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Marine Emergency Spill Response Plan And SOPEP

LT000009 - Shetland HVDC Link

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Marine Emergency Spill Response Plan And SOPEP

LT000009 - Shetland HVDC Link

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Reference Tables

Abbreviations

Abbreviation	Description
ALARP	As Low As Reasonably Practicable
CEMP	Construction Environmental Management Plan
CGOC	Coastguard Operations Centre
COSHH	Control of Substances Hazardous to Health
E	East
ECoW	Environmental Clerk of Works
GMT	Greenwich Mean Time
gt	Gross tonnage
HVDC	High Voltage Direct Current
IMO	International Maritime Organization
INMARSAT	International Maritime Satellite Organization
JNCC	Joint Nature Conservation Committee
m	Metre
MARPOL	The International Convention for Prevention of Marine Pollution for Ships
MCA	Maritime and Coastguard Agency
MEPC	Marine Environmental Protection Committee
MES	Mobile Earth Station
MF	Medium Frequency
MHWS	Mean High Water Springs

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Abbreviation	Description
µm	Micrometre
ML	Marine Licence
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MMSI	Maritime Mobile Service Identity
MNNS	Marine Non-Native Species
N	North
NCP	National Contingency Plan
nm	Nanometre
NM	Nautical miles
OCNS	Offshore Chemical Notification Scheme
POLREP	Marine Pollution Report
PPE	Personal Protection Equipment
PPG	Guidance for Pollution Prevention
pSPA	Proposed Special Protection Area
RAMS	Risk Assessment Method Statement
S	South
SDS	Safety Data Sheet
SEPA	Scottish Environmental Protection Agency
SHE Transmission	Scottish Hydro Electric Transmission
SOPEP	Shipboard Marine Pollution Emergency Plans

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Abbreviation	Description
SSB	Single Sideband
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UTC	Coordinated Universal Time
VHF	Very High Frequency
W	West

Project Specific Documentation

This spill response plan forms part of the overall Project documentation and should be read in conjunction with the referenced documents in the table below.

Reference	Document No/ref	Document Title
[1]	2020/11/WL	Shetland Island Council (SIC) Marine Works Licence
[2]	07203/20/0	Marine Scotland Licence: Cable installation between Weisdale Voe, Shetland and Noss Head, Caithness within 12 nautical miles (NM)
[3]	07357/20/0	Marine Scotland Licence: Cable protection between Weisdale Voe, Shetland and Noss Head, Caithness outwith 12 NM
[4]	A-200409-S00-REPT-003	Shetland HVDC Link Environmental Appraisal (Xodus, 2019)
[5]	1AA0395444	Marine Construction Environmental Management Plan (CEMP)
[6]	1AA0400439	Marine Non-Native Species (MNNS) Plan
[7]	1AA0392078	Construction Method Statement (CMS)
[8]	1AA0428959	Vessel Management Plan (VMP)
[9]	1AA0379383	Shetland HVDC Land Cable CEMP

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1 Introduction

This Marine Emergency Spill Response Plan (MESRP) relating to the marine cable installation works to be carried out as part of the Shetland High Voltage Direct Current (HVDC) Link is submitted to Marine Scotland and the Shetland Islands Council (SIC) to discharge:

- Condition 8 of the Shetland Islands Council Marine Works Licence 2020/011/WL (Ref. [1]);
- Condition 19 (a) of Marine Scotland Licence Number 07203 (Ref. [2]): Cable installation between Weisdale Voe, Shetland and Noss Head, Caithness within 12 nautical miles (NM) (referred to hereafter as ML 07203);
- Condition 18 (a) of Marine Scotland Licence Number 07357 (Ref. [3]): Cable protection between Weisdale Voe, Shetland and Noss Head, Caithness outwith 12 NM (referred to hereafter as ML 07357).

The document is designed to cover all works below Mean High Water Springs (MHWS), as per Section 15 and Table 6.2 of the Marine Environmental Appraisal (MEA) (Ref. [4]).

Table 1.1 below sets out the details of these conditions and how they are addressed, with more detail on the structure of the document provided in Table 1.2.

Table 1.1: Relevant licence conditions

Relevant Licence Condition	Condition Met
Shetland Islands Council Marine Works Licence 2020/011/WL (8.) Prior to works commencing a • Construction Environment Management Plan (CEMP), • Emergency Spill Response Plan, Control measures and shipboard oil pollution emergency plan (SOPEP), and • Marine Non-Native Species (MNNS) plan will be submitted to the Planning Authority and agreed in writing. The Planning Authority will consult Scottish Natural Heritage for advice before any submission is approved. Reason: To protect bird species from pollution and the integrity of the Seas off Foula Proposed Special Protection Area (pSPA). To also protect other wildlife and the environment that may be impacted.	• Emergency Spill Response Plan & SOPEP (this document); • Marine Construction Environmental Management Plan (CEMP) (Ref. [5]); • Marine Non-Native Species Plan (Ref. [6]).
Marine Licence 07203/20/0 19. The licensee must submit a Construction Environmental Management Plan (“CEMP”) to the licensing authority for its written approval at least two months prior to commencement of the works, or less if agreed by the licensing authority. The CEMP must be consistent with the marine licence application and supporting documents and must contain, but not be limited to, the following: a) Mitigation and management measures outlined in Section 15 and Table 6.2, within the Shetland HVDC Link Marine Environmental Appraisal (Document Number: A-200409-S00-REPT-003), Version A02, submitted to the licensing authority on 12 December 2019. b) During the breeding season (April to August) works in nearshore areas must be minimised when in proximity to bird breeding colonies.	• Emergency Spill Response Plan & SOPEP (this document); • Marine CEMP (Ref. [5]); • Marine Non-Native Species Plan (Ref. [6]); • Construction Method Statement (CMS) (Ref. [7]); • Vessel Management Plan (Ref. [8]).

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c) Consideration of the timing, duration, vessel transits and speeds and any lighting during the proposed installation. d) Best practices must be followed to minimise cable drag across adjacent areas where horse mussel beds are present. All works must proceed in accordance with the approved CEMP. Any updates or amendments made to the CEMP must be submitted, in writing, to the licensing authority for its written approval no later than two months or at such a time as agreed with the licensing authority, prior to the planned implementation of the proposed amendments. It is not permissible for any works to commence prior to approval of the CEMP.	
Marine Licence 07357/20/0 18. The licensee must submit a Construction Environmental Management Plan ("CEMP") to the licensing authority for its written approval at least two months prior to commencement of the works, or less if agreed by the licensing authority. The CEMP must be consistent with the marine licence application and supporting documents and must contain, but not be limited to, the following: a) Mitigation and management measures outlined in Section 15 and Table 6.2, within the Shetland HVDC Link Marine Environmental Appraisal (Document Number: A-200409-S00-REPT-003), Version A02, submitted to the licensing authority on 12 December 2019. b) Consideration of the timing, duration, vessel transits and speeds and any lighting during the proposed installation. All works must proceed in accordance with the approved CEMP. Any updates or amendments made to the CEMP must be submitted, in writing, to the licensing authority for its written approval no later than two months or at such a time as agreed with the licensing authority, prior to the planned implementation of the proposed amendments. It is not permissible for any works to commence prior to approval of the CEMP.	• Emergency Spill Response Plan & SOPEP (this document); • Marine CEMP (Ref. [5]); • Marine Non-Native Species Plan (Ref. [6]); • Construction Method Statement (CMS) (Ref. [7]); • Vessel Management Plan (VMP) (Ref. [8]).

Table 1.1.2: Structure of the document highlighting where specific requirements of the licences are met

Section of this Document		Contains information on:	Addresses Requirement
Section 1	Introduction	Purpose of this plan Background information on the Project	2020/011/WL Cl. 8 (Emergency

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Section of this Document		Contains information on:	Addresses Requirement
Section 2	Spill Classification	Approach to classifying marine oil and chemical spill incidents and tier of response required	Spill Response Plan and shipboard oil pollution emergency plan (SOPEP))
Section 3	Emergency Spill Response Procedures	Procedure to be followed in event of a marine spill, identified spill at the Flotta pipeline crossing, or spill during landfall works	
Section 4	Spill response Strategies	Response strategies for levels of spill encountered during vessel based or landfall works	
Section 5	Oil and Chemical Spill Risk Assessments	Process for assessing spill risk for each activity.	
Appendices	A: Marine Pollution Incident Report CG77 POLREP B: SOPEP	Form for completion in event of a marine spill SOPEP for Cable Lay Vessel NKT Victoria	2020/011/WL Cl. 8 (shipboard oil pollution emergency plan (SOPEP))

1.1 The Project

Shetland is not presently connected to the UK mainland electricity Transmission grid and as such is solely reliant on island-based generation, this generation is in the majority derived from fossil fuels with the support of onshore wind.

