50 Hz

	Magnetic Field µT	Electric field V/m
Occupational Guideline Level	500	10,000

Legionella

A legionella risk assessment is measured through categories A-E below. From adding the categories a total risk score is produced and is categorised into low/medium/high and very high.

A potential risk rating, which itemises the hazards, is assigned to site based on the building type, population type and system parameters. This gives a rating of overall potential risk of the site, its' equipment and water systems.

6.3 Building Risk Calculation and Scoring

A. Severity Of Plant Present	
Cooling Towers, Misting Systems, Miscellaneous Systems Creating Fine Spray	30
CWS Tanks, Water Storage Heaters, Showers, Miscellaneous Systems Creating Water Droplets	**20**
Mains Supply Only, No Stored Water.	10

B. Persons Exposed	
High Susceptibility	30
Medium Susceptibility	**20**
Low Susceptibility	10

C. Written Scheme	
No written scheme or control measures in place	30
Inadequate written scheme or control measures	**20**
Compliant written scheme and all control measures in place	10

D. System Condition	
Favourable conditions for legionella colonisation	**30**
Non-compliant installation	20
Compliant installation	10

E. Training	
No training provided	**30**
Unsuitable training provided / no certification	20
Suitable training provided	10

Risk Tabel:	
Criteria:	**Score:**
A. Severity of Plant Present	20
B. Persons Exposed	20
C. Written Scheme	20
D. System Condition	30
E. Training	30
Overall Risk (A + B + C + D + E):	**120**
Risk Level:	**High**

Risk Rating	RA Review Within	(Total risk score = A + B + C + D + E)
Very High	6 Months	140 - 150
High	1 Year	110 - 139
Medium	2 Years	61 - 109
Low	3 Years	0 - 60

PHR

The PHR risk assessment uses the 6x6 matrix.

The review has been carried out in line with SSE Generation Procedure PR-GEN-SHE-003-001 'Process Hazard Review'.

The review makes use of the following documentation:
P&IDs of the Great Island CCGT facility supplied by various contractors and OEMs.
When assessing the likelihood and consequences of specific hazardous events, the process makes use of a Risk Assessment Matrix taken from SSE Corporate SHE Standard MS-SHE-003 'SHE Risk Management'.

The consequences of events are quantified against their impact on People, Environment, Asset and company Reputation, and assigned a number for each. The word model for impact ratings is taken from MS-SHE-003 and included as Appendix D of this report. The likelihood of events is assigned a letter based on a probability and word model included on the Risk Matrix.

The action required based on the scoring of hazardous event on the Risk Matrix is as follows:

Risk Factor		Action Required
L	Low	Continuous risk management must be embedded in the Business's SHE activity.
M	Medium	Short term risk mitigation shall be implemented while the appropriate Business Leader's approval is obtained to manage the risk as part of an overall program of continuous risk reduction.
H	High	For continued operation the appropriate Business Leader shall be promptly notified. A short term risk mitigation plan shall be implemented promptly while the appropriate Business Leader's approval is obtained for a longer term risk mitigation plan.
VH	Very High	For continued operation the appropriate Business Head and the Group SHE manager shall be promptly notified. A short term risk mitigation plan shall be implemented promptly while the Business Head's approval is obtained for a longer term risk mitigation plan.

SHE Critical equipment has been identified during the Process Hazard Review

using the definition of MS-SHE-003 Appendix F, namely "SHE Critical means that the consequences of failure or malfunction may result in or prevent the mitigation of Major impact on People, Environment, Asset and Reputation (PEAR). This equates to Level 4 severity or above as defined in MS-SHE-003, Safety, Health and Environment Risk Management."

The purpose of this is to facilitate targeted controls over usage, inspection, maintenance or emergency planning as appropriate for these systems.

Some systems which may fall within the definition above have been excluded on the grounds that, taking account of their design and operation and their influence on the hazard scenario, it is not practical to do anything further to improve the existing arrangements for inspection, maintenance or emergency planning.

Environmental Aspects Register

The Environmental Aspects Register 'I Care' is developed and used to identify and categorise the Environmental Aspects associated with the site. I Care uses SSE 6x6 matrix to rate the identified aspects as detailed under the Risk Register section above.

Chemical Risk Assessments

The Sypol COSHH system will provide an automatic calculation of the uncontrolled risk level, known as the Risk Rating. In relation to multiple activities associated with the exposure scenario, the system will calculate an overall (cumulative) uncontrolled risk rating based on the accumulated level of individual risk ratings for the activities displayed.

Any assessments that are due for internal review are based on a 1-year cycle for high risk scenarios, 3-years for medium risk and 5-years for low risk.

EPD

The EPD and ATEX WI was updated to reflect the status of the site since it became operationally live. The EPD uses a standard auditing template for risk assessing ATEX areas (see below).

Explosive Atmosphere Present Potential Ignition	Sources	Potential	Consequence	Basis of Safety Existing Control Measures

Definitions	
The following are definitions adopted by Great Island CCGT.	
SSOW	Safe System of Work
COMAH	Control of Major Accident Hazards
EMF	Electromagnetic Field
PHR	Process Hazard Review
HAZOP	Hazard & Operability Study
PEAR	People/Environmental/Asset/Reputation
SEAR	Safety & Environmental Awareness Report
ALARP	As Low as Reasonable Practical
EPD	Explosion Protection Document

Reference	
Key references required to follow this instruction:	
PR-THGN-SHE-101	SSOW WI
FO-GTIS-SHE-003-001	Risk Register
Sea change Risk Assessment Form	Maintenance Risk Assessments
FO-GEN-SHE-101-003	Confined Space Risk Assessments
Excavation Risk Assessment Form	Excavation Risk Assessments
Pas 79:2012 Form	Fire Risk Assessments
FO-GTIS-SHE-003-002-002	Hot Work Risk Assessments
Noise Survey Document: 4320-16-01	Noise Survey

COMAH Report: Ref: 484-X0002, Rev.1	COMAH
EMF Report: 16E6437-3	EMF
Legionella Risk Assessment Report: LEG 31724	Legionella Risk Assessments
Hazard Review Report	PHR
REF-GTIS-SHE-106-001	EPD
WI-GTIS-SHE-003-004	EPD WI

The author / owner of this document is:	**This document has been approved for Issue by:**	**Date of Issue:**	**Review Date:**
Fergal Reilly	Padraig Dunleavy	29/01/2018	29/01/2021

Summary

Why Do we need this Instruction?

This document describes the procedure for reporting, managing and investigating hazards, incidents and accidents involving Great Island CCGT plant and apparatus, employees, contractors, visitors and vehicles.

This work instruction enables the station to satisfy the following requirements:

- Legislation;
- Company standards, procedures, requirements and core values;
- Continuous improvement.

This work instruction aims to ensure that:

- Responsible person(s) are immediately notified and continually updated when an incident or accident occurs;
- Required communications are made to SSE corporate centre;
- Required communications, if necessary, are made to external bodies such as the Environment Protection Agency (**EPA**), Health and Safety Authority (**HSA**), etc in line with corporate policy;
- All staff and contractors on site are made aware of their obligation to report hazards, incidents and accidents;
- All visitors inform their SSE host immediately, or as soon as possible, when any hazard, incident or accident occurs;
- Hazards, incidents and accidents are investigated at the appropriate level and involve external / independent parties where appropriate;
- Relevant documents are retained for the prescribed period in accordance with legal and company requirements;
- Actions taken as a result of a hazard, incident or accident are properly recorded and tracked to completion;
- Key learning points arising from investigations are recorded, analysed and shared with similar businesses within SSE and externally if necessary.

Accountabilities

Intent

To define roles and responsibilities to help ensure that managers understand the roles required and their involvement to ensure compliance with this procedure.

Mandatory Requirements

Station Manager

The Station Manager or his nominee is responsible for:

- Arranging for reports to external parties to be despatched within the required time-frame under legislation;
- Ensuring that upon completion of an investigation, arrangements should be made for key learning points to be shared throughout Generation via a **SHE** Alert or **SHE** Communication;
- Ensuring that all completed investigation reports and subsequent actions are monitored by the management team.

Process Support Manager

The Process Support Manager is responsible for arranging:

- Advice for the Station Manager and / or nominated representative in relation to the legislative or company requirement to report a particular incident within the correct time-scale;
- For the Great Island Local Safety Group (**LSG**) to be informed of all accidents and incidents and give them an opportunity to undertake an independent investigation or be an investigation team member;
- Ensuring that immediate steps are taken to ensure any incident is prevented from worsening wherever possible;
- The provision of assistance and advice in completing any appropriate forms;
- The reporting of accident and incident statistics (internal and external);
- The keeping and maintenance of records (excluding significant availability loss reports) such as accident books and investigation reports for a minimum of three years;
- The reviewing, at intervals no longer than three years, the working and current applicability of this work instruction (or earlier if there are changes to Legislation, Company Policy or Site Procedures following an actual event).

