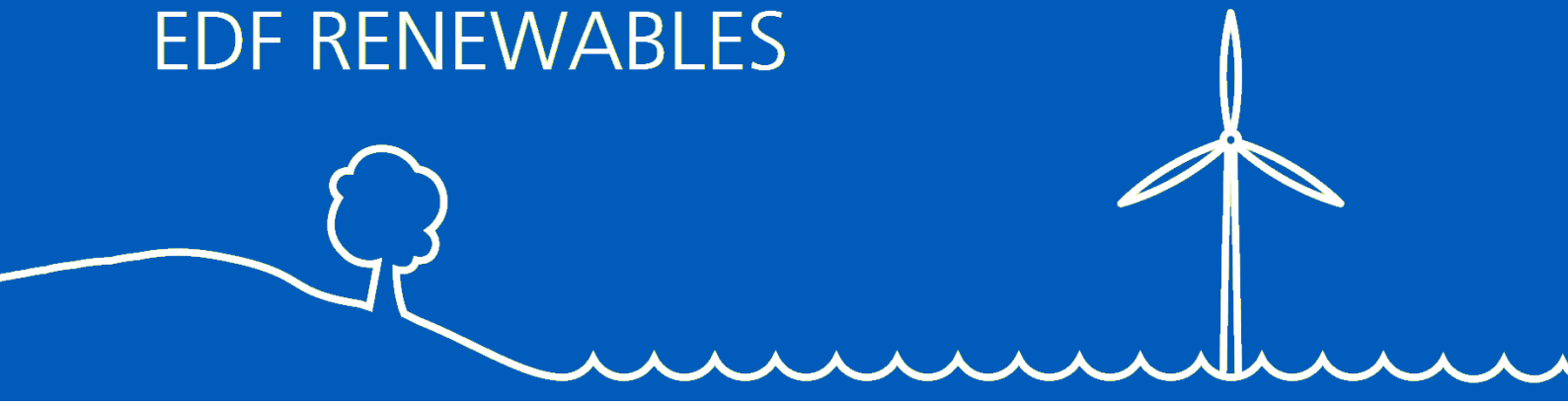
EDF RENEWABLES



Neart na Gaoithe Offshore Wind Farm

Environmental Management Plan

January 2020

Rev 3.0

DOCUMENT REFERENCE: NNG-NNG-ECF-PLN-0006

NnG OFFSHORE WIND

EDF renewables

Neart na Gaoithe Offshore Wind Farm

Environmental Management Plan

Pursuant to Section 36 Consent Condition 14, Marine Licence (Generating Station) Marine Licence Condition 3.2.2.11 and the Marine Licence (Offshore Transmission Works) Condition 3.2.2.10

For the approval of the Scottish Ministers

Document Control

SIGN OFF		
Name (Role)	Signature	Date
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Ewan Walker Lead Consents Manager	[Redacted]	07/01/2020
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Plan Overview

Purpose and Objectives of the Plan

This Environmental Management Plan (EMP) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 (S36) consent and Marine Licences issued to Neart na Gaoithe Offshore Wind Limited (NnGOWL).

The overall objective of the EMP is to provide the overarching framework for environmental management during the construction of the Neart na Gaoithe Offshore Wind Farm and Offshore Transmission Works (OfTW) (collectively referred to as the Project).

The EMP is designed to provide practical guidance to those involved in the construction and operation of the Project, including NnGOWL personnel, Contractors and NnGOWL's Environmental Clerk of Works (ECoW), on the series of measures to mitigate or manage environmental impacts based on commitments made by NnGOWL and the requirements of the Offshore Consent conditions.

All NnGOWL personnel and Contractors involved in the Project must comply, as a minimum, with this EMP.

Scope of the Plan

In line with the requirements of the consents conditions, and in line with industry standards and good practice, the EMP covers the following:

- The roles and responsibilities of key Project personnel with respect to environmental management;
- Mechanisms for reporting to the Scottish Ministers/Licensing Authority and stakeholders on environmental issues and compliance with the EMP.
- Mitigation measures to prevent adverse impacts to environmental interests with reference to relevant measures detailed in the wider Project Consent Plans;
- Chemical usage measures;
- Measures to prevent the introduction of marine non-native invasive species;
- Procedures for dealing with dropped objects;
- Procedures for dealing with Unexploded Ordnance (UXO);
- Pollution prevention and continency measures; and
- Waste management measures.

Structure of the Plan

Sections 1 and 2 set out the scope and objectives of the EMP, details the process for making updates and amendments to this document and sets out broad statements of compliance.

Section 3 details the wind farm layout, key constraints and key design parameters associated with the wind farm and inter-array cables.

Section 4 sets out the overarching EDF Renewables environmental policy objectives and the roles and responsibilities of NnGOWL personnel and the contractors engaged on the Project. The lines of communication and chains of command along with Project reporting requirements are also described.

Section 5 presents a series of measures to mitigate or manage environmental impacts based on commitments made by NnGOWL and the requirements of the Offshore Consents conditions. Specific measures are set out to manage issues identified within the Offshore Consents conditions, including marine pollution, chemical usage, invasive non-native species, waste, and dropped objects.

The accompanying Annexes present a compliance register and a Marine Pollution Contingency Plan, which are intended to support the application of measures set out in the EMP.

Plan Audience

The EMP is intended to be referred to by personnel involved in the construction and operation of the Project, including NnGOWL personnel and Contractors. All method statements and environmental management documents produced in relation to the Project must comply with this EMP.

Compliance with this EMP will be monitored by the NNGOWL consents team, NnGOWL's ECoW, and the Marine Scotland Licensing Operations Team (MS-LOT).

Plan Locations

Copies of this EMP are to be held in the following locations:

- NnGOWL Project Office;
- At the premises of the main Contractors acting on behalf of NnGOWL;
- All site offices dealing with marine operations including the NnGOWL Marine Coordination Centre; and
- With NnGOWL's ECoW.

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Acronyms and Abbreviations

TERM	DESCRIPTION
AC	Alternating Current
ADDs	Acoustic Deterrent Devices
AEZ	Archaeological Exclusion Zone
AFS	Anti-Fouling System
BEIS	Department of Business, Energy and Industrial Strategy
BWM Convention	Convention for the Control and Management of Ships' Ballast Water and Sediments
COSHH	Control of Substance Hazardous to Health
DSFB	District Salmon Fisheries Board
ECoW	Environmental Clerk of Works
EMF	Electromagnetic Fields
EU	European Union
F-Gases	Fluorinated gases
FLO	Fisheries Liaison Officer
FMS	Fisheries Management Scotland
FTCFWG	Forth and Tay Commercial Fisheries Working Group
FTRAG	Forth and Tay Regional Advisory Group
HSE	Health, Safety and Environment
HSSE	Health, Safety, Security and Environment
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IMO	International Maritime Organisation
INNS	Invasive Non Native Species
JNCC	Joint Nature Conservation Committee
MCA	Maritime and Coastguard Agency
MEPC	Marine Environment Protection Committee

TERM	DESCRIPTION
MHWS	Mean High Water Spring
MMO	Marine Mammal Observer
MMMP	Marine Mammal Monitoring Plan
MS-LOT	Marine Scotland Licensing Operations Team
NLB	Northern Lighthouse Board
NtMs	Notice to Mariners
OCNS	Offshore Chemical Notification Scheme
O&M	Operation and Maintenance
OSP	Offshore Substation Platforms
OSPAR Convention	Convention for the Protection of the Marine Environment of the North-East Atlantic
PAM	Passive Acoustic Monitoring
ROV	Remote Operated Vehicle
RSPB	Royal Society for the Protection of Birds
RTC	River Tweed Commission
SDS	Safety Data Sheet
SEPA	Scottish Environmental Protection Agency
SMWWC	Scottish Marine Wildlife Watching Code
SNH	Scottish Natural Heritage
SFF	Scottish Fishermen's Federation
TAR	Transportation Audit Report
UXO	Unexploded Ordnance
WDC	Whale and Dolphin Conservation
WFD	Waste Framework Directive