There is currently approximately 600 MW of consented renewable energy generation on the Shetland Isles, which will require connection to the UK mainland transmission network once these projects are constructed. Scottish Hydro Electric Transmission Plc (SHE Transmission) is the licenced Transmission Owner in the north of Scotland, and as such, has a requirement to provide connection to the UK's network when requested by a generator.

In order to meet the dual requirement of the provision of reliable transmission level supply and export surplus renewable generation, SHE Transmission are planning to install a single circuit 253 km long, 600 MW High Voltage Direct Current (HVDC) link between Weisdale Voe in Shetland and Noss Head in Caithness ('Shetland HVDC Link' or 'the Project'). The marine cable infrastructure will consist of a single bundle comprising two conductor cables and one fibre optic communications cable, to allow control of the substation and HVDC converter station. Marine cable solution provider, NKT, will be responsible for the manufacture and installation of the subsea cable.

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1.2 Spill Prevention and Preparedness

Environmental Management measures are outlined in Section 4 of the Marine CEMP (Ref. [5]). Spills are unlikely to occur because spill prevention measures will be implemented as follows:

- Specialist accredited oil response contractors with resources based locally to the works (i.e. in Shetland and/or Caithness) will be engaged for the relevant durations of the work.
- Spill kits shall be readily available for mopping up any minor spills. Personnel shall be trained in spill prevention awareness and in the use of spill kits.
- As per the International Convention for Prevention of Marine Pollution for Ships (MARPOL) 73/78 requirement under Annex I, all ships of 400 gross tonnage (gt) and above will carry an oil prevention plan as per the norms and guidelines laid down by International Maritime Organization (IMO) under Marine Environmental Protection Committee (MEPC) Act, i.e. a Shipboard Oil Pollution Emergency Plan (SOPEP).
- All vessels not required to carry a SOPEP will have a suitable spill response plan which will cover the requirements of the MESRP.
- All equipment shall be operated and maintained in good order and in accordance with legal requirements, with regular inspection and maintenance of equipment. All plant and equipment shall only be operated by adequately trained and competent personnel.
- Hydraulic oil / fuel oil pipes and fittings will be inspected regularly to ensure that any leaks are detected at an early stage and rectified.
- Suitable bunding and storage facilities will be employed to prevent the release of fuel oils, lubricating fluids associated with the plant and equipment and other chemicals into the environment. All portable/temporary storage tanks and/or areas shall be bunded to at least 110% of the total storage inventory volume. Bunds will be regularly inspected and cleaned as required.
- Task-specific risk assessments and method statements will be prepared in advance of works and reviewed as required.
- All oil / chemicals (that could be spilled) are approved for use on site and the Safety Data Sheets available so that their hazardous properties and characteristics (e.g. density, miscibility) are known prior to their use and knowledge on methods for their containment / clean-up.
- Operational chemicals used offshore will be compatible with the principles of the Offshore Chemical Notification Scheme (OCNS) used in the oil and gas industry under the Offshore Chemicals (Amendment) Regulations 2010[1].

In the event that a spill does occur, emergency response procedures are outlined in Section 3.

[1] Operational chemicals are defined as those “which through their mode of use, are expected in some proportion to be discharged”. https://www.cefas.co.uk/cefas-data-hub/offshore-chemical-notification-scheme/about-ocns/.

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2 Spill Classification

2.1 Spills during Marine Works

The response strategy that will be adopted in the event of a spill will ultimately depend upon its classification using several factors:

- The size and characteristics of the spilled oil/chemical;
- Probable and predicted behaviour of the oil/chemical in the sea;
- Consideration of the environmental sensitivities in the path of the oil/chemical; and
- Consideration of the consequences of the different response options on the environment as a whole if they were to be adopted.

Oil (hydrocarbon) spills will be classified in accordance with the internationally recognised and accepted three tier oil spill classification system (Table 2.1).

Table 2.1: Spill Classification

Tier	Indicators
Tier 1 (small operational spill) A spill that can be dealt with immediately utilising local resources without assistance from other areas (typically less than 1 tonne of oil).	Oil is contained within the incident site Spill occurs within immediate site proximity Able to respond to the spill immediately Source of spill has been contained Oil is evaporating quickly and no danger of explosive vapours (e.g. diesel) Spill likely to naturally disperse
Tier 2 (medium sized spill) A spill that requires regional assistance from other areas. May involve assistance by local government (typically between 1 and 25 tonnes of oil).	Danger of fire or explosion Possible continuous release Concentrated oil accumulating in close proximity to the site / vessel, etc. Spill occurs within the vicinity of the operational site Not able to respond to the spill immediately Potential to impact other installations Tier 1 resources overwhelmed, requiring additional Tier 2 regional resources Potential impact to sensitive areas and/or local communities
Tier 3 (large spills) Beyond the capability of local and regional resources. A spill that requires national assistance (typically more than 25 tonnes of oil).	Actual or potentially serious threat to life, property, industry Major spill beyond site vicinity Significant shoreline impact possible Tier 2 resources overwhelmed, requiring international Tier 3 resources (appointment of Tier 2/3 Contractor) Oil migrating towards neighbouring countries Significant impact on local communities

The Primary Responder (the person(s)) who will assume primacy in the event of a marine pollution incident and manage initial response (typically the Vessel Master where spills originate from a vessel) will compile all available information and make a determination on response strategy and tier classification. If necessary, advice will be sought from relevant local Coastguard Operations Centre (CGOC) and a specialist accredited Oil Spill Response Contractor.

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Chemical spills will be classified according to the characteristics of the chemical and the behaviour exhibited by the chemical when released into the marine environment (i.e. whether the chemical evaporates, floats on the surface of the water, dissolves in the water, or sinks to the seabed). However, volumes of chemicals used in the Development are not anticipated to exceed a Tier 1 small spill (on the oil spill tier classification system provided in Table 2.1) if an incident were to occur due to the small quantities of chemicals required for this work.

Estimating Oil Spill Volume

Where possible, the volume of oil spilled should be calculated from quantitative methods other than evaluation of oil on the sea, e.g.

- Produced oil rate and duration of spill;
- Volume of oil in pipework;
- Volume of diesel in hose;
- Lost or unaccounted for volume of diesel/condensate/oils.

If this is not possible, calculation of spill volume must be made from the appearance of oil films on the water (Table 2.2; Figure 2.1).

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Table 2.2: Description of the Oil Appearance Codes

Code	Appearance
Code 1 – Sheen (< 0.3 µm thickness)	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. All oils in these thin layers can be observed due to this effect and not the oil colour itself. Oil films below approximately 0.04 µm thickness are invisible. In poor viewing conditions, even thicker films may not be observed. Above a certain height or angle of view the observed film may disappear.
Code 2 – Rainbow (0.3 µm – 5.0 µm thickness)	Rainbow oil appearance represents a range of colours, yellow, pink, purple, green, blue, red, copper, orange; this is caused by an optical effect and is independent of oil type. Depending on angle of view and layer thickness, the distinctive colours will be diffuse or very bright. Oil films with thicknesses near the wavelength of different coloured light, 0.2 µm – 1.5 µm (blue: 400 nm or 0.4 µm, through to red: 700 nm or 0.7 µm) exhibit the most distinct rainbow effect. This effect will occur up to a layer thickness of 5.0 µm. Bad light conditions may cause the colours to appear duller. A level layer of oil in the rainbow region will show different colours through the slick because of the change in angle of view. Therefore, if rainbow is present, a range of colours will be visible.
Code 3 – Metallic (5.0 µm – 50 µm thickness)	The appearance of the oil in this region cannot be described as a general colour and is oil type dependent. Although a range of colours can be observed, blue, purple, red and green, the apparent colour is not caused by interference of light or by the true colour of the oil. The colours will not be similar to 'rainbow'. Where a range of colours can be observed within a rainbow area, metallic will appear as a quite homogeneous colour that can be blue, brown, purple or another colour. The 'metallic' appearance is the common factor and has been identified as a mirror effect, dependent on light and sky conditions. For example, blue can be observed in blue-sky conditions.
Code 4 – Discontinuous True Colours (50 µm – 200 µm)	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, due to thinner areas within the slick, is described as discontinuous. This is caused by the spreading behaviour under the effects of wind and current. Discontinuous' should not be mistaken for 'coverage'. Discontinuous implies true colour variations and not non-polluted areas.
Code 5 – True Colours (>200 µm)	The true colour of the specific oil is the dominant effect in this category. A more homogenous colour can be observed with no discontinuity as described in Code 4. This category is strongly oil type dependent and colours may be more diffuse in overcast conditions.