Management Team

The Management Team are responsible for:

- Monitoring completed accident and incident investigation reports (including actions associated with the report);

Accountabilities

Shift Group Leader

The Production Shift Group Leader (**SGL**) is responsible for:

- Ensuring that an SSE First Aider is present to assess the injured person and complete the station's accident book.
- Ensuring that an SSE Fire Team member attends any incident when requested;
- Reporting any incidents on the incidents and callouts database and in the station log;
- Ensuring that (with assistance from the first-aider who treated the injured person) the initial **SEAR** report is completed by either himself or the Shift Manager in out of hours situations;
- At the earliest opportunity, informing the Shift Manager and injured party's Supervisor / Manager of the accident or incident.

SSE First-Aiders

SSE First-aiders are responsible for ensuring that they:

- Attend to, when instructed to, the injured person and assess them (whether previously treated by other first-aider(s) or not);
- Treat or further treat the injured person if necessary;
- Complete the accident book form with assistance from the injured person. If the injured person is unable to assist in completing the form e.g. if they are hospitalized the details that are known should be recorded and passed on to the Shift Group Leader. Further details will be gathered when the injured person is able to do so;
- Contact the **SGL** to update them on the outcome of the assessment of the injured person and the treatment given.
- Assist with inputting the details onto the **SEAR** database.

Management Team

- During normal working hours, they input the initial **SEAR** report for any accident that occurs to an employee or contractor that they are responsible for. Assistance may be requested from the first aider involved in treating the injured person(s).
- If they are assigned to investigate a **SEAR** report they must:
  - create an investigation team using the guidance given in Mandatory Requirements section;
  - Conduct an investigation and complete the Accident / Incident Investigation Form **FO-SHE-010-003** and attach it to the **SEAR** report;
  - Ensure all actions relevant to the report are completed before signing off the **SEAR** report.
- Staff and contractors under their control are aware of the work instructions and the need for timely reporting of hazards, accidents and incidents;

Accountabilities

- Contractors under their control make notifications to the appropriate bodies required by legislation for accidents to their staff;
- Any corrective actions placed upon them or their team are completed in a timely manner.

Great Island LSG Members

All Great Island **LSG** members will be informed of any accidents or incidents and at least one **LSG** member will be selected to join the investigation team when the actual severity is 'minor' or above.

Great Island **LSG** members have a duty to feedback to their team members the key learning points and actions resulting from accidents or incidents.

Supervisors

All Supervisors are responsible for:

- Entering hazards identified by their team on to the **SEAR** database and assigning them to the relevant person (if you do not have access to the **SEAR** database speak to your SSE contact);
- Recording any barriers erected by themselves or their team on to the barrier database and ensuring the relevant signage is attached to the barriers. If you have any issues with accessing the barrier database speak to the Planning Team.

All Staff and Contractors

- All staff and contractors are responsible for ensuring that they are aware of their responsibilities within this work instruction and all accidents and incidents are reported to their Supervisors immediately and must co-operate fully in any investigation that follows.

- Any staff member or contractor that acts as a host for a visitor coming on to site must ensure that they inform their visitor of the requirement for them to report to them any accident or incident that they are involved in or witness. Anyone acting as a host should also explain the station's alarm and muster procedure to their visitor.

Incident and Accident Reporting Process

Mandatory Requirements

1. Reporting Timescales, Trigger levels and Contact Telephone Numbers

It is important that all incidents and accidents are reported as soon as reasonably practicable to do so, taking into account the duty of care to the individual(s) involved. All incidents with an actual impact level on People, Environment, Asset or Reputation (**PEAR**) of 'minor' or above must be reported and escalated through the business management chain within 30 minutes of occurrence and reported to the Group SHE Manager. **Examples are given below of incidents qualifying for the 30 minute rule:**

- Actual 'minor' effect on People or worse;
- Potential 'serious' effect on People or worse;
- Anyone leaving site for medical treatment, i.e. hospital, doctors, etc;
- **HSA** reportable injuries or dangerous occurrences**;
- Actual and Potential Class 1 Road Traffic collisions;
- Process Safety incidents with actual or Potential impact level of 'serious' or worse;
- Any incident involving electricity*;
- Incidents involving the carriage of dangerous goods;
- Loss of containment from generating process plant leading to equipment shutdown for more than 24 hours;
- Loss of containment from any SSE plant or equipment requiring deployment of oil / chemical spill clean-up contractor or report to **EPA**;
- Reportable emission excursions from permit conditions;
- Any malicious or aggressive threat to a member of staff;
- Unauthorised access or attempts to any company building;
- Unauthorised access or attempts to any company information system;
- Loss, theft or unauthorised access to employee or customer personal data;
- Loss, theft or unauthorised access to sensitive company data such as finance reports, business development plans etc;
- Loss, theft or unauthorised use of company assets, such as laptops, mobile phones, fuel cards or vehicles;
- Suspected or attempted fraud.

* Definition of "involving electricity": Electrical short circuit or overload which the resulting fire / explosion stops the plant involved for more than 24hrs and / or

has the potential to cause death to any person.

** Dangerous Occurrence definition for a “high pressure steam discharge”: having the potential to cause the death of any person including scalding or burns arising from contact with steam, hot water or other hot liquids, liquors, products or substances; and immersion or splashing with chemicals.

Other examples of incidents which might be notifiable as having ‘potential to cause death' would be those where a person was either struck by, or could have been struck by, a projectile emitted from the failure of a closed vessel under pressure.

Telephone contact numbers for urgent cases are:

- For reporting under the 30 minute rule, call the 24 hour emergency line: **1800 805 827**.
- Physical security, fraud, threats to personnel or other related major incidents: Security Bureau: **0044 (0)23 9262 4050**.
- Information Security incidents, threats or issues with information systems or data: IT Service Desk: **0044 (0)23 9249 4444**.

Incident / Accident Scene Exclusion Zone

If an incident or accident results in an actual impact level on **PEAR** of ‘minor’ or above the work area should be frozen immediately, i.e. ceasing work in the area and cordoning off the area to prevent access. No items of plant / apparatus or evidential material should be removed from the area until a full investigation has taken place. If it is essential for reasons of continued health and safety to disturb the scene, evidential photographs are to be taken before doing so.

2. Accident Reporting Sequence

- The accident reporting process map and flowcharts can be found in Appendix D of this work instruction.
- The first step is to care for any injured personnel either by contractor first-aider or by contacting the control room and requesting an SSE first-aider. PLEASE NOTE: Even if an injured person is treated by a contractor first-aider, the contractor first-aider must (after treating the injured person) contact the control room and request an SSE first-aider to attend.
- The SSE first-aider will then assess and further treat the injured person if necessary before informing and updating the SSE Shift Group Leader.
- The SSE first-aider will, with the injured person if possible, complete the accident book report form (these forms are situated in the First Aid rooms)
- **During normal working hours** the completed accident book report form should be taken by the SSE first-aider directly to the **SHE** Team for

retention of records.

- **Outside normal working hours** the SSE first aider should ensure that the accident book report form is taken to the SHE Team at the next reasonable opportunity, not via the internal mail.
- The first-aider who completed the form must be prepared, if requested, to assist in giving details of the accident to the relevant person who completes the **SEAR** report.
- The Shift Group Leader will then inform Management Team at the first reasonable opportunity (except in cases where the actual injury sustained is Medical Treatment or above when notification should be immediate).
- **During normal working hours** the Shift Group Leader will then inform the Manager responsible for the injured person of the accident to allow the Manager to initiate a **SEAR** report.
- **Outside normal working hours, if the relevant Manager is not available** the Shift Manager will be responsible for the inputting of the initial **SEAR**. The **SEAR** report should be assigned to the Manager responsible for the injured person.
- The Manager that is assigned to investigate the accident will then create and lead an 'investigation team' to investigate the accident. If the injury is Medical Treatment or worse a member of the **SHE** Team and a member of the Great Island Local Safety Group (**LSG**) should also be included in the investigation team. This team will then investigate the accident and complete form **FO-SHE-010-003**. The overall responsibility for the completion of this form remains with the Manager.
- The Shift Group Leader will report to Group **SHE** Team (Perth) via telephone in the event of a fatality using the 24 hour emergency number listed above.
- Once the accident investigation and any resulting actions are completed the SSE Team Manager responsible for the investigation will complete the **SEAR** report, attaching the completed **FO-SHE-010-003** form and sign it off, in doing so shall inform the Executive Management Team.
- It is important that all accidents are reported immediately so an investigation can be carried out to prevent a similar accident occurring. Also it enables the relevant person to complete the **SEAR** report in a timely manner together with any telephone contact necessary.

3. Incident Reporting Sequence

In the event of an **incident**:

- The person reporting the incident should contact their Supervisor immediately.
- If the incident is significant the Supervisor must then immediately report

this to the Shift Group Leader. Then the person reporting the incident should also inform their Manager as soon as practicable.