Defined Terms

TERM	DESCRIPTION
Addendum	The Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018.
Application	The Environmental Impact Assessment Report, Habitats Regulations Appraisal Report submitted to the Scottish Ministers by NnGOWL on 16 March 2018; the Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018 and the Section 36 Consent Variation Report dated 08 January 2019.
Company	Neart na Gaoithe Offshore Wind Limited (NnGOWL) (Company Number SC356223). NnGOWL has been established to develop, finance, construct, operate, maintain and decommission the Project.
Consent Conditions	The terms that are imposed on the Company under the Offshore Consents that must be complied with
Consent Plans	The plans, programmes or strategies required to be approved by the Scottish Ministers (in consultation with appropriate stakeholders) in order to discharge the Consent Conditions.
Contractors	Any Contractor/Supplier (individual or firm) working on the Project.
EIA Report	The Environmental Impact Assessment Report, dated March 2018, submitted to the Scottish Ministers by NnGOWL as part of the Application.
Inter-array Cables	The offshore cables connecting the wind turbines to one another and to the OSPs.
Interconnector Cables	The offshore cables connecting the OSPs to one another.
Marine Licences	The written consents granted by the Scottish Ministers under the Marine (Scotland) Act 2010, for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Wind Farm (Licence Number 06677/19/0) and the OfTW (Licence Number 06678/19/1), dated 4 June 2019 and 5 June 2019 respectively.
Offshore Consents	The Section 36 Consent and the Marine Licences.
Offshore Export Cable Corridor	The area within which the offshore export cables are to be located.
Offshore Export Cables	The offshore export cables connecting the OSPs to the landfall site.
OfTW	The Offshore Transmission Works comprising the OSPs, offshore interconnector cables and offshore export cables required to connect the Wind Farm to the Onshore Transmission Works at the landfall.
OfTW Area	The area outlined in red and blue in Figure 1 attached to Part 4 of the OfTW Marine Licence.
OnTW	The onshore transmission works from landfall and above Mean High Water Springs, consisting of onshore export cables and the onshore substation.

TERM	DESCRIPTION
Project	The Wind Farm and the OfTW.
Section 36 Consent	The written consent granted on 3 December 2018 by the Scottish Ministers under Section 36 of The Electricity Act 1989 to construct and operate the Wind Farm, as varied by the Scottish Ministers under section 36C of the Electricity Act 1989 on 4 June 2019.
Section 36 Consent Variation Report	The Section 36 Consent Variation Report submitted to the Scottish Ministers by NnGOWL as part of the Application as defined above on 08 January 2019.
Subcontractors	Any Contractor/Supplier (individual or firm) providing services to the Project, hired by the Contractors (not NnGOWL).
Wind Farm	The offshore array as assessed in the Application including wind turbines, their foundations and inter-array cabling.
Wind Farm Area	The area outlined in black in Figure 1 attached to the Section 36 Consent Annex 1, and the area outlined in red in Figure 1 attached to Part 4 of the Wind Farm Marine Licence.

Consent Plans

CONSENT PLAN	ABBREVIATION	DOCUMENT REFERENCE NUMBER
Decommissioning Programme	DP	NNG-NNG-ECF-PLN-0016
Construction Programme and Construction Method Statement	CoP and CMS	NNG-NNG-ECF-PLN-0002
Piling Strategy	PS	NNG-NNG-ECF-PLN-0011
Development Specification and Layout Plan	DSLP	NNG-NNG-ECF-PLN-0003
Design Statement	DS	NNG-NNG-ECF-PLN-0004
Environmental Management Plan	EMP	NNG-NNG-ECF-PLN-0006
Operation and Maintenance Programme	OMP	NNG-NNG-ECF-PLN-0012
Navigational Safety Plan and Vessel Management Plan	NSP and VMP	NNG-NNG-ECF-PLN-0010
Emergency Response Cooperation Plan	ERCoP	NNG-NNG-ECF-PLN-0015
Cable Plan	CaP	NNG-NNG-ECF-PLN-0007
Lighting and Marking Plan	LMP	NNG-NNG-ECF-PLN-0009
Project Environmental Monitoring Programme	PEMP	NNG-NNG-ECF-PLN-0013
Fisheries Management and Mitigation Strategy	FMMS	NNG-NNG-ECF-PLN-0008
Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries	WSI & PAD	NNG-NNG-ECF-PLN-0005
Construction Traffic Management Plan	CTMP	NNG-NNG-ECF-PLN-0014

1 Introduction

1.1 Background

1. The Neart na Gaoithe Offshore Wind Farm (Revised Design) received consent under Section 36 of the Electricity Act 1989 from the Scottish Ministers on 03 December 2018 and was granted two Marine Licences by the Scottish Ministers, for the Wind Farm and the associated Offshore Transmission Works (OfTW), on 03 December 2018. The S36 consent and Wind Farm Marine Licence were revised by issue of a variation to the S36 Consent and Marine Licence 06677/19/0 on 4 June 2019, and the OfTW Marine Licence by the issue of Marine Licence 06678/19/1 on the 5 June 2019. The revised S36 Consent and associated Marine Licences are collectively referred to as 'the Offshore Consents'.
2. The Project is being developed by Neart na Gaoithe Offshore Wind Limited (NnGOWL).

1.2 Objectives of the Plan

3. The S36 Consent and Marine Licences contain a variety of conditions that must be discharged through approval by the Scottish Ministers prior to the commencement of any offshore construction works. One such requirement is the approval of an Environmental Management Plan (EMP), the purpose of which is to provide the over-arching framework for on-site environmental management during construction and operation of the Development (but excluding decommissioning). The relevant conditions setting out the requirement for an EMP for approval, and which are to be discharged by this EMP, are presented in full in Table 1-1.
4. In line with the requirements of the Offshore Consents, this document presents the environmental management procedures that will be implemented during Construction and Operation and Maintenance (O&M) activities associated with the Project. If required, this EMP will be revised prior to final commissioning of the Project to take account of environmental management arrangements that may be specific to the O&M phase in accordance with the procedures set out in Section 2.2.
5. In addition to the specific consent requirements for an EMP and the requirements thereof (as set out in Table 1-1), this EMP also includes information in respect of a number of other consents conditions which are linked to the matter of environmental management; these are set out in Table 1-2.

Table 1-1 : Consent conditions to be discharged by this EMP

OFFSHORE CONSENTS REFERENCE	CONDITION	WHERE ADDRESSED
S36 consent Condition 14	The Company must, no later than six months prior to the Commencement of the Development, submit an Environmental Management Plan ("EMP"), in writing, to the Scottish Ministers for their written approval.	This document sets out the EMP for approval by Scottish Ministers
	Such approval may only be granted following consultation by the Scottish Ministers with Scottish Natural Heritage (SNH), Scottish Environment Protection Agency (SEPA), Royal Society for the Protection of Birds (RSPB) Scotland, Whale and Dolphin Conservation (WDC), River Tweed Commission (RTC), Tay District Salmon Fisheries Board (Tay DSFB), Esk District Salmon Fisheries Board (Esk DSFB), Forth District Salmon Fisheries Board (Forth DSFB), Fisheries Management Scotland (FMS) and any such other advisors or organisations as may be required at the discretion of the Scottish Ministers.	Consultation to be undertake by the Scottish Ministers
	The EMP must provide the over-arching framework for on-site environmental management during the phases of development as follows: a. All construction as required to be undertaken before the Final Commissioning of the Development; and b. The operational lifespan of the Development from the Final Commissioning of the Development until the cessation of electricity generation (environmental management during decommissioning is addressed by the Decommissioning Programme provided for by condition 3).	This EMP, for approval by the Scottish Ministers, addresses the construction and operation phase. If required, the EMP will be updated to take account of O&M environmental management procedures.
	The EMP must be in accordance with the Application insofar as it relates to environmental management measures. The EMP must set out the roles, responsibilities and chain of command for the Company personnel, any contractors or sub-contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Development. It must address, but not be limited to, the following over-arching requirements for environmental management during construction:	Section 4.3 (Roles, responsibilities and chain of command)
	a. Mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the Application and pre-consent and pre-construction monitoring or data collection, and include the relevant parts of the CMS (refer to condition 10);	Mitigation measures detailed in the Application are set out in Section 5. The linkage to the CMS is set out in Section 1.3
	b. A pollution prevention and control method statement, including contingency plans;	Section 5.7 Pollution Prevention and Contingency Planning
	c. Management measures to prevent the introduction of invasive non-native marine species;	Section 5.4 Invasive Non-Native Marine Species