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		Description Appearance	Layer Thickness Range	Litres per km^2
CODE 1		Sheen (silvery / grey)	0.04 to 0.30 µm	40 – 300 Lkm^{-2}
CODE 2		Rainbow	0.30 to 5.0 µm	300 – 5,000 Lkm^{-2}
CODE 3		Metallic	5.0 to 50 µm	5,000 – 50,000 Lkm^{-2}
CODE 4		Discontinuous True Oil Colour	50 to 200 µm	50,000 – 200,000 Lkm^{-2}
CODE 5		Continuous True Oil Colour	200 to more than 200 µm	200,000 – more than 200,000 Lkm^{-2}

Figure 2.1 Thickness bands for allocation appearance in accordance with the Bonn Agreement Oil Appearance Code (Lewis, 2007)[2]

The oil appearances will tend to follow a pattern. The thinner oils (sheen, rainbow and metallic) will normally be observed at the edges of the thicker oils (discontinuous true colour and true colour). It would be unusual to observe thick oil without the associated thinner oils; however, this can occur if the oil has aged and/or weathered.

Using the BAOAC to estimate oil volume gives a maximum and minimum quantity (Figure 2.1). The appearances described cannot be related to one thickness; they are optic effects (codes 1 – 3) or true colours (codes 4 – 5) that appear over a range of layer thickness. There is no sharp delineation between the different codes; one effect becomes more diffuse as the other strengthens. A certain degree of subjective interpretation is therefore necessary when using the code.

An estimate of the area of the spill should be made. In flat and calm conditions, oil will spread across a greater area than if rough. In rough conditions, oil will be dispersed through the water column and not spread as much to cover the surface. Thus, in poor weather conditions, more oil is likely to have been spilled than in an equivalent area subject to flat, calm conditions.

[2] Lewis, A. (2007) Current status of the Bonn Agreement Oil Appearance Code, Report to the Netherlands North Sea Agency, (January 2007).

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Aerial surveillance and photography can be used effectively to estimate the dimensions of a slick. If aerial surveillance is deemed necessary, the Primary Responder should ensure that the CGOC and other relevant persons (who will already be aware of the incident) are notified of this decision.

The tonnage of a spill can be calculated from such observations (in accordance with the Bonn Agreement) as follows:

- Total area: Estimate total size of the oil slick as a square or rectangle (in km²).
- Oil Spill Area: Assess the area affected by the slick in km^2 calculated as a percentage of the total area.
- Estimate slick area by colour: Estimate the area covered by each oil appearance colour as a % of the area affected in km².
- Calculate minimum and maximum oil quantity by colour: Multiply the area covered by each oil appearance colour by the minimum and maximum possible volumes to get the minimum and maximum estimates of oil quantity.
- Total quantity: Add all the quantity by colour figures to get total estimated minimum and maximum quantities of oil in m^3.
- Conversion: If necessary, covert m^3 to tonnes by multiplying total quantity in m³ by the Specific Gravity of the spilt oil.

2.2 Spills during Landfall works

Potential spill scenarios are dictated by the hydrocarbon and chemical inventories on the construction plant that will be used for the landfall works. In practice, however, due to precautions such as training, operating procedures and engineered solutions, the majority of the spills that may occur are likely to be small. Spill prevention measures for spills originating above Mean Low Water Springs (MLWS) are covered by the Shetland HVDC Land Cable CEMP (Ref. [9]).

The general oil spill response, dividing levels into tiers, outlined in Section 2.1 is also relevant to spill response at the landfall however it is considered that small operational type spills (e.g. Tier 1 category) are the only type of spill likely to occur at the landfall as a result of the nature of the works and the plant being used.

The main source of hydrocarbons associated with the landfall works will be Diesel Fuel Oil, used to fuel the construction plant operating above MLWS with quantities limited to the capacity of the fuel tank on each piece of plant used in the intertidal zone.

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3 Emergency Spill Response Procedures

This section sets out the procedures to be adhered to in the event of a marine pollution incident.

A directory detailing each organisations' relevant personnel and their contact details for each activity is to be completed in the activity specific bridging documents or in the Method Statements, prior to commencement of each activity.

All measures will be taken to prevent spills entering marine environment. Pollution response will be coordinated by the Primary Responder, typically the Vessel Master where the source of the spill or leak is from a vessel, or the Site Manager for Landfall Works.

Any spill (actual or probable) into the marine environment, regardless of source or cause, is to be responded to following the procedures set out below.

3.1 Response Procedures

Priority in the event of a spill is to take measures to ensure the safety of personnel and contain and minimise the release (as far as is practicable and safe to do so) to prevent escalation of the incident.

This includes:

- Identification of safety risks, attending to any injured personnel and making the area safe; and
- Identification of spilled/leaked substance and selection of appropriate Personal Protection Equipment (PPE) and spill clean-up materials.

Upon discovery of a spill or where a leak is suspected, the source must be identified, all work with the potential to contribute to the incident will be stopped, and any spill or leak must be eliminated.

All other immediate risks must be identified, these may include fire, explosion, or harmful fumes and substances. Appropriate PPE should be used when attending a spill or leak.

In all incidences where a spill is observed:

- All personnel in the vicinity should be warned of the potential hazard;
- Any reasonable action will be taken to contain or reduce the leak or spill;
- Spill will be reported as soon as possible to the Vessel Master or Site Manager as appropriate, who will assume primacy.

Situation-specific detail is provided in the following sections.

3.1.1 Spills from a Project Vessel

The process set out below should be followed in the event of a spill occurring on a vessel or during a vessel-related activity during installation works:

- If a spill is observed, all personnel in the vicinity of the hazard will be alerted and it will be reported as soon as possible to the Vessel Master.
- Every crew member has a responsibility to prevent pollution. Whenever safety considerations permit, oil or noxious liquids (chemicals) spilt on deck should be prevented from flowing overboard, e.g. stop source of spill, and block pathways to marine environment such as blocking scuppers or deck drains.

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- The Vessel Master will report the incident to NKT onboard representative in order that it can be communicated to the relevant personnel in SHE Transmission.
- The Vessel Master will engage the vessel SOPEP, or other suitable spill response plan, and assume primacy for the incident, ensuring ongoing reporting on spill status as necessary and initiating response or clean-up operations as required.
- A log keeper will be assigned to monitor response operations and keep a chronological log of events and conversations.
- The Vessel Master will confirm the source and estimate quantity of oil / chemical spilled, classify spill size, determine whether the spill has/may enter the marine environment (see 3.2.2), and likely slick movement.
- NKT and SHE Transmission will provide a supporting role and assist with communication throughout an incident, supporting the response where required.
- The Vessel Master will ensure that any waste arising from a spill is managed and disposed of appropriately.