- The Shift Group Leader must then send a fire team member if required. If sent, one of the fire team members will report details and progress to the Shift Group Leader when reasonably practicable for potential input onto the **SEAR** report.
- The Shift Group Leader then must record this on the Incidents and Callouts Database and on the Station Log.
- **During normal working hours** The Manager responsible for the person initially reporting the incident will ensure that a **SEAR** report is completed. **Outside normal working hours** the responsibility for inputting the **SEAR** remains with the Shift Group Leader.
- The Manager or Shift Manager responsible for inputting the **SEAR** will ensure that a member of the Senior Management Team is informed immediately. **Outside normal working hours** at first reasonable opportunity. Where the actual impact level on **PEAR** is 'serious' or worse a member of the Senior Management Team must be informed immediately).
- The Manager that is assigned to investigate the incident will then create and lead an investigation team. If the actual impact is 'minor' or worse a member of the **SHE** Team and the Great Island **LSG** should also be included in the investigation team. This team will then investigate the incident and complete form **FO-SHE-010-003**.
- The Manager assigned to investigate the incident will use the **SEAR** report to raise any actions and see them through to completion and attach the completed **FO-SHE-010-003** form before signing off the **SEAR** report. When signing off the **SEAR** report the Management Team should be informed.
- There is a nominated incident control centre on site which should be used in order of priority to control events in the case of serious incidents such as those with an actual or potential effect on **PEAR** of 'major'. Please refer to **WI-GTIS-SHE-011-001** Great Island CCGT Incident Response Manual for full details of incident room uses and designated roles and responsibilities.

Appendix A provides guidance on the types of events that could be reportable.

4. Environmental Incidents External Reporting

Environmental Incidents such as oil spills, Emission Limit Value (**ELV**) exceedances and any incident that has a negative impact on the environment must be reported to the **EPA** as soon as possible. Failure to do this may result in

further action taken by the Agency.

The process for this communication is detailed in **WI-GTIS-SHE-001-005** SHE communications.

5. External Accident Reporting

Accidents resulting in lost time of more than 3 days must be reported to the **HSA**.

This is detailed in **WI-GTIS-SHE-001-005** SHE Communications**.**

Fatalities must be reported to the Police. The reporting of serious incidents to Government Agencies will be completed by the Group Safety Leadership Team in Perth only.

Contractors are responsible for reporting accidents involving their own staff to the Health and Safety Authority (**HSA**) or other government bodies. In the event of a contract company notifying the a Government Agency such as the **HSA** or Police about an incident they should also immediately inform the Great Island Management Team (during normal working hours) or Production Shift Manager (outside of normal working hours).

6. Hazard Reporting Sequence

In the event of spotting a **hazard**:

- If reasonably practicable, take immediate action to remove the hazard, prevent it from worsening and prevent access to the hazard in order to prevent personnel from being exposed to the hazard;
- Inform your Supervisor as soon as reasonably practicable unless the hazard cannot be controlled and could lead to an accident or incident in which case you should inform him immediately;
- If you have access to the **SEAR** system you should create an initial **SEAR** report of the hazard and assign the report to whoever is responsible for removing or reducing the risk posed from the hazard. If you do not have access to the **SEAR** system then you should complete the paper version of the **SEAR** report form and pass this on to your supervisor, these should be made available via your Manager and can be found on the company document library, reference: **FO-SHE-010-002**;
- If barriers have been erected the Supervisor should enter this on to the barrier database and erect suitable signage on the barriers;
- The person who is assigned to investigate the hazard must then seek to remove the hazard or reduce the risk posed by the hazard as much as is reasonably practicable. This person should also remove the barriers and close the barrier record on the database;
- The assigned person must complete the **SEAR** report and notify their Manager.

Incident and Accident Reporting Process

7. Hazard, Accident and Incident Investigation

In order to drive continuous improvement, every hazard accident or incident will be subject to investigation and corrective actions will be tracked via **SEAR** database through to completion. The actual or potential impacts of a hazard, accident or incident are categorised in the table below. The table gives

definitions of the hazard, incident or accident's impact on People, Environment, Asset and Reputation (**PEAR**).

No.	Descriptor	People	Environment	Asset	Reputation
4	Major	♦ Fatalities	♦ Major Environmental Impact ♦ Major Permit breach	♦ Damage to Key Operational Component	♦ Regional Media Coverage ♦ Notifiable to Regulator
3	Serious	♦ Reportable Injury ♦ Reportable Disease	♦ Serious Environmental Impact ♦ Serious Permit breach ♦ Prohibited activity	♦ Damage to Major Item	♦ Prolonged Local Media Coverage
2	Minor	♦ Medical Treatment Injury ♦ Lost Time Injury (Not Reportable)	♦ Minor Environmental Impact ♦ Minor Permit breach	♦ Disruption to Operation (< 1 week)	♦ Local Media Coverage
1	Incidental	♦ First Aid Injury ♦ No Treatment Accident	♦ Incidental Environmental Impact	♦ Damage to Small Stock Item	♦ Complaints From Neighbours
0	None	♦ No Effect	♦ No Effect	♦ No Effect	♦ No Effect

- Note 1 – Items within a cell are equal impacts and to satisfy that impact level only one criteria needs to be met.
- Note 2 – Minor impact level for People includes Non-reportable Lost Time Injury events; the duration of absence to make the incident reportable in the UK this is <7 days.

If the actual impact of an accident or incident is 'minor' or above, or has the potential impact of 'serious' there is a requirement for an investigation team to be formed. The Manager assigned to complete the investigation section of

Incident and Accident Reporting Process

the **SEAR** report will create an investigation team which should include themselves, a Great Island **LSG** representative and a member of the SHE Team (although the investigation remains the overall responsibility of the SSE Manager). In extreme cases, the investigation may be carried out by an external agency with co-operation from Great Island staff and contractors where appropriate. It is the responsibility of the SSE Team or Contract Manager to assess the incident or accident and its actual and potential effect on **PEAR** (as above).

Investigation Team Composition

The following is a simple guide suggesting who should make up an investigation team for any incident or accident in relation to the actual or potential impacts on **PEAR**:

Incidental	Manager & Supervisor
Minor	Manager, Great Island LSG member, member of SHE Team.
Serious	Manager, Great Island LSG member, member of SHE Team
Major	Independent Panel

In order to carry out an effective accident or incident investigation it is necessary to determine the immediate, underlying and root cause(s) and develop an improvement / action plan. The investigation form **FO-SHE-010-003** will be completed by the investigation team, lead by the SSE or Contract Manager and shall be attached to the **SEAR** report. This form will be completed for all incidents or accidents with an actual impact level of 'minor' or above.

Vehicle incidents should not be investigated upon the public roads. The Police are the only organisation with authority to close or partly close any part of the highway. Without their authority investigative operations should not be attempted due to the obvious risk of moving traffic. The results of Police investigation will only be released to company insurers. Nevertheless it is important that information is gathered associated with the incident or accident and for that purpose Road Traffic Collision report form **FO-SHE-010-004** is to be completed by the investigation team and attached to the SEARs report. This form will be completed for all actual and potential Class 1 Road Traffic Collisions.

SHE Alerts – should be considered for specific **SHE** incidents:

with an actual impact on **PEAR** of major, e.g. fatality;

with **SHE** issues that without immediate action being taken could result in a major impact on **PEAR**;

Safety Family In Action (**SFIA**) – should be considered where there has been a

specific example of positive **SHE** behaviour from an individual that goes 'above and beyond' that expected from a competent SSE employee avoiding a potentially negative outcome (e.g. incident with serious or major **PEAR** impact) or identification of a **SHE** incident prevention idea that could be shared within the business or across SSE.

Any **SHE** Alert or **SFIA** produced at Great Island shall be checked and agreed with a member of the Group SHE Team prior to issue. The document shall also be distributed to the Great Island **LSG**.

Should Great Island wish to communicate to other sites with regards to incidents with lesser severity or other good practices the template form **FO-SHE-010-009** Business SHE Communication will be used.

During an incident investigation it is likely that witness statements will be required, e.g. from injured party or witnesses to the incident. For consistency investigators should use the SSE Witness Statement Template form which can be found on the SSE document library using reference **FO-SHE-010-008**.

8. Training Requirements

A hazard, accident or incident can be reported by anyone on site and it is vital that all Managers ensure that all of their staff and contractors are given adequate information and training to allow them to report a hazard, accident or incident using the **SEAR**s systems (paper copy or electronic).

Any accident or incident investigation training should include:

- root cause analysis;
- human factor contributions;
- interviewing;
- examination of event scenes;
- assessment of potential severity and likelihood;
- action identification and allocation;
- report writing.

Investigation team members will be selected for their knowledge, experience, competence and applicability to the specific incident or accident.

Guidance on how to conduct an investigation can be found in **MA-SHE-010-001** Incident Investigation Handbook on the document library.

9. Monitoring

SEARs Database

This database should be used to report, detail and monitor the progress of each hazard, accident and incident. All additional information gathered during any

subsequent investigations should be attached to the relevant report for review and audit purposes.

10. Records

There is a legislative requirement to maintain records of details of accidents and incidents. At Great Island records of accidents and incidents must be kept for at least 3 years.

11. Review

The Process Support Manager or Nominee shall review the working and current applicability of this work instruction whenever there are significant changes to working practices or at intervals of no greater than three years.