OFFSHORE CONSENTS REFERENCE	CONDITION	WHERE ADDRESSED
	d. A site waste management plan (dealing with all aspects of waste produced during the construction period), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment. Wherever possible the waste hierarchy of reduce, reuse and recycle should be encouraged; and	Section 5.8 Waste Management
	e. The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.	Section 4.5 EMP Communications and Reporting
	The EMP must be regularly reviewed by the Company and the Scottish Ministers or Forth and Tay Regional Advisory Group (FTRAG), at intervals agreed by the Scottish Ministers. Reviews must include, but not be limited to, the reviews of updated information on construction methods and operations of the Development and updated working practices.	Section 2.2
	The EMP must be informed, so far as is reasonably practicable, by the baseline monitoring or data collection undertaken as part of the Application and the PEMP.	Section 5.1 EIA Report Compliance Register
OfTW Marine Licence Condition 3.2.2.11	The Licensee must, no later than six months prior to the Commencement of the Works, submit an EMP, in writing, to the Licensing Authority for its written approval.	This document sets out the EMP for approval by Scottish Ministers
	Such approval may only be granted following consultation by the Licensing Authority with SNH, SEPA, RSPB Scotland, WDC, RTC, Tay DSFB, Esk DSFB, Forth DSFB, FMS and any such other advisors or organisations as may be required at the discretion of the Licensing Authority. Commencement of the Works may not take place until such approval is granted.	Consultation to be undertake by the Scottish Ministers
	The EMP must provide the over-arching framework for on-site environmental management during the phases of Works as follows: a. All construction as required to be undertaken before the Completion of the Works; and b. The operational lifespan of the Works from the Completion of the Works until the cessation of electricity generation.	This EMP, for approval by the Scottish Ministers, addresses the construction and operation phase. If required, the EMP will be updated to take account of O&M environmental management procedures.
	The EMP must be in accordance with the Application insofar as it relates to environmental management measures. The EMP must set out the roles, responsibilities and chain of command for the company personnel, any contractors or sub-contractors in respect of environmental management for the protection of environmental interests during the construction and operation of the Works. It must address, but not be limited to, the following over-arching requirements for environmental management during construction:	Section 4.3 (Roles, Responsibilities and Chain of Command)
	a. Mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the Application and pre-consent	Mitigation measures detailed in the

OFFSHORE CONSENTS REFERENCE	CONDITION	WHERE ADDRESSED
	and pre-construction monitoring or data collection, and include the relevant parts of the CMS (refer to condition 3.2.2.8);	Application are set out in Section 5. The linkage to the CMS is set out in Section 1.3
	b. A pollution prevention and control method statement, including contingency plans;	Section 5.7 Pollution Prevention and Contingency Planning
	c. Management measures to prevent the introduction of invasive non-native marine species;	Section 5.4 Invasive Non-Native Marine Species
	d. A site waste management plan (dealing with all aspects of waste produced during the construction period), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment. Wherever possible the waste hierarchy of reduce, reuse and recycle should be encouraged; and	Section 5.8 Waste Management
	e. The reporting mechanisms that will be used to provide the Licensing Authority and relevant stakeholders with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.	Section 4.5 EMP Communications and Reporting
	The EMP must be regularly reviewed by the Licensee and the Licensing Authority or FTRAG, at intervals agreed by the Licensing Authority. Reviews must include, but not be limited to, the reviews of updated information on construction methods and operations of the Works and updated working practices.	Section 2.2 Statements of Compliance
	The EMP must be informed, so far as is reasonably practicable, by the baseline monitoring or data collection undertaken as part of the Application and the PEMP.	Section 5.1 EIA Report Compliance Register

Table 1-2 : Other consent conditions relevant to this Consent Plan

OFFSHORE CONSENTS REFERENCE	CONDITION	WHERE ADDRESSED
Wind Farm/OfTW Marine Licence Condition 3.1.4	Should the Licensee or any of its agents, contractors or sub-contractors, by any reason of force majeure deposit anywhere in the marine environment any substance or object, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing which as soon as reasonably practicable after that period of 48 hours has elapsed). *Force majeure* may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel or vehicle operator determines that it is necessary to deposit the substance or object other than at the Site because the safety of human life or, as the case may be, the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the OSPAR Convention, the Licensing Authority is obliged to immediately report force majeure incidents to the OSPAR Commission.	Section 5.5 Seabed Deposits and Notification of Dropped Objects
Wind Farm/OfTW Marine Licence Condition 3.1.8	The Licensee must seek prior written approval from the Licensing Authority for any chemicals in an open system which are to be utilised in the construction, operation and maintenance of the Works. Requests for approval must be submitted in writing to the Licensing Authority no later than one month prior to its intended use or such other period as agreed by the Licensing Authority. The Licensee must ensure that no chemicals are used in an open system without the prior written approval of the Licensing Authority. If the proposed chemical is on the Offshore Chemical Notification Scheme (OCNS) list, the approval request must include the chemical name, volume or quantity to be used, the OCNS list grouping or rank and the proposed frequency of use. If the proposed chemical is not on the OCNS list, the approval request must include details of chemical to be used, including safety data sheet, depth and current at the Site, quantities or volumes and the proposed frequency of use.	Section 5.3 Chemical Usage
	The Licensee must notify the Licensing Authority of the types of chemicals to be used in a closed containment system prior to use.	Section 5.3 Chemical Usage
	The Licensee should take all practicable steps to avoid leakages from a closed containment system into the Scottish marine area. Any such leakages must be reported to the Licensing Authority as soon as practicable.	Section 5.3 Chemical Usage
Wind Farm/OfTW Marine Licence Condition 3.1.9	The Licensee must ensure that all equipment to be utilised in the Works which contains fluorinated greenhouse gases (hydrofluorocarbons, perfluorocarbons, sulphur hexafluoride and other greenhouse gases that contain fluorine, listed in Annex I of Regulation No 517/2014 of the European Parliament and of the Council of 16 April 2014 on Fluorinated Greenhouse Gases ("F-Gas Regulation") or mixtures containing any of those substances) must take precautions to prevent the unintentional release ('leakage') of those gases. The Licensee must take all measures which are technically and economically feasible to minimise leakage of fluorinated greenhouse gases. Where leakage of fluorinated greenhouse gases is detected, the Licensee must ensure that the equipment is repaired without undue delay.	Section 5.3 Chemical Usage
Wind Farm/OfTW	All reasonable, appropriate and practicable steps are taken at all times to avoid or minimise any damage to the Scottish marine area.	Section 4 and Section 5