3.1.2 Spills into the Marine Environment Originating from a Project Vessel

In addition to the steps set out in 3.1.1, the following steps should be followed in the event of a marine pollution (hydrocarbon or chemical) incident where a spill originates from a vessel or from vessel related activity during installation works, and has or is likely to enter the marine environment (process shown visually in Figure 3.1):

- The Vessel Master will report the spill as soon as it is safe to do so via phone, to the relevant CGOC and then to the NKT onboard representative in order that it can be communicated to the relevant personnel in SHE Transmission (SHE Transmission on board representative or Marine Consenting Manager). See section 3.3 for the content of the initial report that should be considered where possible. Initial communication of the incident to SHE Transmission must be made within 30 minutes of the incident occurring.
- Verbal notification should be followed up when practicable with the submission by the Vessel Master of a Marine Pollution Report (POLREP – see section 3.3 below) via email to the CGOC and to the NKT and SHE Transmission onboard representative. The Vessel Master will ensure the POLREP has been received by a follow up email and call.
- The Vessel Master and relevant Contractor, as the Primary Responder, will request support from a specialist accredited Oil Spill Response Contractor as required.
- NKT and SHE Transmission will provide a supporting role and assist with communication throughout an incident, supporting the shore-based response where required.
- In the event that a regional or national (Tier 2 or 3 incident) response is required the National Contingency Plan (NCP) will be implemented (as detailed in Section 4.3).

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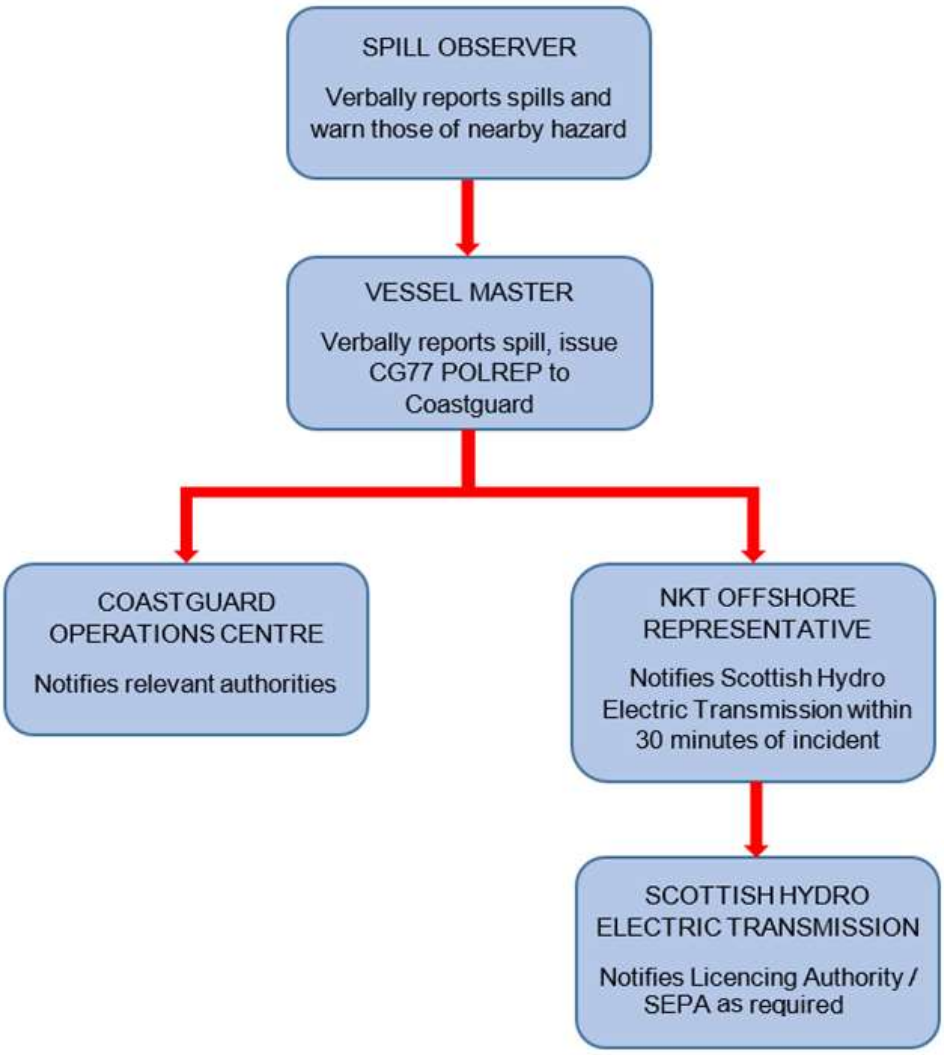

Figure 3.1: Spill Reporting Flow Chart

3.1.3 Spills from non-project sources

Though encountering spills from other sources is not considered likely for the majority of the route, the cable route crosses the Flotta oil pipeline KP181.97, and as such a communication procedure is in place in the event of any evidence of oil or chemical spill being present at this location.

If oil is seen to be present in the marine environment in the vicinity of the Flotta pipeline (as vessels move into or work in this area), the following procedure will be followed:

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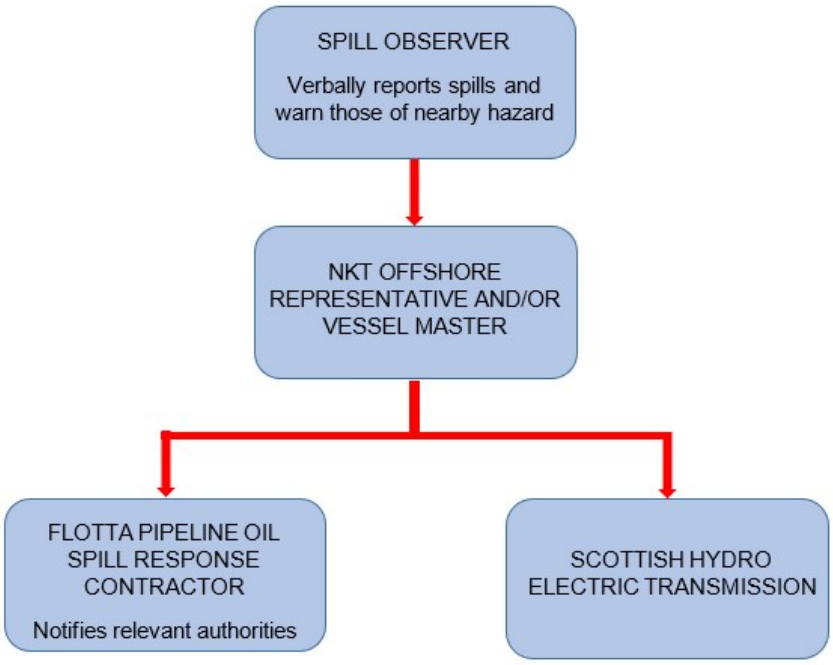

Figure 3.2: Reporting Flow Chart for Flotta Pipeline Spill Scenario

3.1.4 Spills during landfall works (non-marine)

All spills from construction plant engaged in landfall works above MLWS are anticipated to be Tier 1 spills and as such would be usually contained and cleaned up on site by the construction personnel. At Noss Head, the cable will be landed using HDD under the intertidal area, therefore potential for spills in the intertidal area are anticipated to be only applicable to Weisdale Voe landfall in Shetland.

In the event of spill or leak during landfall works, the response procedure and reporting requirements outlined in the Emergency Response section of the Shetland HVDC Land Cable CEMP (Ref. [9])) will be implemented.

Containment of the spill will be undertaken according to the following hierarchy in order from the preferred response to the least preferable response:

1. Contain at source;
2. Contain close to source;
3. Contain on the surface; and
4. Contain on or in the watercourse/marine environment.

Once the spill has been contained, measures will be taken to prevent further risk to the environment and people by cleaning up the spill.

All contaminated materials such as sorbents, sand or soil will be disposed of in line with the waste management Duty of Care guidelines outlined by SEPA. Residue clean up and

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neutralising will also be undertaken if relevant in line with guidance for dealing with spills, Pollution Prevention Guidance (GPP) 22[3].

The process set out below should be followed in the event of a pollution (hydrocarbon or chemical) incident where a spill originates from the landfall works above Mean Low Water Springs (MLWS):

- When a spill is observed, it will be reported to the Site Manager.
- The Site Manager initiates spill response and then notifies the relevant personnel in SHE Transmission (Environmental Manager, ECoW and, where this may impact the marine Environment, the Marine Consenting Manager). See section 3.3 for the content of the initial report that should be considered where possible. Initial communication of the incident to SHE Transmission must be made within 30 minutes of the incident occurring.
- The Site Manager will assume primacy for the incident, ensuring ongoing reporting on spill status as necessary and initiating response or clean-up operations as required.
- Spill kits/spill response materials will be available at all sites, including in close proximity to the landfall site (e.g. at the construction compound and at designated locations across the cable route) where oils, fuels or potential polluting chemicals are located, stored or used near sensitive receptors. The location of the spill kits will be marked on the plans provided in the site-specific Risk Assessment Method Statement (RAMS).
- In the event that a regional or national (Tier 2 or 3 incident) response is required the National Contingency Plan (NCP) will be implemented. The Site Manager or Environmental Clerk of Works (ECoW) will alert the relevant authorities (including SEPA).
- The Site Manager or ECoW will implement clean up and remediation following a pollution event, to be undertaken by trained personnel. The Site Manager or ECoW will determine whether specialist contractors will be required. Clean up will commence once a spill or leak has been stopped and contained at the source.