Incident and Accident Reporting Process

Appendix A

Events Considered Reportable

A1 The following is a list of events that may be reportable. All events referred to must be reported on this list (and any unlisted events of similar magnitude) immediately to the supervisor.

A2 Accidents can be to anybody who is on site (including visitors).

Accidents	Fatalities
	Any accident or illness likely to require first aid or medical treatment

Incidents	Collapse, overturn or failure of scaffold, lifts, lifting equipment, building, heavy equipment
	Fire and / or explosion (including electrical problems)
	Uncontrolled release of a hazardous substance
	Release or spill of a radioactive substance or the loss of a radioactive substance.
	Collision between vehicles and / or trains
	Environmental Discharge of hazardous substance
	Loss of a 500MW unit
	Significant availability losses over 1,500 MWh over the day
	Loss of a 17½ MW Gas Turbine

Incident and Accident Reporting Process

APPENDIX B: Incident Report minimum requirements

As a minimum requirement, an Incident Report must contain the following information:

- A Unique Identity Number;
- Time and Date of the incident;
- Person raising the incident report;
- Category of incident (e.g. safety, environmental, security, plant);
- External parties involved;
- Unit number and availability loss (where appropriate);
- Full description of incident, including supportive information and details;
- Reference to related reports where applicable (e.g. Accident report);
- Actions taken immediately;
- Longer term actions and / or Recommendations with responsible parties and timescales;
- Notification of decision on further investigation;
- Signature (physical or electronic).

Deviation	Deviations from this instruction shall be agreed in writing between the Station Manager and the appropriate person.
Recommendations	None

Definitions

The following are definitions adopted by Great Island Power Station.

Accident	An incident that leads to injury or ill health.
Fatality	The death of any person arising out of or in connection with work. This includes where the deceased has suffered a reportable injury which is the cause of death within one year of the accident date.
First Aid Injury	An injury which requires simple medical treatment that is self-administered or by a first aider, doctor or nurse but does not result in lost time or long term medical care. These include:

	• using a non-prescription medication at non-prescription strength; • tetanus immunisations; • cleaning, flushing or soaking wounds on the surface of the skin; • wound coverings such as bandages, Band-Aids, gauze pads etc. or using butterfly bandages or steri-strips; • hot or cold therapy; • non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc; • using temporary immobilization devices while transporting an accident victim (e.g. splints, slings, neck collars, back boards, etc.); • drilling of fingernail or toenail to relieve pressure, or draining fluid from a blister; • using eye patches; • removing foreign bodies from the eye using only irrigation or a cotton swab; • removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means; • using finger guards; • massages other than physical therapy and chiropractic treatment; • drinking fluids for relief of heat stress.
Hazard	A hazard is a condition or a situation where there is a potential to cause an incident. It is important to remember that "nothing has happened and no harm has occurred". Typical examples include: • slip or trip hazards in the work area; • vehicles parked in contravention of accepted practice e.g. double yellow lines, on pavements etc • damaged or unsecured walkways or scaffold at height; • unsecured excavations; • damaged / missing handrails or machinery guards; • unsecured objects likely to fall; • equipment out of test date; • operating plant outside the operating envelope; • bare electrical conductors which are live; • fire hazards such as storage of gas bottles near hot surfaces, waste build-up, flammable dust build-up etc; • health hazards such as dead pigeons, food waste, high dust levels, soiled equipment, hypodermic needles etc; • environmental, e.g. unbunded oil storage, rainwater in a bund, or waste deposited in the wrong container.
Incident	An incident is defined as being any unplanned and / or undesired circumstances which lead to or has the potential to cause harm to either: • Persons e.g. injury or ill health to employees, contractors or members of the public • Environment e.g. pollution of air, land or water; • Asset e.g. plant, apparatus, equipment, property

	• Reputation of the Company e.g. adverse reaction by media, investors Typical examples include: • any reportable dangerous occurrence; • a chemical, hazardous substance or oil spill; • pressure relief valve lift; • loss of containment e.g. release of steam, gas or fluid under pressure; • fires / explosion; • incorrect classification of waste on transfer note; • road traffic collision; • collapse of pole / tower structure; • operation of safety trip devices which shut plant down; • damage to buried services e.g. electric, gas, water, telecoms etc; • property damage e.g. barriers, buildings.
Lost Time Injury	Any injury arising from a work related incident which is not reportable, but results in an absence from work less than eight days. The first day of absence starts from the day after the incident and is continuous thereafter. Saturdays and Sundays are always included even if they are not part of a normal working week. For SSE incident recording; 'Minor' impact is a Lost Time Injury of 1-3 days and 'Serious' impact >3 (4-7) days.
Medical Treatment Injury	Management and care of a patient to combat disease or disorder, but does not result in a lost time injury. It **DOES** include: • prescription medications or administration of non-prescription medications at prescription strength on the recommendation of a physician or other licensed health care professional; • immunizations e.g. Hepatitis B or rabies; • other wound closing devices such as sutures, staples, surgical glue etc. • devices with rigid stays or other systems designed to immobilize parts of the body; • physical therapy or chiropractic treatment. It **DOES NOT** include: • visits to a physician or other licensed health care professional solely for observation or counselling; • the conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g. eye drops to dilate pupils); or • first aid.
No Treatment Injury	An accident under which no treatment was required but physical pain has been endured. Typical examples include minor slips or trips, struck by object, bump to head, etc.
Reportable Dangerous Occurrences	A dangerous occurrence that has been specified by the Health and Safety Authority (HSA).

Reportable Diseases	A reportable disease that has been specified by the Health and Safety Authority (HSA).
Reportable Major Injury	An injury or condition that has been specified by the Health and Safety Authority.
EPA	Environmental Protection Agency
HSA	Health and Safety Authority
SEAR	Safety Environmental Awareness Report
LSG	Local Safety Group
SGL	Shift Group Leader
PEAR	People, Environment, Asset, Reputation
ELV	Emission Limit Value
SFIA	Safety Family in Action

Reference

Key references required to follow this instruction.

FO-SHE-010-002	Safety and Environment Awareness Report (SEAR);
FO-SHE-010-003	Accident / Incident Investigation Form;
FO-SHE-010-004	Road Traffic Collision Investigation Form;
FO-SHE-010-005	SHE Alert (template)
FO-SHE-010-006	Safety Family in Action (template)
FO-SHE-010-008	Witness Statement Template Form;
FO-SHE-010-009	Business SHE Communication (template)
MS-SHE-010	Incident Reporting, Management and Investigation Standard
MA-SHE-010-001	Incident Investigation Handbook
WI-GTIS-SHE-011-001	Incident Response Manual
WI-GTIS-SHE-001-005	SHE Communications

The author / owner of this document is:	This document has been approved for Issue by:	Date of Issue:	Review Date:
Brian Bowe	Padraig Dunleavy	November 2019	November 2020

Table of Contents

Summary

Why Do We Need This Instruction?

Planning for emergency situations is vital to ensure that managers and staff know what to do in the unlikely event of a serious incident occurring. This manual sets out the principles and guidance required in the event of a serious occurrence taking place at Great Island CCGT Power Station

SSE Great Island CCGT Power Station aims to develop, maintain and continually update and improve, in the light of training and experience, these emergency procedures. This procedure will indicate the actions to be taken in the event of incidents which involves or may cause harm to People, Environment, Asset or Reputation (PEAR).

To ensure a positive response to an emergency at the Great Island CCGT Power Station we need to:

- Have documented emergency procedures,
- Have sufficient facilities and resources available,
- Carry out the appropriate training of all personnel,
- Carry out emergency procedure exercises on a regular basis to test and assess facilities, equipment and personnel's ability to complete appropriate actions.

This Manual reflects that policy. It describes the procedures followed by all personnel in an emergency at Great Island CCGT Power Station. It also contains essential reference information. The Manual forms part of an integrated suite of company emergency procedure documents which provide a comprehensive incident response system.

Overview

Each Business shall have a process in place for emergency planning and response that emphasizes the following as recommended in MS-SHE-011:

Approach**: Overreact and stand-down if appropriate.**

Priority: PEAR

People – harm to persons (employees or others)
Environment – harm to land, air or water
Asset – plant, building, facility, system or information
Reputation – SSE's reputation

In an emergency it is essential that all personnel know their duties and responsibilities and the actions they should take to ensure that the

response is as fast and effective as possible. The person observing an incident is responsible for taking the initial action and/or raising the alarm as appropriate.

The person shall inform the **Shift Group Leader (SGL)** / **Control Panel Operator (CPO)** who is available on site 24 hours a day.
The **SGL** (enacting the role of Emergency Commander) has the immediate responsibility for initiating the necessary actions. During normal office hours a member of the management team will formally take overall charge of the incident and assume the duties of emergency commander.

Accountabilities

Intent

To define roles and responsibilities to help ensure that all personnel understand the roles required and their involvement to ensure compliance with this procedure.

The Incident Management roles are described in the following section for both normal operation and for the scenario of two man per-shift production teams e.g. during major outage work hours and when there is a limited number of persons on site (shift and weekends)

Mandatory Requirements

Site Managers are responsible for the correct implementation of this procedure.