OFFSHORE CONSENTS REFERENCE	CONDITION	WHERE ADDRESSED
Marine Licence Condition 3.1.10 (Partial)	Ensure that all personnel adhere to the SMWWC where appropriate during all construction, operation and maintenance activities authorised under this licence.	
	Any debris or waste material placed below MHWS level during the construction of the Works is removed from the Site, unless agreed otherwise by the Licensing Authority, as soon as is reasonably practicable, for disposal at a location above the MHWS level, approved by SEPA	Section 5.8 Waste Management
	All substances and objects deposited during the Works are inert (or appropriately coated or protected so as to be rendered inert) and do not contain toxic elements	Section 5.7 Pollution Prevention and Contingency Planning
	The risk of transferring marine non-native species to and from the Site is kept to a minimum by ensuring appropriate bio-fouling management practices are implemented	Section 5.4 Invasive Non-Native Marine Species
Wind Farm/OfTW Marine Licence Condition 3.2.1.1	In the event of any breach of health and safety or environmental obligations relating to the Works during the period of this Licence, the Licensee must provide written notification of the nature and timing of the incident to the Licensing Authority within 24 hours of the incident occurring. Confirmation of remedial measures taken and/or to be taken to rectify the breach must be provided, in writing, to the Licensing Authority within a period of time to be agreed by the Licensing Authority.	Section 4.5.4 Incident Reporting
Wind Farm / OfTW Marine Licence Condition 3.2.1.2	The Licensee must ensure suitable bunding and storage facilities are employed to prevent the release into the marine environment of fuel oils and lubricating fluids associated with the Works and associated equipment.	Section 5.3 Chemical Usage
S36 consent Condition 26 **OfTW Marine Licence Condition 3.2.2.15**	The responsibilities of the Environmental Clerk of Works (ECoW) must include: a. Quality assurance of final draft versions of all plans and programmes required under this licence; b. Responsibility for the monitoring and compliance of the licence conditions and the environmental mitigation measures for the Works authorised by this licence; c. Provision of on-going advice and guidance to the Licensee in relation to achieving compliance with licence conditions, including but not limited to the conditions relating to and the implementation of the Construction Method Statement (CMS), the EMP, the Project Environmental Monitoring Programme (PEMP), the Piling Strategy (PS), the Cable Plan (CaP) and the Vessel Management Plan (VMP); d. Provision of reports on point b) & c) above to the Licensing Authority at timescales to be determined by the Licensing Authority; e. Induction and toolbox talks to onsite construction teams on environmental policy and procedures, including temporary stops and keeping a record of these;	Section 4.3 EMP Roles, Responsibilities and Chain of Command

OFFSHORE CONSENTS REFERENCE	CONDITION	WHERE ADDRESSED
	f. Monitoring that the Works are being constructed in accordance with the plans and this licence, the Application and in compliance with all relevant regulations and legislation; g. Reviewing and reporting incidents/near misses and reporting any changes in procedures as a result; and h. Agreement of a communication strategy with the Licensing Authority.	
S36 Consent Condition 27	Prior to the Commencement of the Development, a Fisheries Liaison Officer (FLO), must be appointed by the Company and approved, in writing, by the Scottish Ministers (following consultation with Scottish Fishermen's Federation (SFF) and the Forth and Tay Commercial Fisheries Working Group (FTCFWG). The FLO must be appointed by the Company for the period from Commencement of the Development until the Final Commissioning of the Development. The identity and credentials of the Company FLO must be included in the EMP (referred to in condition 14).	Section 4.3 EMP Roles, Responsibilities and Chain of Command
Wind Farm/OfTW Marine Licence Condition 3.2.3.1	The Licensee must submit to the Licensing Authority a detailed Transportation Audit Report (TAR) for each calendar month during the construction phase of the Works. The TAR must be submitted within 14 days of the end of each calendar month. The TAR must include the nature and quantity of all substances and objects deposited and materials used in construction (as described in Part 2 of this licence) in that calendar month. Alterations and updates can be made in the following month's TAR. Where appropriate, nil returns must be provided.	Section 5.5 Seabed Deposits and Notification of Dropped Objects
	If the Licensee becomes aware of any substances, objects or materials on the TAR that are missing, or becomes aware that an accidental deposit has occurred, the Licensee must notify the Licensing Authority as soon as practicable. The Licensee must undertake such survey as directed by the Licensing Authority to locate the substances, objects and materials. If the Licensing Authority is of the view that any accidental deposits have occurred and should be removed, then the materials must be removed by the Licensee as soon as is practicable and at the Licensee's expense.	Section 5.5 Seabed Deposits and Notification of Dropped Objects

1.3 Linkages with other Consent Plans

6. This EMP document sets out the overarching environmental management framework to be applied during the construction of the Development. However, ultimately it forms part of a suite of approved documents that provide the framework for environmental management of the Project – namely the other Consent Plans required under the consents.

7. The Consent Plans shown in Table 1-3 below will be submitted for approval by the Scottish Ministers and consistency between these will be achieved by ensuring that all relevant documents are consistent with the terms of any previously submitted or approved Consent Plans.

Table 1-3: EMP consistency with and links to other Consent Plans

OTHER CONSENT PLAN	LINKAGE WITH EMP
Construction Method Statement and Construction Programme (CMS & CoP)	Details the Project construction methods, setting out good practice construction measures and how mitigation measures proposed in the Environmental Impact Assessment (EIA) Report and Addendum of Additional Information (the Addendum) (as captured within this EMP) are being implemented during construction.
Piling Strategy (PS)	Contains detail on how the piling methods and programme have been developed to reduce effects on noise sensitive species.
Navigational Safety and Vessel Management Plan (NSVMP)	Considers the management and coordination of vessels to mitigate the impact of vessels.
Cable Plan (CaP)	Contains details on environmental sensitivities and design considerations to mitigate, as far as possible, the effects of cable laying and protection installation and operation of the Project.
Operation and Maintenance Programme (OMP)	Sets out the procedures and good working practices for the O&M phase of the Project, considering environmental sensitivities.
Project Environmental Monitoring Programme (PEMP)	Sets out the monitoring strategy for pre-construction, during construction and post-construction monitoring. Where appropriate, this EMP will be updated to reflect Project environmental monitoring results.

1.4 EMP Document Structure

8. An overview of the structure of this EMP is provided below.

Table 1-4 : EMP document structure

SECTION	TITLE	SUMMARY OF CONTENT
1	Introduction	Background to consent requirements and overview of the EMP scope and structure; and Identifies those other Consent Plans relevant to the environmental management process and the linkage between those plans and the EMP.

SECTION	TITLE	SUMMARY OF CONTENT
2	Statements of Compliance	Sets out the NnGOWL statements of compliance in relation to the EMP consent conditions and the broader environmental management process.
3	Project Overview	Provides an overview of the key infrastructure to be installed as part of the Neart na Gaoithe Project.
4	Environmental Management Framework	Describes the environmental management framework for the Project. It provides information on the implementation and communication of the EMP.
5	Environmental Management and Mitigation Measures	Sets out key mitigation and management measures to mitigate or manage effects on the natural environment including commitments made in the Application, mitigation measures to manage the risk to marine animals and habitats, other marine users and to minimise the risk of pollution.
Annex 1	EIA Report and Addendum Compliance Register	Sets out the environmental mitigation measures detailed within the Project Application and relevant to this EMP.
Annex 2	Marine Pollution Contingency Plan	Sets out emergency response measures that will be implemented in the event of a oil or chemical spill during Construction or Operation of the Project.

2 NnGOWL Statements of Compliance

2.1 Introduction

9. The following section is intended to re-affirm the NnGOWL commitment to ensuring that the Project is designed and constructed in such a manner as to meet the relevant legislative requirements set out by the Offshore Consents.