3.1.5 Stand-down and post incident reporting

The Primary Responder will assess when to demobilise any response and commence “stand-down” procedures. An incident log will also be compiled and circulated to assist in report production.

Once the incident is resolved, an internal incident report will be prepared, and any follow-up reporting undertaken, including lessons learned process and review and update procedures where necessary.

Once the spill response is complete a review of the incident will be held attended by the Vessel Master/Site Manager and relevant NKT and SHE Transmission personnel to draw any lessons learned and where necessary review the adequacy of the response procedure or working practices.

[3] GPP 22 (2018) Dealing with spills https://www.netregs.org.uk/environmental-topics/guidance-for-pollution-prevention-gpp-documents/guidance-for-pollution-prevention-gpps-full-list/

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3.2 Reporting Requirements

Following the initial report, the relevant emergency contacts and SHE Transmission will be kept informed throughout the incident as required, and notified of any change, including the end of the incident and stand-down. A log will be maintained to enable post incident reporting.

All incidents will be subject to NKT and SHE Transmission internal reporting to facilitate lessons learnt process and update of project procedures as appropriate.

3.2.1 Initial Reporting for Spills Contained on Vessel

Spills contained on the vessel (which do not impact the marine environment) will be classed as HSE incidents reported accordingly through the Project reporting procedures.

3.2.2 Report for spills into the Marine Environment

All marine incidents arising from the Project must be reported directly to the CGOC via the Pollution Incident Report Form ('POLREP') (Appendix A) followed up by email/phone call/radio to ensure it was received. In addition, the Primary Responder (Vessel Master on a vessel, Construction Site Manager at Landfalls) is required to maintain an incident log throughout the event from first report to stand down, which will be required during post incident analysis.

The initial report format will be consistent with the General Principles for Ship Reporting Systems and Ship Reporting Requirements, including Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, adopted as Resolution A.851(20) as amended by MEPC 138 (53) by the IMO[4], and should be followed so far as possible. The report should contain the following information:

- Name of the ship, call sign or ship station identity (Maritime Mobile Service Identity (MMSI), International Maritime Satellite Organization (INMARSAT), Mobile Earth Station (MES)) and flag.
- Date and time (Coordinated Universal Time (UTC), formerly known as Greenwich Mean Time (GMT)) of incident: a 6-digit group giving day of month (first two digits), hours and minutes (last four digits).
- Ships position as either:
  - Ship's position, giving latitude: a 4-digit group in degrees and minutes suffixed with N (North) or S (South); and longitude: a 5-digit group in degrees and minutes suffixed with E (East) or W (West);
  - Ship's position by true bearing (first 3 digits) and distance (stated) from a clearly identified landmark.
- True course (as a 3-digit group).
- Speed (in knots and tenths of a knot as a 3-digit group).
- Route information - details of intended track.
- Full details of radio stations and frequencies being guarded. (Very High Frequency (VHF), Medium Frequency (MF), Single Sideband (SSB), INMARSAT, MES)
- Time of next report (a 6-digit group as in B).
- Draught (a 4-digit group giving draught in metres and centimetres).
- Types and quantities of cargo and bunkers on board.

[4] Guidelines for Reporting Incidents Involving Dangerous Goods, Harmful Substances and/or Marine Pollutants, adopted as Resolution A.851(20) as amended by MEPC 138 (53) by the International Maritime Organization (IMO). http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Assembly/Documents/A.851(20).pdf

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- Brief details of defects, damage, deficiencies or other limitations. These must include the condition of the ship and the ability to transfer cargo, ballast, or fuel.
- Brief details of actual pollution. This should include the type of oil, an estimate of the quantity discharged, whether the discharge is continuing, the cause of the discharge and, if possible, an estimate of the movement of the slick.
- Weather and sea condition, including wind force and direction and relevant tidal or current details.
- Name, address, telex, facsimile and telephone numbers of the ship's owner or representative (manager or operator of the ship, or their agents).
- Details of length, breadth, tonnage and type of ship.
- Total number of persons onboard.
- Miscellaneous - to include relevant details including, as appropriate:
  - Brief details of incident.
  - Names of other ships involved.
  - Action taken with regard to the discharge and movement of the ship.
  - Assistance or salvage resources which have been requested or provided.
  - Personnel injuries sustained.
  - Whether medical assistance is required.
  - Mobile telephone numbers of Onshore Project Manager.

3.2.3 Reporting for Spills during Landfall Works

In the event of an environmental incident during landfall works, reporting requirements outlined in the Emergency Response section of the Shetland HVDC Land Cable CEMP (Ref. [9]) will be implemented. In principle, emergency contacts will include:

- SEPA;
- Shetland Islands Council;
- Local Fire Service;
- Scottish Water; and
- Any specialist contractors.

Emergency contact details will be listed within the Construction Contractor's RAMS. Where pollution may enter the marine environment, it will be reported directly to the CGOC via the Pollution Incident Report Form ('POLREP') (Appendix A) followed up by email/phone call/radio to ensure it was received.

During any pollution incident, the following will be provided when notifying emergency contacts:

- Name and contact details;
- Location of the source of the pollution incident;
- Substances involved (Including details on volumes);
- Any other immediate hazards;
- Status and safety of personal, equipment and assets;
- Any relevant information from water quality monitoring activities (including locations of elevated concentrations);
- Any receptors impacted; and
- The potential for linkage of pollutants to receptors.

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4 Spill Response Strategies

4.1 Overview

The appropriate oil spill response strategy will depend not only on the potential limitations of each of the possible response options, but also on the type of oil spilled and the environmental sensitivities that are potentially threatened by the spill.

Table 4.1 presents the response strategies that are generally followed on the United Kingdom Continental Shelf (UKCS), according to spill Tier and oil type.

Table 4.1: General Response Strategies According to Spill Tier and Oil Type

Tier & Resources	Response strategies	
	Non-persistent Oil (Marine Gas Oil and Diesel)	Persistent Oil (Hydraulic and Lube Oils)
Tier 1 (small spill) On site resources	Natural dispersion and monitoring (using support vessel). If safe to do so, agitate using standby vessel propeller ('prop-wash'), by steaming through the slick at speed.	• Natural dispersion and monitoring. • Mechanical recovery where possible.
Tier 2 (medium spill) Spill Response Contractor and additional support where necessary	Natural dispersion and monitoring. Dispersant application only if life is threatened or with the express permission of the Licensing Authority[5] if safety or environmental sensitivities are threatened.	• Consult specialist services from an accredited Oil Spill Response Contractor. • Continue to monitor and evaluate strategy using aerial surveillance. • Boat-based dispersant application likely to be the primary response strategy. • Consider mechanical recovery where possible. • Mobilise shoreline containment and recovery equipment if shoreline is threatened – accredited Oil Spill Response Contractor to engage additional support if necessary.
Tier 3 (large spill)	Natural dispersion and monitoring (aerial surveillance).	• Contract specialist services through the appointment of a Tier 2/3

[5] Under the provision of Part 4 of the Marine (Scotland) Act 2010, as read with regulation 15 of the Marine Licensing (Exempted Activities) (Scottish Inshore Region) Order 2011 (SSI 2011 No 204), and regulation 13 of The Marine Licensing (Exempted Activities) (Scottish Offshore Region) Order 2011 (SSI 2011 No. 57), formal approval for dispersant use from Marine Scotland will be required in water depths of less than 20 m or within 1 NM of such depths. Outwith this, there is no statutory obligation, however it is advised that the Licensing Authority should be consulted in advance of any proposed use of treatment substances, except under force majeure conditions.