2.1 Incident Management Responsibilities – Normal Operation

Emergency Command Team

The Emergency Command Team is initially comprised of Shift Operations enacting the following roles:

- Emergency Commander (SGL)
- Incident Controller (Production Technician)
- Control Room Desk Operator

The Emergency Command Centre (ECC) is expected to be initially set up in the Control Room with the SGL enacting the role of Emergency Commander. When the site's ECC room is set up with the appropriate personnel, the SGL will hand over control to the ECC room where it will be formally accepted by the Station Manager or his nominee who will from that onwards enact the role of Emergency Commander. The Emergency Command Team will then consist of those members of the station senior management team or the SSE corporate team that are available or called in by the Emergency Commander where appropriate for the nature of the

emergency. It can also include other staff on site that can be given designated roles by the Emergency Commander appropriate to their level of skill and competence.

Duties and Responsibilities:

- Emergency Command Team Leader reports to Emergency Command Centre if the Incident or Evacuation alarms are sounded. All other members of Emergency Command Team report to their designated muster point.

- The Emergency Command Team may take some time to be fully established and members may take more than one role in the organisation whilst the emergency situation is ongoing. The Emergency Commander will allocate persons to each of the below roles as resources become available.

Emergency Command Centre:

Location: The Emergency Command Centre will be:

- For small incidents (minor) this will be the Station Control Room.

- For larger incidents involving emergency services (serious and major), initially this will be the Station Control Room but will transfer quickly to the emergency command centre.

- If both are untenable then the Emergency Command Centre will be established at another suitable location at his / her discretion.

Emergency Commander

Overall Responsibilities:

- Overall command on site during an emergency.
- Must take an overview of the incident and make sure adequate resources are provided and steps taken to ensure safety of personnel and public.
- Report to the Emergency Command Centre location and remain there unless untenable, or acting as Incident Controller at scene of incident.
- There should be no undue constraints placed on the Emergency Commander; he must appraise the emergency and act on his own judgement, but in keeping with Company and Station Policy.

General Duties are:

- Assess the emergency situation, initiate and oversee emergency response to control the incident, referring to the relevant prompt card where appropriate (Section 4.5).
- Decide the "LEVEL" (as per Section 3.1 Classification of Incidents) of incident and needs for evacuation / mustering. Initiate call out of emergency services and contact with relevant third parties as appropriate.
- When Incident or Evacuation Alarm raised, Emergency Commander to request support from Emergency Response Team if appropriate
- Appoint available key personnel to team roles.
- Arrange for incident log to be maintained.
- Liaison with emergency services.
- Confirm security of site is maintained.
- Confirm efficient handling of incoming calls, public and media.
- Arrange for specialist external site assistance if required.
- Confirm that details on casualties and missing personnel are known by relevant authorities.
- Provide information to SSE senior management and Directors about the incident.
- Initiate investigation of causes, and preservation of evidence, as appropriate.

Incident Controller

Duties and Responsibilities:

- Safety of personnel and preservation of life at the scene.
- Control of immediate incident response at the scene.
- Ensure timely and accurate information is passed to the Emergency Commander.
- Ensure liaison with emergency services and Emergency Response Team (If available).

General Duties are:

- Be aware of the overall site situation and have detailed knowledge of the incident area.
- Identify location of casualties and initiate arrangements for treatment.
- Control and / or mitigate the effects of the incident.
- Liaise and provide technical advice to emergency services and Emergency Response Team
- Where necessary to initiate search and rescue, with the Emergency Response Team

- To account for rescue / emergency response team personnel located near the incident scene.
- Assess the need for additional resources and actions.
- Communicate progress of the incident to the Emergency Commander.
- Preserve evidence as to cause and circumstances.
- To liaise with Emergency Services on arrival and remain with them providing information as necessary on plant status.

Location:

The Incident Controller will stay at, or near, the scene of the incident until relieved or stood down by the Emergency Commander.

Operations Initial Response

Duties and Responsibilities:

- Occupational first aid (FETAC level 5)
- Basic chemical and oil spill response
- Basic firefighting response (use of extinguisher and fire hose)
- General assistance to emergency services (e.g., guidance, advice)

The level of response capable of being provided by Shift Operations is limited by staff manning levels, giving due consideration to ensuring the unit is safely operated or shut down if necessary.

Emergency Response Team:

Duties and Responsibilities:

- Emergency Response Team duties and responsibilities are fully detailed in Great Island Emergency Response Team WI-GTIS-SHE-011-003.

- The nominated Emergency Response Team Leader shall report to the Control Room when the alarm is sounded. The Emergency Response team shall report to the muster area. The Emergency Commander shall determine whether to request the Emergency Response Team to return to site in order to provide assistance.

- Following receipt of instruction from the Emergency Response Team Leader, the Emergency Response Team may respond to the incident and subsequently assist the emergency services upon arrival, preserving life and the environment whilst not endangering their own lives.

Muster Coordinator

Duties and Responsibilities:

- To report to muster point when the evacuation alarm is sounded
- To ensure that all personnel are accounted for at the muster point and inform Command Centre of any missing or unaccounted for persons.
- To activate safe evacuation to nominated area from muster point if advised by Emergency Commander.
- To provide back up personnel from muster if requested by Emergency Commander. (Back up personnel required must log back in and out of the site again during re-entry / exit).
- To stand down muster when all clear is given by Emergency Commander.

Event Recorder

Duties and Responsibilities:

- To ensure that all events relevant to the incident are recorded legibly, accurately, and that a permanent record is maintained for investigation purposes. A carbonised copy of events should be kept by the Event Recorder and given to the Emergency Commander in the Emergency Command Centre.
- The information should be a detailed account of: events, actions, staff arrivals, transfers of responsibilities and notifications to / from site.
- Under Operational scenarios events will be recorded via the Operations log (OPRA Log) by Production Department personnel. Tactical and Strategic event scenarios may require the appointment of a separate event recorder at the Emergency Commander's instruction.

Public Relations Officer (For Tactical & Strategic Events)

Duties and Responsibilities:

- Act as liaison between site and the Press Officer at Headquarters in Perth.
- Establish links with other PR officers from the emergency services and set up a procedure for the speedy clearance of announcements.
- Establish media liaison facilities, either on site or at an appropriate suitable location.
- Establish media facilities for SSE media.

Liaison Officer (For Tactical & Strategic Events)

Duties and Responsibilities:

- To liaise between the Emergency Commander and emergency services, including police, fire, ambulances, doctor.
- To liaise as directed by Emergency Commander

Gatehouse Coordinator

Duties and Responsibilities:

- Ensure emergency services are given correct information and directions on entering site (assessment form, site plan and chemical data sheets).
- Ensure the Emergency Services are brought to the location of incident in a timely manner by person familiar with site layout.
- **NB:** Outside of normal working hours a member of the Operations Team will assume the role of Gatehouse Co-ordinator.

2.2 Emergency Command Team Establishment (Tactical & Strategic Events)

In the event that an incident occurs out of normal office hours the Emergency Commander and Incident Controller role will be carried out by the Duty Shift Group Leader and a member of his team until members of the Emergency Command Team arrive. The following will be the arrangement for the allocation of duties until the team is fully established.

First Arrival

The first member of the Emergency Command Team arriving at the site in

response to a call out should:

Obtain a briefing from the Emergency Commander / Incident Controller and immediately commence the set up of the Emergency Command Centre.

Second Arrival

The second arrival will then:

- Establish the Emergency Command Centre facility.
- Activate any equipment which needs warming up.
- Take over the role of Event Logger from the duty desk operator.
- Update the events board as information becomes available.
- Keep a record of all incoming and outgoing information.

All persons with Incident Management Responsibilities shall be identifiable by wearing the appropriately labelled high visibility clothing.

Emergency Commander
Incident Controller
Muster Co-ordinator

Processes and Responses

Intent

To enable a structured, fast and appropriate response to incidents involving Great island CCGT Power Station.

Classifications

3.1 Classification Of Incidents

Incidents are classified as:

Operational Response (Minor)
Tactical Response (Serious)
Strategic Response (Major)

The classification of incidents considers the necessary response to ensure compliance with European Directive 96/82/EC, otherwise known as the SEVESO regulations

- **Operational Incident (Minor)**

A minor incident is defined as any incident, which does not immediately affect the safety of people, environment, plant and reputation **(PEAR)** and does not have any hazardous consequences outside the site. A minor incident requires no immediate outside assistance and can be

dealt with by site staff. For example:

- Suspected loss of plant integrity and a controlled shutdown.
- Minor gas leak or minor spills
- Unscheduled plant shutdown.
- Emergency gas venting within design limits.

The Incident Controller will liase from an Operational viewpoint with the Incident Response Team (If available) and any SSE resources at the incident site.

The Incident Controller will liaise with their Line Manager (Shift Group Leader or equivalent position at site or off site) who will perform the role of Emergency Commander until such times the Emergency Command Team **(ECT)** relieves him of this duty.