2.2 Statements of Compliance

10. NnGOWL in undertaking the construction of the Project will ensure compliance with this EMP as approved by the Scottish Ministers (and as updated or amended from time to time as required);

11. NnGOWL in undertaking the construction of the Project will ensure compliance with other, relevant Consent Plans as approved by the Scottish Ministers including, as set out in Section 1.3 above;

12. NnGOWL in undertaking the construction of the Project will ensure compliance with the environmental mitigation and management set out in the EIA Report and the Addendum of Additional Information (Addendum) (see Section 5.1 and Annex 1 - NnGOWL Application Commitments Register) except in so far as amended by the terms of the Offshore Consents;

13. NnGOWL will ensure that the environmental management measures outlined within this EMP are updated as required as a result of, for example, changes to the proposed construction methodology, new environmental sensitivities identified by monitoring or resulting from emerging guidance or new legislative requirements;

14. NnGOWL will ensure compliance with overarching NnGOWL company Health Safety and Environmental (HSE) systems and standards, the relevant HSE legislation and such other relevant legislation and guidance designed to ensure the safety of construction personnel and other third parties (see Section 4.1 and 4.2 of this EMP);

15. NnGOWL will make compliance with the approved EMP (and all other relevant, approved Consent Plans) a requirement for the Contractors through conditions of contract and will monitor compliance through appropriate processes (see also Section 4.6 of this EMP); and

16. NnGOWL will, in undertaking the construction of the Project, ensure compliance with all relevant legislation and that all necessary licences and permissions are obtained by the Contractors, through conditions of contract and by an appropriate auditing process.

3 Project Overview

17. The Wind Farm Area is located to the northeast of the Firth of Forth, 15.5 km directly east of Fife Ness on the east coast of Scotland (see Figure 3-1). The Wind Farm Area covers approximately 105 km2. Offshore Export Cables will be located within the 300 m wide Offshore Export Cable Corridor, running in an approximately southwest direction from the Wind Farm Area, making landfall at Thorntonloch beach to the south of Torness Power Station in East Lothian. Figure 3-1 shows the Wind Farm Area and Offshore Export Cable Corridor.

18. The Offshore Consents allow for the construction and operation of the following main components, which together comprise the Project:

    - 54 wind turbines generating a confirmed total output of about 450 Megawatts (MW);
    - 54 jacket substructures installed on pre-piled foundations, to support the wind turbines;
    - Two alternating current (AC) substation platforms, referred to as Offshore Substation Platforms (OSPs), to collect the generated electricity and transform the electricity from 66 kV to 220 kV for transmission to shore;
    - Two jacket substructures installed on piled foundations, to support the OSPs;
    - A network of inter-array subsea cables, buried and/or mechanically protected, to connect strings of turbines together and to connect the turbines to the OSPs;
    - One interconnector cable connecting the OSPs to each other;
    - Two buried and/or mechanically protected subsea export cables to transmit the electricity from the OSPs to the landfall at Thorntonloch and connecting to the onshore buried export cables for transmission to the onshore substation and connection to the National Grid network; and
    - Minor ancillary works such as the deployment of metocean buoys and permanent navigational marks.

19. It is currently anticipated that offshore construction will take two years and will commence in Quarter 1 (Q1) 2020. Details of the construction programme are provided in the Construction Programme (CoP).

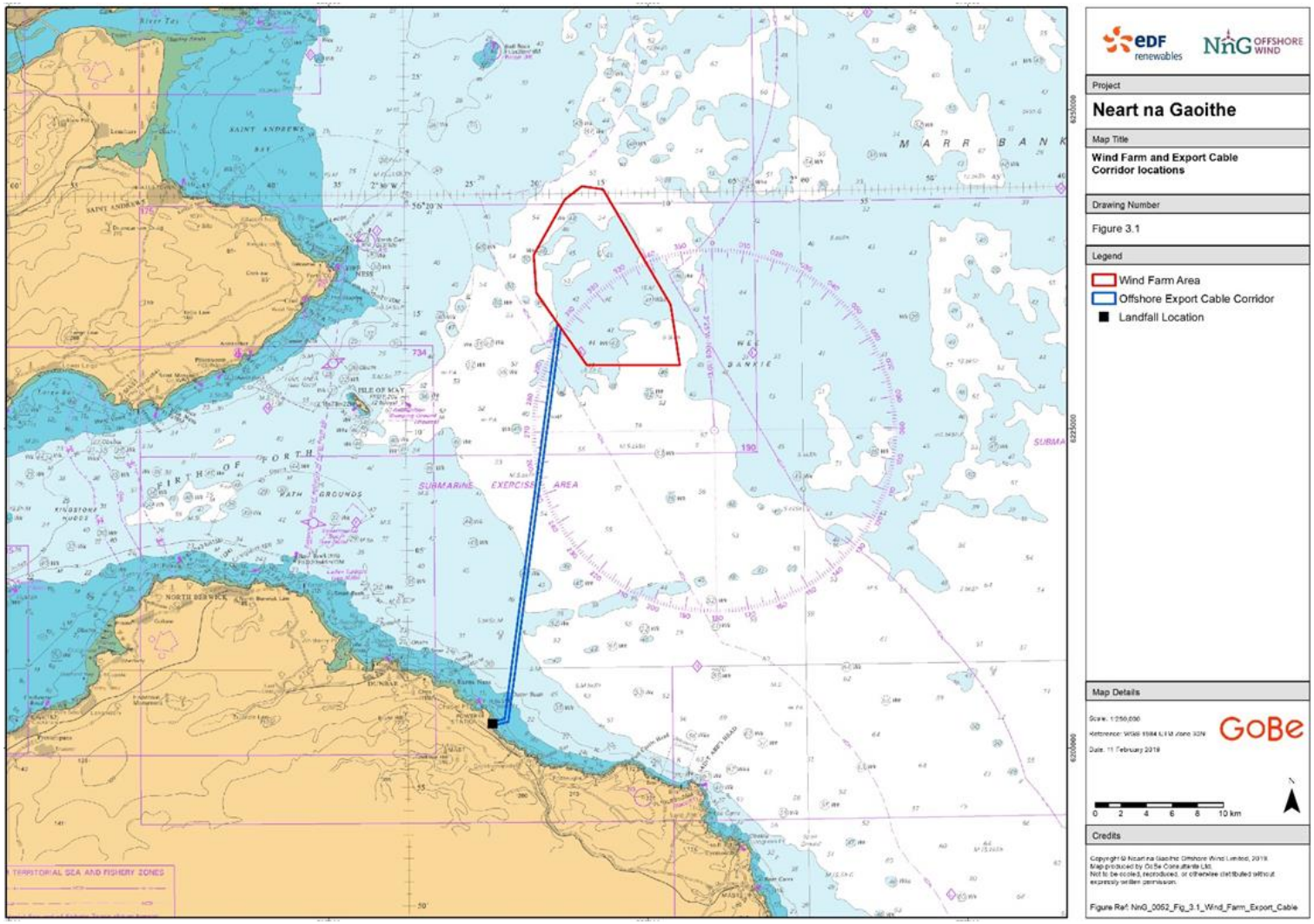

Figure 3-1: Wind Farm Area and Offshore Export Cable Corridor locations

4 Environmental Management Framework

20. This section sets out the over-arching environmental management framework for the construction of the Project. Specific environmental management requirements and procedures are then set out in 5 of this EMP.

4.1 NnGOWL Health, Safety and Environment Policy and Objectives

21. NnGOWL's vision is to be an industry leader in HSE performance, with Zero Harm as a core objective.

22. NnGOWL has developed an overarching Health, Safety and Environment Plan, with the following objectives:

- To ensure compliance with all applicable HSE legal requirements, regulations and Industry Standards;
- To monitor and audit the HSE performance of NnGOWL, its employees and Contractors;
- To engage in communication on HSE performance with stakeholders and the public;
- To allocate appropriate resources to ensure that the principals of the HSE Plan are implemented;
- To supply appropriate information, instruction, training and supervision to all employees and contractors such as is required to actively promote HSE awareness and compliance.

23. To achieve these objectives NnGOWL will work collaboratively to create a safety charter between NnGOWL and each main contractor. This charter will draw on lessons learnt from previous projects with the goal of improving safety performance. The charter will be driven by the Project Director and the HSE personnel, with the support of the Construction Manager, the HSE Team and the package managers (See Section 4.3).