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Tier & Resources	Response strategies	
	Non-persistent Oil (Marine Gas Oil and Diesel)	Persistent Oil (Hydraulic and Lube Oils)
Appointment of a Tier 2/3 Spill Response Contractor	Dispersant application only if life is threatened or with the express permission of the Licensing Authority[5] if safety or environmental sensitivities are threatened.	accredited Oil Spill Response Contractor. • Continue to monitor and evaluate strategy using aerial surveillance. • Aerial dispersant application likely to be the primary response strategy – through appointment of a Tier 2/3 accredited Oil Spill Response Contractor. • Consider mechanical recovery where possible. • Mobilise shoreline containment and recovery equipment if shoreline is threatened.

4.2 Response Strategies for Tier 1 Incidents

The measures set out below are considered to be suitable in most situations where a Tier 1 spill has entered the marine environment. In particularly constrained areas, or where sensitive receptors are in very close proximity (e.g. in Weisdale Voe) particular attention will be paid to the potential for any spill to interact with other infrastructure or sensitive receptors and the relevant authorities/owners notified of such potential at the earliest opportunity. In all cases, all reasonable precautions and efforts will be taken to prevent hydrocarbons and other chemicals entering the marine environment, as set out in Section 3 of this document. No impacts are expected at Noss Head due to the use of HDD under the intertidal area.

Monitor & Evaluate

For all oil spills, any oil slick should be monitored from the outset in consultation with the relevant authority as required (See Section 3.3.2). In the case of a spill originating in the marine environment, this will typically involve monitoring by use of a vessel, either already on site, or mobilised for the specific purpose.

The physical appearance of any oil slick should be monitored closely, in addition to changes in the oil or changes to sea state conditions, which may influence the perceived environmental impact. Dispersant application is not normally necessary for Tier 1 spills.

Natural Dispersion

If oil has been spilled, the best strategy will be to allow physical processes to disperse the oil naturally. However, this strategy should always be backed up by thorough monitoring and evaluation. In sensitive areas, such as within Weisdale Voe, advice should, where possible, be sought in advance of the use of any response strategy.

If natural dispersion is selected as the key response strategy, it must be demonstrated through close monitoring of the oil slick that natural dispersion is in fact taking place.

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The process of natural dispersion can be aided by a prop-washing. This involves using a vessel to steam at speed through the oil slick, creating a wash with the vessel's propellers and wake. This procedure should only be used for small quantities of light oil; note that a heavily oiled hull may prohibit entry of a vessel to port. A vessel of opportunity, such as a smaller support vessel, guard vessel, or other local vessel may be utilised to aid in or undertake prop-washing where the main vessel is unable to do so.

Note that prop-washing will involve interference with the vessel's hull and the oil slick itself, and may cause oil to be taken in by the vessel's sea water intakes. Awareness of explosion risk from gas clouds or risk to crew on deck must be maintained with the vessel approaching with extreme caution and with appropriate mitigation such as approaching from upwind and taking gas readings.

Prop-washing should only be carried out if considered safe to do so by the Vessel Master. Prop-washing is unlikely to be possible in the intertidal area or confined waters. Considering proximity of the shore, aquaculture sites and other sensitive features near the Weisdale Landfall, prop-washing may not be possible in all areas. An alternative to prop-washing is to agitate the slick with vessel fire hoses.

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4.3 Response to Tier 2/3 Incidents

In most cases, any oil spills from the Development are likely to be small in nature. However, in the unlikely event of a larger oil spill, or if the spilled oil persists, then regional or national response capabilities may need to be mobilised. It is anticipated that in the event that regional or national resources are required the National Contingency Plan (NCP) will be implemented[6].

Under the NCP, Marine Scotland provides a 24-hour emergency response through a duty officer service. In the event of an emergency, the duty officer works in collaboration with staff from NatureScot and/or the Joint Nature Conservation Committee (JNCC). Together they provide advice to primary responders on the overall environmental benefit of using dispersants to treat spilled oil in particular situations.

The project (NKT and SHE Transmission) environmental manager(s) will maintain continued communications with those on site (such as Vessel Master(s)) and provide assistance to the relevant response cells, and where necessary or requested to do so, liaise with regulating bodies (Marine Scotland or the Scottish Environmental Protection Agency).

Where relevant, an accredited Oil Spill Response Contractor will seek the support of the Marine and Coastguard Agency (MCA). The following additional resources may be deployed in response to a Tier 2 or Tier 3 incident.

Dispersant Application

There is the option to apply dispersant by sea and/or air to aid and accelerate natural processes dispersing the oil, thus removing it from the sea surface.

Due to the light nature of the oils associated with the Development, dispersant application is not likely to be a viable response option. However, in the unlikely event of a large spill of more persistent oil, dispersant application may be considered if the oil is not observed to be dispersing naturally.

UK approved oil treatment products may be used without prior consultation with the licensing authority in Force Majeure situations where there is a genuine risk to human life or to the safety of an installation or vessel, such as where there is a serious danger from fire or explosion. In all other cases, the Licensing Authority shall be consulted in advance of any proposed use of treatment substances.

The window of opportunity to use chemical dispersants will be dependent upon various factors including the quantity of oil, sea temperature, the nature of the spill (i.e. instantaneous or continuous release), prevailing weather and environmental sensitivities.

[6] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/638623/170817_NCP.pdf

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A dispersant response capability would be available through the appointment of a Tier 2 and Tier 3 accredited Oil Spill Response Contractor. NKT (or their contractor as appropriate) will engage a Tier 2/3 accredited Oil Spill Response Contractor if required.

The Marine Management Organisation (MMO) acts on behalf of Marine Scotland for the testing and approval of dispersants and other oil treatment products which are intended for use in all UK waters. It also regularly reviews existing approvals to ensure that products remain safe (MMO, 2015). The MMO has published a list of the latest oil treatment products approved for use on the UKCS:

https://www.gov.uk/government/publications/approved-oil-spill-treatment-products

Offshore Containment & Recovery

For larger spills of more persistent oil in environmentally sensitive areas, or oils that are not amenable to dispersion at sea, offshore mechanical containment and recovery may be considered as a response option. This would involve the deployment of an oil recovery vessel(s) with offshore oil containment booms and oil skimming equipment.

Mechanical containment and recovery capability would be available through the appointment of a Tier 2/3 accredited Oil Spill Response Contractor.

Note that for the general UKCS environment, offshore containment and recovery is not normally considered to be a viable response strategy due to the rough offshore weather conditions that are often encountered.

However, if a large volume of more persistent oil is spilled and the oil is not dispersing naturally, and the weather conditions are amenable, offshore containment and recovery may be a useful response strategy.

4.4 Shipboard Oil Pollution Emergency Plan (SOPEP)

All relevant vessels will carry a SOPEP as required by MARPOL 73/78 Annex I. The SOPEP is written in accordance with the requirements of Regulation 37 of Annex I (SOPEP) to MARPOL, 1973/78 as amended by Resolution MEPC.117(52) adopted on 15th October 2004.

The purpose of the SOPEP is to provide guidance to the Vessel Master and Officers onboard the ship with respect to the steps to take when a pollution incident occurs or is likely to occur. The SOPEP is written in English which is the working language of the ship's staff who will use this plan and translated into a common working language if required onboard.

The SOPEP contains all information and operational instructions required by the Guidelines for the Development of shipboard Oil Pollution Emergency Plans published under the Resolution MEPC.54(32) adopted on 6 March 1992 as amended by Resolution MEPC.86(44) adopted on 13 March 2000 and Resolution MEPC 137 (53) adopted on 22 July 2005.

The SOPEP is implemented in the event of any oil spill. The SOPEP from the planned Cable Lay vessel (NKT Victoria) is included in Appendix B. NB, only appendices 5, 8, and 10 of the

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SOPEP are included as it is considered that these forms the relevant parts of the document for the purposes of this plan.