The Emergency Commander will maintain links with the Incident Controller and Security at the Gatehouse

- **Tactical Incident (Serious)**

A serious incident is, as a general guide:

- Serious personal injury requiring the call out of a doctor / ambulance.
- A confirmed fire which necessitates the fire brigade to be called out.
- A major failure of a pressure system or loss of containment, which can be isolated readily.

The Emergency Commander will command the Emergency Command Team who will be located in the Emergency Command Centre. The Emergency Command Team will contact the SSE Press Officer and the SHE Team (30 Minute Rule). The SHE Team then have responsibility for notifying the Managing Director of Business. The Emergency Commander will brief the Managing Director of Business on the incident, if requested.

The Emergency Command Team will assist the Incident Controller by providing the necessary equipment and resources to deal with the incident. They will look at the wider issues affecting the site and determine any recovery processes and procedures to get the site back to normality.

- **Strategic Incident (Major)**

A major incident is defined as one which affects the safety of the site, involves a fatality or presents a hazard beyond the site boundary. A major incident requires the mobilisation of the one or more emergency services. Examples include:

- Sudden equipment failure, gas leakage etc. causing death on the site

- A major and prolonged hydrocarbon leakage which cannot be controlled readily.

  Or any occurrence as defined within the SEVESO Regulations such as a major emission, fire or explosion resulting from uncontrolled developments in the course of the operation of any establishment, leading to a serious danger either to human health or to the environment, whether immediate or delayed, inside or outside the establishment, and involving one or more dangerous substances.

The Incident management is done in liaison with the Business/ Group Crisis Management Team. The Managing Director of Business or his Deputy, on being briefed by the Site Emergency Commander, may activate his Business Crisis Management Team, whose members will be determined by the type of incident and its effect on the business. The Employee Emergency Line will be activated through the Business Crisis Management Team (or Gold Command) if the severity of the incident warrants.

Gold Command is established by an Executive Director (or if not available two members of Management Board) to ensure SHE risks are addressed to protect business interests and the reputation of SSE. See MS-SHE-011.

The Press Officer on gathering details from the ECT Public Relations Officer will provide all media information; however the Press Officer must pass statements to An Garda Siochana for vetting prior to release. Copies of all statements should be sent to the Emergency Command Team and Business Crisis Management Team Members.

The Employee Emergency Line shall be set up to answer calls from concerned families if required. Press statements will also be provided to this team.

3.2 Fire Detection and Audible Alarms Types

Definitions:

Plant Fire Alarm - A Bell, Klaxon or Flashing light - Automatically energised by fire or smoke sensors in plant areas.

Incident Alarm - A Wailing Tone - Manually raised by Production personnel to muster Emergency Response Teams

Evacuation Alarm - A Continuous Tone - Manually raised by Production personnel to evacuate site. On hearing the alarm, the Emergency Response team Leader shall report to the Control Room to await further instructions if necessary from the Emergency Commander.

Incident and Evacuation Alarms are tested each Tuesday at 11:00 hours.

Fire Alarms are tested each Friday at 15:00 hours.

3.3 Emergency Mandate

For Clarification a clear mandate is given by this document for the Shift Group Leader (or his desk operator if the Shift Group Leader is incapacitated) to instigate any action it is felt necessary to control the situation without prior approval from senior management having taken into account all the information available at the time. This includes:

- Appropriate shutdown of any part of the plant or total plant shutdown with immediate effect in a controlled fashion including the use of emergency trip and shutdown facilities.
- Activation by manual or automatic means of fixed fire fighting installations available to them.
- Preparation to receive and direct the emergency services to the incident.
- Scramble and direct the ERT if deemed necessary

Due to the low staffing levels under which Great Island CCGT operates, the principle site shift staff role in the event of a fire (or incident) is of control of the situation until the Emergency Services can arrive on site to deal with the incident.

Site staff will ONLY attempt to extinguish fires of a minor nature taking due regards to the risks involved of personal injury and will not expose themselves or others to undue risk.

3.4 Evacuation Muster

With the exception of the following personnel ALL other staff, contractors and visitors must evacuate site on hearing the Evacuation alarm.

Upon receipt of either a fire, incident or evacuation alarm the following personnel (if they are present) will report directly to the control room unless instructed via radio to report to the location of the incident to assist the operations team in the control of the situation:

- Duty Shift Group Leader, Duty Control Room Operator
- Station Manager, Engineering Manager, Operations Manager, Process Support Manager,
- Emergency Response Team Leader

If circumstances call for additional support then this will be communicated specifically by the Muster Co-ordinator to the evacuated staff and only those persons deemed appropriate will return to site to assist. Those members of staff being asked to return to the site to assist will receive a full briefing on the current status of the incident before doing so.

Under no circumstance should staff return to site until the all clear has been correctly communicated to them by the Muster Co-ordinator.

In the event of a site emergency all permitted works on site will cease. Permitted works will only commence on site post the emergency event when the all clear is given and through the normal setting to work procedure for permitted works as outlined in WI-GTIS-SHE-005-002.

Upon the initiation of a Site Incident or Evacuation alarm the personnel highlighted above shall exclusively utilise **Channel Three** of the site radio system for communication purposes. Any other persons later called upon to assist in the response, if in possession of a radio shall also be available on this channel.

Upon receipt of a Site Incident or Evacuation Alarm any employee who is in possession of Site SSE transportation shall endeavour to return the vehicle close to the Control Room Building or as near as is safely practicable.

Whilst site alarm tests / exercises are occurring, upon the Control Room personnel receiving notification of a genuine incident / fire / evacuation event they shall announce over the tannoy system and via

Channel Three of the radio systems a 'SAFEGUARD' announcement. Upon receipt of the 'SAFEGUARD' announcement any alarm testing / exercises will immediately cease, and personnel shall respond in accordance with standard alarm response procedures.

Upon cessation of a site alarm an audible 'ALLCLEAR' announcement will be made via the site communication systems.

In the event that the emergency evacuation alarm doesn't sound, the site wide fire alarm will be activated in the Control Room. The operator will ensure that instructions to evacuate the site are communicated over the tannoy in the event that the emergency evacuation does not sound as per the Emergency Site Evacuation Procedure FO-GTIS-SHE-011-001-032.

4. Station Incident Procedures

Intent

There are a range of events which can activate Station Emergency Procedures, whilst not every specific event will have an Emergency Response Procedure, every attempt has been made here to develop a response for significant events which could affect station or have an impact on the site.

4.1 Procedures for Fighting Fires

Fires present the following hazards to personnel in their vicinity:

- Entrapment; cut off by fire/smoke from an exit route.
- Asphyxiation/poisoning; from the inhalation of smoke.
- Burns; from radiant heat or direct contact with flames
- Physical injury; from falling debris or explosions

The primary aim of shift staff is to secure the immediate evacuation of persons from the affected area before the fire develops and at the same time to alert the emergency services. Plant should also be made as safe as possible (e.g. by bringing off load and electrical isolation as appropriate). As this is being carried out, the Emergency Commander should assess the situation, and where safe to do so, implement a fire fighting operation, ensuring that interceptors for the area are closed.

In many cases fires can be extinguished using portable fire extinguishers. Larger fires will require the application of foam and/or water. In no case should shift staff engaging in fire fighting be put at risk. The expected initial firefighting response from Operations Initial

Response is the use of extinguishers (if safe to do) however Shift Operations are trained in use of hoses should circumstances allow their use. In this respect it is vital for the Emergency Commander to maintain an overall view of the situation and to delegate individual tasks such as leading the fire team, meeting the Fire Brigade etc.

Upon arrival of the Fire Brigade, the Emergency Commander shall hand over control of fire fighting operations to the Senior Fire Officer who will be reliant on the SGLs for advice on the hazards which may be presented to his firefighters. Every assistance should be extended to the Fire Brigade in this respect (e.g., plant information, rolling out hoses, foam unit set up)

4.2 Actions Upon Discovery of a Fire

If you discover a fire:

Retreat to a safe location and RAISE THE ALARM by:

- Dialing 3333 or Radio the following details to the control room:
- Your name, location and telephone number
- Company you work for
- The location and nature of the fire
- What actions, if any, you intend to take
- Any known casualties or injuries
- Operation of the nearest break glass unit

If the fire is of a minor nature and can be extinguished, without undue risk of personal injury, by use of the correct type of portable extinguisher, then AFTER RAISING THE ALARM attempt to extinguish the fire.

4.3 Actions on Receipt of Plant Fire Alarms During Normal Working Hours

In the event of alarms being received indicating a fire then the following will be procedure for dealing with such an event:

- ALL staff, contractors and visitors MUST evacuate the local area where the alarm is sounding immediately and report to the site muster station **whilst not putting themselves in danger by doing so**.

- Alarms will be immediately investigated by the available operations team members with due regard for personal safety.

- If the alarm is genuine the **SGL** takes on the role of Emergency Commander and is responsible for deciding if assistance from the Emergency Services is required and he will then instruct the control room who will dial 999 or 112 and request assistance immediately.