24. The HSE Plan is underpinned by a number of Project-specific HSE Management Standards, covering the topics listed in Table 4-1.

Table 4-1: HSE Management Standards that will be implemented during Construction and Operation of the Project

HSE PLAN MANAGEMENT STANDARDS	
HSE Governance	HSE Marine Activities
HSE Management System	HSE People Competencies and Training
HSE Meeting Structure	HSE Within the Procurement Process
HSE Leadership and Commitment	HSE Observation and Incident Standard
HSE Risk Management	Emergency Response
HSE Method Statements	Design Risk Assessment Approval Process
Permit to Work	

4.2 Environmental Policy and Objectives

25. In line with over-arching company policy NnGOWL is committed to minimising environmental impact. This means staying within permitted limits for operations, using best available techniques to reduce environmental risk, and prioritising efforts to make the most difference in reducing the company's contribution to climate change, and to protect a cleaner, healthier and more resilient environment that benefits society and the economy.

26. NnGOWL's goal is to demonstrate real progress towards reducing carbon emissions, waste, water use and impact on biodiversity. The company will also implement circular economy principles into the way it works, reducing waste and avoiding pollution and achieving greater resource value and productivity.

4.3 EMP Roles, Responsibilities and Chain of Command

27. This section sets out the roles and responsibilities of all relevant Project personnel during the construction phase, in relation to the delivery of this EMP.

28. The consents require the appointment of certain specialist environmental roles to oversee the construction of the Development, including an ECoW, Company Fisheries Liaison Officer (CFLO) and Archaeological Consultant.

29. All Project personnel have a responsibility to comply with the requirements of the EMP, however the key roles relevant to the delivery and implementation of the EMP are:

    - NnGOWL Project Director;
    - NnGOWL HSE Manager;
    - NnGOWL Construction Manager;
    - NnGOWL Package Managers;
    - NnGOWL Development Manager;
    - NnGOWL Offshore Consents Manager;
    - NnGOWL's ECoW;
    - NnGOWL's CFLO;
    - NnGOWL's Archaeological Consultant; and,
    - Contractor(s).

30. These roles are further described in the sections below. Figure 4-1 shows the linkages between the different roles and teams with respect to delivery of the EMP, and visually depicts the chain of command.

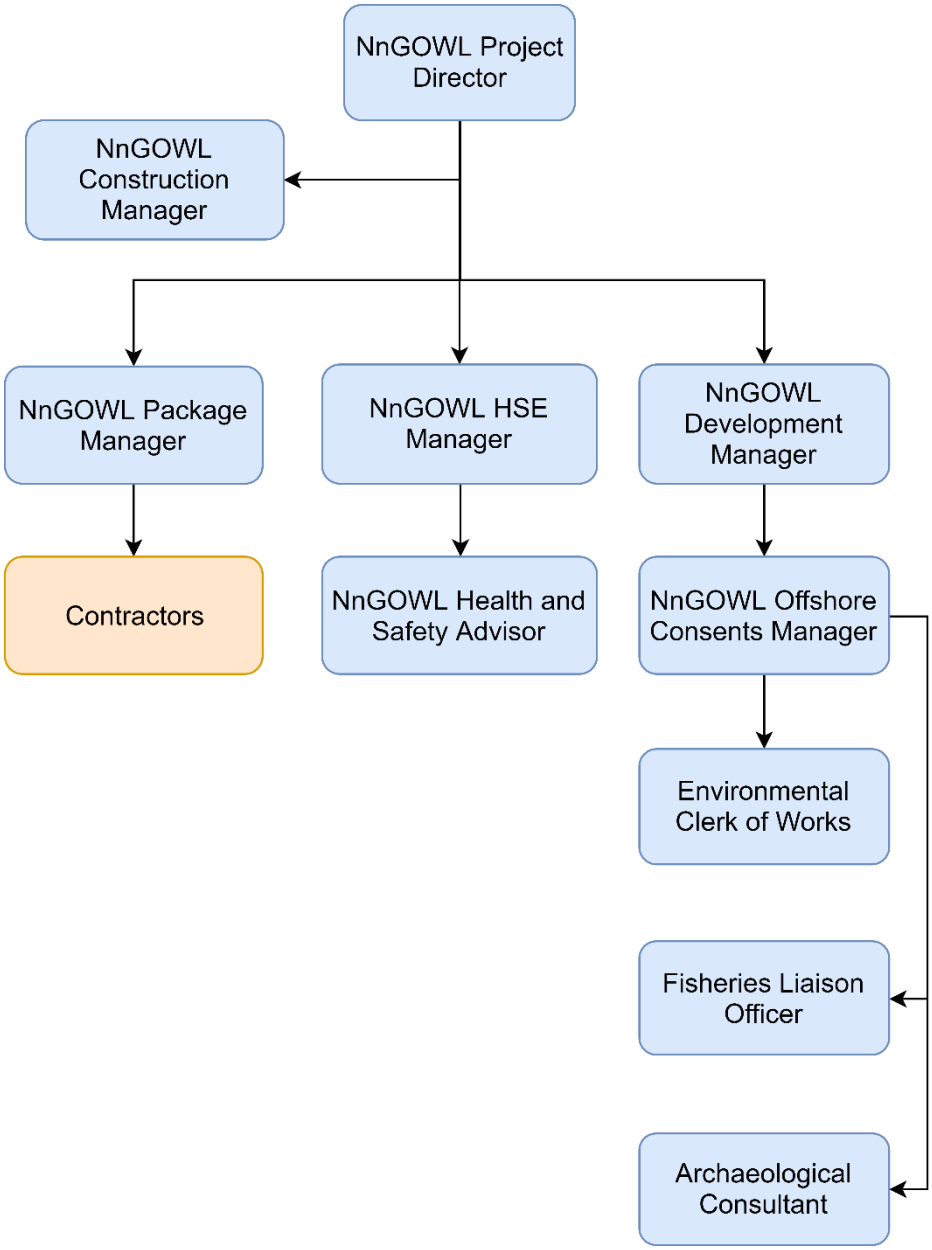

Figure 4-1: NnGOWL Organogram and lines of communication relevant to this EMP

Table 4-2: Key responsibilities of the Project Director relevant to this EMP

PROJECT DIRECTOR	
Reports to	EDF Renewables Senior Management and the NnGOWL Board
Responsibilities	• Ensure that sufficient resources and processes are in place to deliver/comply with the EMP and to manage potential environmental impacts; • Ensure that provision is made for environmental management issues to form part of construction and operation progress meetings and Project inductions; • Ensure contractual obligations are established for Contractors in relation to this EMP.

Table 4-3: Key responsibilities of the HSE Manager relevant to this EMP

NNGOWL HSE MANAGER	
Reports to	NnGOWL Project Director
Responsibilities	The NnGOWL HSE Manager is responsible for providing support, advice and guidance on all aspects of Health, Safety & Environmental management on the Project. Key responsibilities relevant to the EMP include the following: • Coordinating the development, monitoring and implementation of NnGOWL HSE management plans, which will be implemented alongside the EMP; • Providing HSE support, advice and guidance to the NnGOWL Project team; and • Coaching of the Project team to facilitate improvements in HSE performance.

Table 4-4: Key responsibilities of the Health and Safety Advisor relevant to this EMP

NNGOWL HEALTH AND SAFETY ADVISOR	
Reports to	NnGOWL HSE Manager
Responsibilities	The NnGOWL Health and Safety Advisor will support the HSE Manager in implementing the HSE Management Plans throughout construction of the Project. Key responsibilities relevant to the EMP include the following: • Ensure personnel engaged on the Project are aware of all HSE obligations detailed within the NnGOWL HSE Management Plans; • Monitor HSE performance levels; and • HSE auditing and reporting.