4.4.1 Contents of SOPEP

Each SOPEP will contain the following:

- The action plan contains duty of each crew member at the time of spill, including emergency muster and actions.
- SOPEP contains the general information about the ship and the owner of the ship etc.
- Steps and procedure to contain the discharge of oil into the sea using SOPEP equipment.
- Onboard Reporting procedure and requirement in case of oil spill is described.
- Authorities to contact and reporting requirements in case of oil spill are listed in SOPEP. Authorities like port state control, oil clean up team etc. are to be notified.
- SOPEP includes drawing of various fuel lines, along with other oil lines on board vessel with positioning of vents, save all trays etc.
- General arrangement of ship is also listed in SOPEP, which includes location of all the oil tanks with capacity, content etc.; and
- The location of the spill response materials and an inventory list.

4.4.2 Disposal of Oil and Clean Up Materials

Prior to completion it is essential that all substances which need to be disposed of are collected together and made ready for disposal. The materials should be collected into sturdy containment e.g. industrial strength plastic bags or empty oil drums. The Vessel Master should make whatever arrangements are necessary for the safe disposal of these substances and this may, where appropriate, involve the use of a subcontractor to remove the substance from the vessel.

4.5 Spills during landfall works (non-marine)

In the event of a spill during landfall works, the response procedure and strategy will be as outlined in the Emergency Response section of the Shetland HVDC Land Cable CEMP (Ref. [9]). No spills are anticipated at Noss Head due to the use of HDD under the intertidal area, therefore this section is applicable to Weisdale Voe.

All reasonably practicable steps will be taken to prevent any spillages that do occur during the landfall works reaching the marine environment, noting that timescales of opportunity for such will vary considerably based upon spill location and tidal state.

Residual pollutants on hardstanding, equipment and machinery, or natural ground will be cleaned using safe and suitable methods. Liquids can generally be soaked up using absorbent materials;

Pollutants present in water will be removed using appropriate absorbent materials such as booms, pads, or wood chips. These materials will be replaced until pollutants have degraded; and

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Contaminated materials will be removed and placed in designated storage facilities. Removal will be undertaken by approved waste management contractors in compliance with regulatory requirements.

Residual contamination has the ability to migrate and continue to cause pollution after an initial spill or leak has been contained at the source. This must be considered after any pollution incident and it may become necessary to implement additional monitoring accordingly to ensure receptors are protected.

Additional monitoring will only be undertaken upon confirmation that the cause of the changes in recorded parameters exceeding agreed trigger levels or observations from the ECoW has been caused by construction activities.

Additional water quality monitoring (if required) will comprise of the increased collection of in-situ and extractive samples from all locations impacted. Samples will be collected for a duration until such time that the data indicates a return to pre-incident levels.

Specialist contractors will be procured to deal with incidents involving highly polluting liquids and/or material that the site personnel are not able to deal with. The specialist contractor performing this service will be made familiar with the logistics of the site through the induction process and be available to respond on a 24 hr/365-day basis.

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5 Oil and Chemical Spill Risk Assessments

Potential spill scenarios are dictated by the hydrocarbon and chemical inventories on the vessels and plant. In practice, due to precautions such as training, operating procedures and engineered solutions, the majority of the spills that may occur are likely to be small. If a spill does occur, the first priority will be containment to prevent such material entering the marine environment (see Section 1.2).

For offshore operations, oil spills often pose the most serious environmental risk. Chemical spills, although they can have localised highly toxic effects and pose particular risk to personnel, are generally lower risk, as inventories of stored chemicals are often much smaller in volume than those of hydrocarbons. In addition, chemicals commonly exhibit solubility in water and hence are diluted rapidly on contact with the sea in the event of a spill. Oil and other liquid hydrocarbons exhibit no such solubility on contact with water – the majority initially float on the water's surface, though may over time sink beneath the surface, and can persist in the marine environment for long periods of time, depending on the type of hydrocarbon released.

For all activities, the risk of oil and chemical spill will be evaluated though the activity specific risk assessment process, and mitigations put in place to ensure the risk of oil or chemical spill is reduced to As Low As Reasonably Practicable (ALARP).

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Table of Modifications

Rev.	Date	Prepared by	Description
A	2020-12-08	Foster, Andrew	First issue of document
B	2021-01-29	Foster, Andrew	Second issue of document
C	2021-02-25	Foster, Andrew	Third issue of document
D	2021-03-12	Foster, Andrew	Forth issue of document

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Appendix A: Marine Pollution Incident Report CG77 POLREP

An incident report form, **CG77 POLREP**, is to be completed by the Primary Responder – specifically either the Vessel Master or environmental manager in the event of a marine spill and issued to the relevant CGOC:

CGOC Shetland	Tel: 01595 692976	shetland.coastguard@hmcg.gov.uk

The Vessel Master or Marine Coordinator should not delay sending a report. If certain information is lacking, this could be provided at a later date.

Where a spill arises from a vessel or vessel related activity the Vessel Master will provide updates to CGOC and to the Marine Coordinator throughout any pollution incident verbally and/or via updates to the POLREP in line with the SOPEP. Where a spill arises from a WTG the Marine Coordinator will provide updates to the CGOC verbally and through submission of a POLREP.

Reporting Pollution

CG77 - POLREP

INITIAL INCIDENT REPORT

A. Classification: -	
B. Date/Time/Observer: -	
C. Position and Extent of Pollution: -	
D. Tide: - Wind: -	
E. Weather: -	
F. Characteristics of Pollution: -	
G. Source and Cause of Pollution: -	
H. Details of Vessels in area: -	
I. Not Used	
J. Any Photographs or Samples: -	
K. Remedial Action: -	

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L. Forecast of oil movement: -	
M. Names of others informed: -	
N. Other relevant information: -	

-
- Guidance is given below on the type of information to be recorded in a CG77 POLREP.

A. Classification: - Select – Doubtful, Probable, Confirmed

B. Date/Time/Observer: - Enter date/time of obs. – state UTC or local time / Enter name or title of observer

C. Position and Extent of Pollution: - by latitude and longitude if possible, state range and bearing from some prominent landmark and estimated amount of pollution, e.g. size of polluted area; number of tonnes of spilled oil; or number of containers, drums etc. lost. When appropriate, give position of observer relative to pollution

D. Tide: - Speed/Direction Wind: - Speed/Direction

E. Weather: - Conditions and Sea State

F. Characteristics of Pollution: - give type of pollution, e.g. oil crude or otherwise; packaged or bulk chemicals; garbage. For chemicals, give proper name or United Nations Number, if known. For all, give appearance e.g. liquid; floating solid; liquid oil; semi-liquid sludge; tarry lumps; weathered oil; discoloration of sea; visible vapour etc.

G. Source and Cause of Pollution: - from vessels or other undertaking. If from a vessel, say whether as a result of apparent 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, if known.

H. Details of Vessels in area: - to be given if the polluter cannot be identified and the spill is considered to be of recent origin.

I. Not Used

J. Any Photographs or Samples: - Give details of any photographs or samples taken.

K. Remedial Action: - Give details of any actions taken, or intended, to deal with spillage.

L. Forecast: - Likely effects of pollution – e.g. arrival on shore and estimated timings.

M. Names: - of others informed apart from addressees to this message.

N. Other relevant information: - e.g. Names of other witnesses or references to other instances of pollution which may point to a source.

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Appendix B: SOPEP – NKT Victoria CLV

(Extract from SMPEP Manual – 31.03.2017) MARPOL Annex 1, Reg 37, Annex II, Reg 17 Approved dated 2017-04-05

Appendix 4

Pollution Prevention Team

The master of the ship should appoint a pollution prevention team on board. The primary function should be to initiate immediate recovery or clean-up procedures if an incident occurs during cargo operations or bunker transfer. The company's spill response plan should be brought to the attention of everyone in the team, so that they understand their own part in the broader picture.

In the event of a spillage of oil or a noxious liquid substance the team should be called out immediately.

The team should be given the necessary training in the use of spill containment equipment or absorbents carried on the ship. All members of the Pollution Prevention Team should be aware of their duties should a spill occur.

Suggested instructions to a Pollution Prevention Team

Master
In overall charge
Inform terminal authorities of incident.
Inform local agent and request agent to inform the local P&I Club representative.
Advise company's head office.
Keep everyone updated at regular intervals. Advise of any changes in status of the emergency. Request assistance as deemed necessary.

Chief Officer
In charge of deck operation.
Keep master informed and updated on the situation. Ensure event log is maintained.
Report results of steps taken to limit liquid outflow.