- The Emergency Commander will raise the Incident Alarm as a minimum.

- Use of the fixed fire protection systems will be the primary fire fighting tool. Activation of the fixed installations is by both automatic and manual means in certain circumstances. Manual operation of fixed devices is under the direct control of the Incident Controller

- If deemed appropriate the site Evacuation Alarm will be sounded to ensure all staff clear the site.

- Emergency Commander will carry out actions in accordance with the relevant Prompt Card as described in section 4.5.

4.4 Actions on Receipt of Plant Fire Alarms Outside Normal Working Time

- At times outside of normal working hours the site shift complement will consist of between three and four persons, one of whom is constrained to remain in the main control room at all times.

- Any person working on site outside of normal hours will inform the control room of their presence upon arrival and prior to departure in addition to using an electronic Personal Access Control System 9PAC system).

- In the event of a Plant Fire alarm being received indicating a fire then the following the procedure as per normal operations shall be instigated.

- Alarms will be immediately investigated, with due regard for personal safety, by the available operations team members.

- If the emergency services are called the Emergency Commander shall endeavour to raise the Emergency Command Team.

4.5 Procedures for Dealing with Specific Incidents:

Specific instructions have been developed for the management of specific incidents at the station. Each Instruction has a prompt card appended. Below is a list of specific instructions for dealing with incidents. Hardcopies of each are maintained in the control room for ease of access in the event of emergency.

Response To A Large Fire	FO-GTIS-SHE-011-001-001
Transformer Fire	FO-GTIS-SHE-011-001-002
Steam Turbine Fire	FO-GTIS-SHE-011-001-003
Fuel Oil Tank Farm Fire	FO-GTIS-SHE-011-001-004
Fuel Oil Tank Bund Fire	FO-GTIS-SHE-011-001-005
Generator Fire	FO-GTIS-SHE-011-001-006
Filling of Distillate Tank	FO-GTIS-SHE-011-001-007
Telephone Bomb Threat	FO-GTIS-SHE-011-001-008

Unauthorised Site Access & Lockdown Procedure	FO-GTIS-SHE-011-001-009
Vandalism	FO-GTIS-SHE-011-001-010

Control Room Fire	FO-GTIS-SHE-011-001-011
Biological Threat Through The Mail	FO-GTIS-SHE-011-001-012
Effluent Release without Analysis	FO-GTIS-SHE-011-001-013
Gas Leak in GT Enclosure Leading to Explosion	FO-GTIS-SHE-011-001-014
GT Enclosure Fuel Oil Spray Leak Leading To Oil Mist Ignition & Explosion	FO-GTIS-SHE-011-001-015
Hydrogen Gas Leak	FO-GTIS-SHE-011-001-016
Injury requiring First Aid Room Treatment Only	FO-GTIS-SHE-011-001-017
Injury Requiring Emergency Services	FO-GTIS-SHE-011-001-018
Legionnaires Outbreak	FO-GTIS-SHE-011-001-019

Major Failure Of Gas Supply Pipe work in GT Hall	FO-GTIS-SHE-011-001-020
Major Failure Of Gas Supply Pipe work External To Building But Not In AGI Compound	FO-GTIS- SHE-011-001-021
Major Steam Leak	FO-GTIS-SHE-011-001-022
Oil Spill Leak General	FO-GTIS-SHE-011-001-023
Operator Error	FO-GTIS-SHE-011-001-024
Small Gas Leak in GT Enclosure under Trip Level	FO-GTIS-SHE-011-001-025
Services Failure	FO-GTIS-SHE-011-001-026

Significant Chemical Spillage	FO-GTIS-SHE-011-001-027
Radioactive Source – Loss Of Containment	FO-GTIS-SHE-011-001-028

4.6 Action in The Event of an Operational Incident

If a significant non- fire related event occurs then the following will be the procedure:

- Upon receipt of a notification of an incident the control room operator will immediately initiate the site Incident alarm (Wailing sirens).
- The **SGL** will take on Emergency Commander duties as per section 2.1 and instruct the Control Panel Operator to call for the emergency services to attend if necessary.
- The Emergency Commander will raise the Incident Alarm as a minimum.
- The ERT team Leader shall report to the Control room and await further instructions.
- The ERT team shall report to ERT room and await further instruction
- ALL other personnel will take NO ACTION on receipt of this alarm other than to be aware that an incident is taking place which could lead to the sounding of the evacuation alarm.
- Emergency Commander will carry out actions in accordance with the relevant Instruction.

4.7 Action in The Event of an Incident

If a significant non- operations related event occurs then the following will be the procedure:

- Upon receipt of a notification of an incident the control room operator will immediately initiate the site Incident alarm (Wailing sirens).
- The **SGL** will take on Emergency Commander duties as per Section 2.1 and instruct the Control Panel Operator to call for the emergency services to attend if necessary.

- The Emergency Commander will raise the Incident Alarm as a minimum.
- The **ERT** team Leader shall report to the Control room and await further instructions.
- The **ERT** team shall report to **ERT** room and await further instruction

ALL other personnel will take NO ACTION on receipt of this alarm other than to be aware that an incident is taking place which could lead to the sounding of the evacuation alarm.

Emergency Commander will carry out actions in accordance with the relevant Instruction.

ERT actions are detailed in **WI-GTIS-SHE-011-003** Great Island Emergency Response Team.

WI-GTIS-SHE-100-001 Management of Lifting and Working at Height Equipment details the specific requirements for maintaining emergency rescue at height equipment, and the inspections there of.

The Operation of Station Protection Systems including manual and automatic fire fighting systems, detection systems and monitors, and the process of operation are detailed in various Operating Instructions.

5. Governing Legislation

Classification

SEVESO Regulations

5.1 Major Accident Prevention Policy (MAPP)

Great Island CCGT is classified as a “Lower Tier Site” under the European Communities (Control of Major Accident Hazards Involving Dangerous Substances) Regulations 2015 and Amendment Regulations. Under the regulations a Major Accident Prevention Policy (MAPP) is required and this details how site activities will be safely managed.

PO-GTIS-SHE-001 MAPP has been written to comply with the above and this is a generic policy document that applies to a number of thermal generation sites.

The MAPP is periodically reviewed and requires each location to retain a list of all Major Accident Hazards (MAH`s) together with risk assessments to quantify the potential incidents that may be foreseen.

5.2 Major Accident Hazards (MAH)

Requirements

All reasonably foreseeable Major Accident Potentials have been listed and risk assessed in a chart format. A copy of the chart is available for review upon request.

5.3 Consequential Risk Assessments

The risk assessment contains the following elements:

- Identification of the Major Accident Hazard
- Potential failure modes leading to aspect occurring
- Pre-control measures risk assessment (quantified)
- Identification of the aspect normal avoidance methods
- Identification of the initiation prevention methods
- Post control measures risk assessment (quantified)
- Identified event occurrence controls to prevent escalation
- Identification of on-site and off-site environmental impacts
- Identified mitigation / emergency measures
- Specific training or competency needs
- Event aspect category identification
- Comments or improvement considerations

The responsibility for ensuring the MAH and Consequential Risk Assessment Chart is up to date and current is the Station Manager or his appointed deputy.

To assist in prompt and efficient control of incidents then aide memoirs in the form of Immediate Response Cards will be produced as required. These will be maintained in an up to date manner as per Section 5 of this manual.

Incident exercises shall be carried out on a regular basis and are managed via Maximo under the sub-headings of Great Island CCGT, Incident Response.

6. Record of Incidents and Exercises

All Incidents and Exercises shall be recorded in Maximo.

An Incident Response Exercise shall be carried out on a Bi-annual basis under the supervision of the Operations Manager. The Maximo Work Control system is set to print out a routine work order card at a pre-determined interval as a reminder to initiate the test.

Training in Emergency Response will be arranged through Process Support Manager as per WI-GTIS-SHE-008-003 Personnel Training And Performance. Records of training and competency are maintained by the Process Support Department.

7. Review and Audit

This Work Instruction shall be reviewed 3 yearly by the document owner. A review will be completed sooner if there are changes to Legislation or Company Policy, or, Site Procedures following an actual event.

Auditing of the implementation and effectiveness of this procedure will be as per WI-GTIS-SHE-014-001.

Deviations	Deviations from this Procedure shall be agreed in writing between the Station Manager and the appropriate Department Line Manager.
Recommendations	None

Definitions

The following are definitions adopted by Great Island CCGT

SGL	Shift Group Leader
GT	Gas Turbine
LEL	Lower Exposure Limit
ECT	Emergency Command Team
ERT	Emergency Response Team
CPO	Control Person Operations
ECT	Emergency Command Team
SHE	Safety, Health & Environment
PEAR	People, Environment, Asset or Reputation
MAPP	Major Accident Prevention Policy
MAH	Major Accident Hazards

Reference: Key references required to follow this instruction.