Table 4-5: Key responsibilities of the Construction Manager relevant to this EMP

NNGOWL CONSTRUCTION MANAGER	
Reports to	NnGOWL Project Director
Responsibilities	The NnGOWL Construction Manager will oversee the management of construction activities of the whole Project ensuring that the package managers have the necessary resources to implement environmental management measures detailed within this EMP. Key responsibilities include: • Ensure that environmental management measures are implemented and monitored across the Project during construction and operation; • Ensure that all personnel and Contractors assist and support the ECoW / Offshore Consents Manager where required, for example during on-site audits; • Ensure that any corrective actions arising from environmental audits are addressed; and • Ensure Contractor and Subcontractor non-compliance is reported and addressed.

Table 4-6: Key responsibilities of the Package Managers relevant to this EMP

NNGOWL PACKAGE MANAGERS	
Reports to	NnGOWL Project Director
Responsibilities	The Package Managers lead and manage the delivery of construction and O&M work packages which includes: Marine Installation; Transmission System; and Turbine Supply/Installation/Maintenance. The Package Managers have similar responsibilities to the Senior Project Manager, but in relation to their specific packages of work. The Package Managers have the following responsibilities in relation to the EMP: • Establishing and administering contractual obligations for Contractors in relation to EMP; • Responsible for ensuring that sufficient resources and processes are in place across their work package to deliver/comply with the EMP and to manage potential environmental risks; • Ensuring that provision is made for environmental management issues to form part of work package progress meetings; • Ensure provision is made for work package personnel to receive training from NnGOWL's ECoW specific to their role and responsibilities; • Ensuring that all work package personnel and Contractors personnel assist and support NnGOWL's ECoW where required, for example ECoW reporting and during walkdowns; • Responsible for administering the contractual requirements in relation to incidence of Contractor non-compliance; and • Where applicable to the work package, ensuring that any corrective actions arising from environmental incidents and/or non-compliances are implemented.

Table 4-7: Key responsibilities of the Contractors relevant to this EMP

CONTRACTORS	
Reports to	NnGOWL Package Managers
Responsibilities	All Contractors shall ensure that their own procedures encompass and fully discharge the mitigation and management measures and commitments presented in this EMP. This EMP forms the framework and the minimum standards for all construction personnel, Contractors to comply with. Adherence to the NnGOWL EMP will be a contractual requirement and Contractors will be required to develop their own task-specific method statements and EMPs in accordance with the NnGOWL EMP, the implementation of which will be monitored by NnGOWL. The Contractors have the following responsibilities in relation to this EMP: • Ensure that sufficient resources and processes are in place to deliver/comply with this EMP and manage potential environmental impacts; • Responsible for reporting to the NnGOWL management team via the relevant Package Manager; • Responsible for implementing and discharging the required mitigation (control) measures on behalf of NnGOWL; • Developing a contractor-specific EMP, using this overarching EMP and associated Annexes as guidance, for NnGOWL review and comment; • Comply with the requirements of the NnGOWL overarching EMP as a minimum standard and look to include additional mitigation measures where appropriate; • Ensure that the NnGOWL EMP is implemented by reviewing task specific Method Statements and Risk Assessments to ensure consistency and compliance with the overarching EMP; • Ensuring that Subcontractors adhere to the requirements of the overarching NnGOWL EMP, and the Contractor EMP and Method Statements; • Producing and maintaining records of activity on site and communicating those to the ECoW to enable reporting of compliance to MS-LOT; and • Liaising with the NnGOWL ECoW.

Table 4-8: Key responsibilities of the Development Manager relevant to this EMP

NNGOWL DEVELOPMENT MANAGER	
Reports to	NnGOWL Project Director
Responsibilities	Ensuring ongoing compliance of the project is ultimately the responsibility of the NnGOWL Development Manager supported by the Offshore Consents Manager and the ECoW. Key responsibilities in relation to this EMP include: • Ensure that the NnGOWL Offshore Consents Manager has sufficient resources and processes in place to implement and audit the environmental management processes required by this EMP; and, • Ensure that environmental management measures are implemented and monitored across the Project during construction and operation.

Table 4-9: Key responsibilities of the Offshore Consents Manager relevant to this EMP

NNGOWL OFFSHORE CONSENTS MANAGER	
Reports to	NnGOWL Development Manager
Responsibilities	Ensuring ongoing compliance with the EMP is ultimately the responsibility of the NnGOWL Offshore Consents Manager, supported by the ECoW. The NnGOWL Offshore Consents Manager will be responsible for all other reporting, returns and notifications to MS-LOT and relevant stakeholders as required by the Project consents. Key responsibilities in relation to this EMP include: • Ensure compliance with the EMP, supported by the ECoW and Environmental Manager; • Primary contact for MS-LOT, FTRAG, statutory bodies and stakeholders (excluding the responsibilities undertaken by NnGOWL's ECoW); • Managing NnGOWL's ECoW reporting on compliance with consent conditions to MS-LOT; • Where necessary, managing the process of obtaining new consents (if a result of NnGOWL originated activities) or monitoring consent applications made by Contractors / Principal Contractor(s) originated activities); • Attendance at NnGOWL meetings, providing environmental management input; • Reviewing Contractor documentation (e.g. method statements and risk assessments, EMPs) to ensure compliance with the NnGOWL EMP and associated Annexes; • Managing NnGOWL's Company FLO and Archaeological Consultant; and • Reporting to MS-LOT and FTRAG in respect to the PEMP.

Table 4-10: Key responsibilities of the Environmental Clerk of Works relevant to this EMP

ENVIRONMENTAL CLERK OF WORKS	
Reports to	NnGOWL Offshore Consents Manager
Responsibilities	General responsibilities for the ECoW include, but are not limited to, the following: • Responsible for monitoring compliance of the Project with the consents and Consent Plans; • Responsible for reporting on compliance and environmental issues to NnGOWL and to MS-LOT (within the remit of the ECoW consents conditions); • Support NnGOWL's Environmental Manager with monitoring compliance with environmental management related elements of this EMP and with the Marine Pollution Contingency Plan (MPCP), where required; • Review and quality check of this EMP (and all Consents Plans and Programmes); • Review of relevant Contractor documents from a compliance perspective; • Provision of advice to NnGOWL on compliance with consents conditions; • Attendance at NnGOWL meetings, providing environmental input; and • Direct liaison with MS-LOT, FTRAG, statutory bodies and stakeholders as required. Construction-specific responsibilities include, but are not limited to: • Monitoring of compliance with this EMP and other relevant Consent Plans by liaising regularly with the Construction Manager and HSE Manager, as well as other members of the project

	team with roles relevant to the EMP and by attending and participating in site / works meetings, drills and audits; • Providing support in the induction of NnGOWL and contractor personnel on site / works environmental policy and procedures; • Suggesting modifications to activities that would lead to non-compliance – provided that there are no overriding health and safety reasons for continuing with the activity; and • Being primary contact in NnGOWL consents team in any environmental incident response.

Table 4-11: Key responsibilities of the Company Fisheries Liaison Officer relevant to this EMP

NNGOWL COMPANY FISHERIES LIAISON OFFICER (FLO)	
Reports to	NnGOWL Offshore Consents Manager
Responsibilities	Responsible for establishing and maintaining effective communications between NnGOWL, Contractors, fishermen and other users of the sea during the construction phase. The Company FLO will provide information relating to the safe operation of fishing in the vicinity of the Project during construction. The responsibilities of the NnGOWL Company FLO in relation to the EMP are as follows: • Establish and maintain effective communications between NnGOWL, Contractors, fishermen and other users of the sea; • Provide information relating to the safe operation of fishing activity within and in the vicinity of the Site; • Participate in the Forth and Tay Commercial Fisheries Working Group (FTCFWG), to facilitate commercial fisheries dialogue; • Monitor Project compliance with best practice guidelines and the Fisheries Management and Mitigation Strategy (FMMS); • Liaise with NnGOWL's ECoW regarding compliance with the FMMS; and • Develop and deliver training on compliance with the FMMS to NnGOWL personnel including input to inductions, presentations and production of awareness material.