Chief engineer
In charge of bunker operations.
If bunkering in progress, stop operation.
Organize distribution of oil spill detergent or appropriate treatment. Organize starting of foam pump if required.

Deck officer on duty
Tank spillage:
Open an empty or slack tank.
Stop pumping of that cargo; consider stopping cargo operations. Alert and inform chief officer and master of the situation.
Alert shore staff.

Engineer officer on duty
Prepare for fire fighting.
Assist chief engineer.

Rating on duty
If a leakage is detected,
Alert duty officer immediately.

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Appendix 5

1st. **Checklist for response to operational spill of oil or noxious liquid substance:**

This checklist is intended for response guidance when dealing with a spill of oil or a noxious liquid substance during cargo or bunkering operations. Responsibility for action to deal with other emergencies which result from the liquid spill will be as laid down in existing plans, such as the Emergency Muster List.

ACTION TO BE CONSIDERED	ACTION TAKEN		PERSON RESPONSIBLE
Immediate Action	**Yes**	**No**	
Sound Emergency Alarm	☐	☐	Person discovering incident
Initiate ship's emergency response procedure	☐	☐	Officer on duty
Initial Response			
Stop all cargo and bunkering operations	☐	☐	Officer on duty
Close manifold valves	☐	☐	Officer on duty
Stop air intake to accommodation	☐	☐	Officer on duty
Stop non-essential air intake to machinery spaces	☐	☐	Engineer on duty
Locate source of leakage	☐	☐	Officer on duty
Close all tank valves and pipeline master valves	☐	☐	Officer on duty
Commence clean-up procedures using absorbents and permitted solvents	☐	☐	Chief Officer
Comply with reporting procedures	☐	☐	Master
Secondary Response			
Assess fire risk from release of flammable liquids or vapour	☐	☐	Chief Officer
Reduce liquid level in relevant tank by dropping into an empty or slack tank	☐	☐	Chief Officer
Reduce liquid levels in tanks in suspect area	☐	☐	Chief Officer
Drain affected pipeline to empty or slack tank	☐	☐	Chief Officer
Reduce inert gas pressure to zero	☐	☐	Chief Engineer
If leakage is at pump room sea valve, relieve pipeline pressure	☐	☐	Chief Officer
Prepare pumps for transfer of liquid to other tanks or to shore or to lighter	☐	☐	Chief Engineer
Prepare portable pumps for transfer of spilt liquid to empty tank	☐	☐	Chief Engineer
Further response			
Consider mitigating activities to reduce effect of spilt liquid	☐	☐	Master
Pump water into leaking tank to create water cushion under oil or light chemical to prevent further loss	☐	☐	Chief Officer
If leakage is below waterline, arrange divers to investigate	☐	☐	Master
Calculate stresses and stability, requesting shore assistance if necessary	☐	☐	Chief Officer
Transfer cargo or bunkers to alleviate high stresses	☐	☐	Chief Officer
Designate stowage for residues from clean-up prior to disposal	☐	☐	Officer on duty

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2nd. Checklist for response to spill of oil or noxious liquid substance after a casualty:

This checklist is intended for response guidance when dealing with a spill of oil or a noxious liquid substance following a casualty. Responsibility for action to deal with the casualty itself will be as laid down in existing plans, such as the Emergency Muster list.
The term "Navigator" refers to the officer responsible for passage planning and voyage analysis, usually the second officer.

ACTION TO BE CONSIDERED	ACTION TAKEN		PERSON RESPONSIBLE
Immediate Action	**Yes**	**No**	
Sound Emergency Alarm	☐	☐	Person discovering incident
Initiate ship's emergency response procedure	☐	☐	Officer on duty
Initial Response			
Stop air intake to accommodation	☐	☐	Officer on duty
Stop non-essential air intake to machinery spaces	☐	☐	Engineer on duty
Assess further danger to ship or personnel by such as capsize or immediate sinking	☐	☐	Master
Stop all cargo and ballasting operations	☐	☐	Officer on duty
Close all tank valves and pipeline master valves	☐	☐	Officer on duty
Assess whether oil or NLS has actually been spilt	☐	☐	Chief Officer
Assess whether oil or NLS will probably be spilt	☐	☐	Master
Assess security of tank environmental control systems	☐	☐	Chief Officer
Assess risk of complex chemical reaction in NLS cargo	☐	☐	Chief Officer
Comply with reporting procedures	☐	☐	Master
Sound all compartments	☐	☐	Chief Officer
Sound around ship if it is aground	☐	☐	Chief Officer
Request outside assistance	☐	☐	Master
Stop or reduce outflow of oil or NLS	☐	☐	Chief Officer
Counter excessive list	☐	☐	Chief Officer
Contain spilt liquid still on deck	☐	☐	Officer on duty
Commence clean-up procedures using absorbents and permitted solvents	☐	☐	Chief Officer
Further response			
Reduce inert gas pressure to zero	☐	☐	Chief Engineer
Assess fire risk from release of flammable liquids or vapour	☐	☐	Chief Officer
Consider evacuation of non-essential crew	☐	☐	Master
Assess likelihood of further damage to ship or cargo	☐	☐	Master
Calculate stresses and stability, requesting shore assistance if necessary	☐	☐	Chief Officer
Transfer cargo or bunkers to alleviate high stresses	☐	☐	Chief Officer
Request assistance or escort to place of refuge	☐	☐	Master
Manoeuvre upwind of spill and / or away from land	☐	☐	Master
Assess effect of tide and current, on ship and spilt liquid	☐	☐	Navigator
Obtain weather forecast and assess effect on ship	☐	☐	Master
Prepare pumps for transfer of liquid to other tanks or to shore or to lighter	☐	☐	Chief Engineer
Reduce liquid levels in tanks in suspect area	☐	☐	Chief Officer
Designate stowage for residues from clean-up prior to disposal	☐	☐	Officer on duty

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Appendix 8

List of spill response equipment carried on board, and planned maintenance schedule

Response equipment

Type	Quantity	Location
Brooms	6	Fire store
Buckets	10	Fire store/engine room
Rags	50 kg	Fire store/engine room

PLANNED MAINTENANCE SCHEDULE:

1. Prevention Equipment

Tank Lids, check that:
- tank lids sit squarely on the coamings
- packing is in good condition
- cleats have sufficient movement
- sighting ports are sitting properly
- packing of sighting ports

Butterworth Plates, check that:
- plates sit squarely on aperture
- packing is properly fitted with no gaps
- all studs have good threads
- retaining nuts screw down tightly

Deck Pipelines (cargo, bunker and hydraulic), check:
- the condition of deck lines, ensuring that there is no apparent leakage
- couplings for signs of leakage
- deck valves for tightness
- that blanks are available for all manifolds, and that all fit well with bolts in each hole
- that sample cocks are fitted tightly with no leakage from either the sampling end or the end connected to the pipework

Hull Plating, check the condition of hull for damage or possible weak spots, and notify Head Office of areas of concern.

If necessary, make temporary repairs to ensure tightness and ensure that Head Office is informed.

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2. Containment Equipment

Check that:
- drip trays are sound with no obvious cracks or holes
- save-alls around bunker vent pipes (where fitted) are sound
- scupper plugs are in good condition and that they are a good fit in the scuppers
- there are sufficient spare scupper plugs on board, and their location is known
- portable pumps and eductors are working satisfactorily
- all drain plugs in drip trays and save-alls can be shut tight
- there are sufficient quantities of detergent on board, and its location is known
- there are sufficient quantities of absorbent material on board, and its location is known
- there are sufficient scoops, buckets and squeegees on board for mopping up operations, and their location is known
- that pipework and gauges associated with deep well cargo pumps are tight.

3. Spillage Equipment

Check that:
- detergent or treatment fluid is in containers which would make it readily available for use
- foam branch pipes and portable spraying equipment is readily available and in good working order
- all methods of communication can be operated effectively

4. Permanent equipment

Check that:
- eductors are in good working order
- all components of the engine room bilge oily water system work satisfactorily, and there is a sign in the vicinity of associated overboard discharge(s), indicating the need for them to be shut and lashed in port
- overboard discharge valves are lashed shut when not in use
- all components of the oil discharge monitoring equipment in the ballast system work satisfactorily
- the MARPOL interface detector is readily available and in good condition

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