MS-SHE-011	Emergency Planning & Response Standard
PO-GTIS-SHE-001	Great Island MAPP Policy
European Directive 96/82/EC	Seveso Regulations
WI-GTIS-SHE-011-003	Great Island Emergency Response Team
WI-GTIS-SHE-100-001	Management of Lifting & Working at Height Equipment
WI-GTIS-SHE-008-003	Personnel Training & Performance
WI-GTIS-SHE-014-001	Great Island Auditing Standard
European Communities (Control of Major Accident Hazards involving Dangerous Substances) Regulations 2015 & Amendment Regulations	

Document Control

Revision Details

Date	Author	Version	Description of Change
26/02/2020	Hugh Behan	1.06	Document Control Section added to Incident Response Manual In Section 3.4 Evacuation Muster, a paragraph was inserted which read "In the event that the emergency evacuation alarm doesn't sound, the site wide fire alarm will be activated in the Control Room. The operator will ensure that instructions to evacuate the site are communicated over the tannoy in the event that the emergency evacuation does not sound."

Appendix A: Internal Contact Names and Numbers

INCIDENT RESPONSE
PRINCIPAL CONTACT NAMES AND NUMBERS

Position	Name	Numbers
STATION PERSONAL CONTACTS		
Control room	CPO	053 9154299
Emergency Command Centre	Emergency Commander	053 9154294
	Ops Liason	053 9154295
	Technical Support	053 9154290
	Public Relations	053 9154291
	SHE Support	053 9154292
ERT Room		
First Aid Room		
Shift Manager	Duty	086 4112710
Station Manager	Padraig Dunleavy	087 2274751
Operation Manager	Hugh Behan	087 2850189
Engineering Manager	Ian Coughlan	086 0269692
Process Support Manager	Pat McGovern	087 1207162
Safety/Asset Integrity Officer	Tony O'Regan	086 4181431
Process Support Technician (PFSO)	Fintan Whyte	086 0269732
Environmental Coordinator	Jonathan Storey	0864116368
BUSINESS HEADS/DIRECTORS		
Director of Wholesale	Martin Pibworth	
Director of Generation	Jim Smith	
Director of Thermal Generation	Mark Hayward	0044151 4795775 (Office)

SSE EMERGENCY NUMBERS		
Incident Reporting		1800 805 827 (IRE)
Press Office		0044870 9000410
Security Threat		00442392 624050

Appendix B: External Contacts

Organisation	Role	Name	Telephone	Mobile	Fax	Email
Port of Waterford	Reception	Belview Port, Slieverue, Waterford	051 874907		051 874908 fax	info@portofwaterford.com
	Harbour Master	Capt. Darren Doyle	051 874907	087 2224961		dd@portofwaterford.com
	Assistant Harbour Master	Ian Moriarty	051 874907?	0872781034?		im@portofwaterford.com ??
	Harbour Office	Out of Hours	051 874307	051 301400	051 874908	infor@portofwaterford.com
Port of New Ross	Harbour Master	Capt Luke Foley	051 421303	087 2581069		
Wexford Country Council	County Oil Pollution Officer	Eddie Taaffe	053-9196400	087-2495758	053-9196045 fax	eddie.taaffe@wexfordcoco.ie
	Coastal Engineer	John Lambe	053 9196534			John.lambe@wexfordcoco.ie
Irish Coastguard	Counter Pollution	Hugh Barry	086 0495138	Via Coast Guard	01 6620922 (24hr)	Dial Emergency Services 112
Environmental	Headquarters		053-9160600		053-9160699	

Protection Agency	Johnstown Castle, Wexford.					
HSA	Regional Office					
Shell Fisheries Rep. BIM Bord Iascaigh Mhara	East Coast Rep Head Office Dun Laoghaire	Mr Pat O'Regan	01-8393396	087 2640079		
Wexford Hospital			053-9153000			
Waterford Regional Hospital			051-842000			
Caredoc			1850334999			
Dr Kevin Byrne	Duncannon		051-389215			
Garda Siochana	New Ross		051-426030			
Gas Networks Ireland	24 Hour Emergency Number	Gasworks Road, Cork	1800 545 545			
Gas Networks Ireland	Networks Operations Emergency Response Manager	Mr. Aidan Bugler			021-4331863 (Fax)	ngem@gasnetworks.ie
Gas Networks Ireland	National Gas Emergency Manager	Mr. Dan Horgan	1850 411 511			

Gas Networks Ireland	Grid Control Engineer	Mr. Kevin O'Keeffe	021-4298930	087-6163109		
Gas Networks Ireland	Senior Field Operations Engineer	Mr. James O'Keeffe	021-4534102	087-1246183		

Appendix C: ECC Boards

INITIAL INCIDENT DETAILS

DATE:		WEATHER FORECAST	
TIME:		WIND SPEED & DIRECTION	
PERSONS ON SITE		TEMPERATURE	
INCIDENT DETAILS AND ACTIONS TAKEN			
MUSTER DETAILS			
NUMBER UNACCOUNTED			
KNOWN CASUALTIES AND INJURIES			
KNOWN HAZARDS			
ESCALATION RISK			
IRT ACTIVATED INCIDENT CONTROLLER		TIME: NAME:	
ECT ACTIVATED EMERGENCY COMMANDER		TIME: NAME:	
GOLD COMMAND/CMT ACTIVATED TEAM LEADER		TIME: NAME:	
EMERGENCY SERVICES CALLED		TIME:	
EMERGENCY SERVICE ON SITE VEHICLES & PERSONNEL		FIRE: POLICE: AMBULANCE:	
STRATEGY			

ACTIONS BOARD

TIME	ACTION	ALLOCATED TO	ACTIONS TAKEN	TIME COMP/TD

At the end of the incident the following is to be announced over the station tannoy: ***"Attention all personnel, please be informed that the incident (or exercise) is now over, it is now safe to return to work - all further alarms to be obeyed.***

CONTACTS AND COMMUNICATIONS BOARD

TIME	ORGANISATION	NAME	TEL No.	NOTES	NEXT CONTACT TIME AGREED	NEXT CONTACT TIME AGREED

EVENT LOG

TIME	NAME	EVENT LOG

MUSTER & CASUALTY BOARD

Number of People on Site:

Update Time	Location							Total (should equal number of people on site).
	Not at Muster	Control Room	IRT	Missing SSE	Missing Contractors	Missing Visitors	Missing Last Known Location	

Missing or Injured Persons Details					
ID	Name & Company	Status	Details of Injuries	Next of Kin Details	Other Comments
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					

Emergency Response Communication Guidelines

In the event of a significant incident at one of SSE's sites, SSE's Corporate Affairs team will take responsibility for **all** communication with the media (traditional and digital) and other stakeholders as appropriate.

This activity will be coordinated through either the Gold Command or Silver Command management structures.

A Duty Press Officer can be contacted 24 hours a day on: **0044 845 0760 530** and this is the number to use to make Corporate Affairs aware of an emergency situation. Corporate Affairs will then activate its emergency response procedures and assess what resources are required where to help support this emergency.

Local call handling
The 0044 845 0760 530 number can also be provided to the media or any external organisation looking to find out more about the incident. Where calls from the media are received by the affected site then the call handler should direct the enquiry to the Press Office as follows:

"I'm not able to give you more information about the incident we are managing at this site , but we have a dedicated team handling all communications relating to the incident and you can call them on 0044 845 0760 530. They will be able to give you most up to date position."

Issuing statements to the media
All public statements relating to an incident will be produced and issued by Corporate Affairs (Press Office) This will cover all local, regional and national media, online media and relevant external stakeholders, such as politicians, as appropriate.

Where there is a significant media presence at the site of the incident it may also be necessary to hand-out the agreed statement. The person handing out the statement should not attempt to engage with the media, but politely request that they contact the SSE Press Office for more information.

"This statement has been issued direct to your News Editors, but we thought you might appreciate a copy yourselves. If you require more information, please contact our Press Office (the details are in the statement) – I'm not able to provide any further information or answer questions."

Briefing for people working at the affected site
It is very likely that employees or contractors working at the affected site will be approached by the media in an attempt to find out additional information about the incident. They may also be asked to comment through social media channels.

It is essential that all such enquiries are directed to SSE's Corporate Affairs team –through 0044 845 0760 530 - and that no comment is made on social media about the incident.

The following notes can be included in an on-site brief to employees and contractors:

- **As you know we are working hard to resolve the incident that has occurred today.**
- **Part of that is making sure that accurate information is released to all relevant parties in a coordinated and consistent way.**
- **In some cases we need to make sure that groups like employees, the emergency services, Government, and Shareholders, hear information about the incident first, so that they are reassured or able to take action to help resolve the incident.**
- **We have a dedicated team who are managing those communications. It is important that we don't make their job any harder by talking to people like the media about the incident, or passing on information that isn't already in the public domain.**
- **We all have a responsibility to help ensure that this incident is resolved in the best way possible and to protect the reputation of SSE.**
- **As long as you do it politely, you are entitled to (and should) refuse to say anything about the incident and can ignore questions or attempts to engage you in conversation.**
- **This applies on social media channels too, and particularly applies to the sharing of pictures and videos.**
- **If you believe you may have unintentionally given information to the Media or are faced with a media issue of any kind, contact the Press Office on 0044 845 0760 530**