Table 4-12: Key responsibilities of the Archaeological Consultant relevant to this EMP

NNGOWL ARCHAEOLOGICAL CONSULTANT	
Reports to	NnGOWL Offshore Consents Manager
Responsibilities	The Archaeological Consultant will be responsible for advising NnGOWL on all archaeological matters relating to the Project that might impact upon archaeological and cultural heritage resources. The Archaeological Consultant has the following responsibilities: • Assume clear role of interface between NnGOWL and Historic Environment Scotland in the event of a potential find or an infringement of an Archaeological Exclusion Zone (AEZ), as detailed in the Offshore Written Scheme of Investigation and Protocol for Archaeological Discoveries (WSI & PAD); • Liaise with NnGOWL's ECoW in the event of a potential find or an infringement of an AEZ; • Liaise with NnGOWL's ECoW regarding compliance with the WSI & PAD; and • Develop and deliver training on relevant aspects of the WSI & PAD to NnGOWL personnel including input to inductions, presentations, production of awareness material etc.

4.4 EMP Staff Competence, Training and Awareness

4.4.1 Project Staff Competence

31. In line with the overarching HSE Plan and Competence and Training Management Standard, all NnGOWL personnel shall have the required skills, education, training, and experience to perform their tasks in a way that meet HSE objectives.

32. All Project roles are allocated a series of competency requirements and individuals are matched to those roles based on the extent to which they meet those requirements. Performance appraisal is undertaken annually, and as a result of the appraisal process, requirements for further training are identified.

4.4.2 Contractor Competence

33. NnGOWL assesses overall competence and suitability of all contractors prior to their engagement on the Project. Contractors are required to complete prequalification HSE questionnaires and have to demonstrate that they operate an Environmental Management System (EMS) appropriate to their scope of work as part of the tendering process. Appointed contractors are subject to ongoing performance review depending on the duration of their scope of work and must maintain the status of their EMS for the duration of their works.

4.4.3 Training and Awareness

34. Training and awareness specific to this EMP will be delivered to NnGOWL personnel and contractors. This will be delivered through inductions and ongoing awareness raising.

35. NnGOWL will ensure that a dedicated section is included within wider Project induction material(s) to cover environment and consents issues, including but not limited to:

    - Identification of specific environmental risks associated with the work to be undertaken on site by the inductee;
    - Identification of specific environmental risks which relate to specific areas of the Project site;

- Any site, time or task specific mitigation that is required in order to comply with commitments made in the Application or subsequent Consent Plans;
- Role of the ECoW and contact details; and
- Environmental Incident and Emergency Response Procedures.

36. All NnGOWL construction personnel and contractors will receive a Project induction.

37. 'Tool Box Talks' (TBT's) will be incorporated into daily / weekly briefings as required and will provide specific information to personnel involved in certain activities. These talks will highlight environmental risks and confirm control measures to implement and mitigate the likelihood of the work impacting upon the environment.

38. Subjects of relevance to the offshore works for inclusion within toolbox talks may comprise, but are not limited to:

- AEZs and the necessary mitigation measures to be followed;
- Dealing with oil and chemical spills (see Annex 2 – Marine Pollution Contingency Plan);
- Minimising waste and waste management;
- General good environmental actions and 'house-keeping'; and
- Environmental Incident Reporting.

39. In addition to presentations and talks, NnGOWL's ECoW will prepare a series of awareness materials, which may include training packs, posters, signs and newsletters. For example, posters on specific procedures can be on display on notice boards in the site office and on construction vessels.

40. Records of training delivered to NnGOWL personnel by NnGOWL's ECoW will be maintained and filed by the NnGOWL's ECoW. The records will include the content of the training delivered, record of attendance and schedule of review.

4.5 EMP Communications and Reporting

4.5.1 Internal Communications

41. There are a range of opportunities for the exchange and sharing of HSE information across the Project, including:

- Project and company inductions;
- NnGOWL Project meetings – HSE is a fixed agenda item;
- Site Meetings – HSE is a fixed agenda item;
- Monthly Contractor meetings – HSE is a fixed agenda item;
- NnGOWL HSE meetings – NnGOWL holds regular HSE-specific meetings with staff to ensure that people are able to raise concerns and get feedback on ongoing matters;
- Daily HSE Safety Messages issued to all members of the Project team and displayed in the Project office, to be discussed in any internal and external meetings held that day;
- Monthly HSE Reports – every month a full report of all Project HSE leading and lagging indicators is prepared and shared with the team; and
- Task/area specific HSE tool-box talks - these will be held before tasks with specific HSE and/or mitigation are undertaken.

4.5.2 NnGOWL ECoW Communications

42. The ECoW has a key role in the delivery of the EMP and ongoing monitoring of compliance. In fulfilling this role, NnGOWL's ECoW shall:

- Establish direct contact with Contractors and provide support to the NnGOWL consents team and HSE team on a day to day basis;
- Be in direct contact with the Archaeological Consultant and CFLO when required;
- Report directly to MS-LOT on compliance with this EMP; and
- Provide environmental input and where required attend NnGOWL meetings.

4.5.3 External Communications

43. The EMP consent condition requires that the EMP sets out:

> *The reporting mechanisms that will be used to provide the Scottish Ministers and relevant stakeholders (including, but not limited to, the Joint Nate Conservation Committee (JNCC), SNH, SEPA, RSPB Scotland, Maritime Coastguard Agency (MCA) and Northern Lighthouse Board NLB) with regular updates on construction activity, including any environmental issues that have been encountered and how these have been addressed.*

44. NnGOWL consents team supported by the NnGOWL ECoW will liaise with MS-LOT and other stakeholders on matters relating to environmental management. The NnGOWL ECoW will also be responsible for direct reporting to MS-LOT on compliance with this EMP.

45. Specific reporting on construction progress and environmental issues encountered will be completed according to the means set out in Table 4-13 below.

Table 4-13 : EMP regular reporting

COMMUNICATION TYPE	FREQUENCY	RELEVANT STAKEHOLDERS
ECoW Compliance Report, covering construction progress and agreed environmental reporting criteria.	Monthly	MS-LOT
NnGOWL consents team and NnGOWL's ECoW meetings with MS-LOT	As required	MS-LOT
NnGOWL consents team updates	As required	FTRAG and key stakeholders

46. In addition to the specific reporting requirements under the EMP condition, a number of other returns or reporting requirements relevant to environmental management are set out in the Offshore Consents. The relevant conditions and reporting requirements are set out in Table 4-14 below. Reports will be submitted to MS-LOT by the NnGOWL consents team.

Table 4-14 : Other reporting requirements

TOPIC	CONSENT CONDITION REFERENCE	FREQUENCY	CONDITION REQUIREMENTS
Force Majeure	Wind Farm and OfTW Condition 3.1.4	In event of an incident	Should the Licensee or any of their agents, contractors or Subcontractors, by any reason of force majeure deposit anywhere in the marine environment any substance or object, then the Licensee must notify the Licensing Authority of the full details of the circumstances of the deposit within 48 hours of the incident occurring (failing which as soon as reasonably practicable after that period of 48 hours has elapsed). Force majeure may be deemed to apply when, due to stress of weather or any other cause, the master of a vessel or vehicle operator determines that it is necessary to deposit the substance or object other than at the Site because the safety of human life or the vessel, vehicle or marine structure is threatened. Under Annex II, Article 7 of the Convention for the Protection of the Marine Environment of the North-east Atlantic, the Licensing Authority is obliged to immediately report force majeure incidents to the Convention Commission.
Chemical usage	Wind Farm Marine Licence and OfTW Marine Licence Condition 3.1.8	Prior to chemical usage	The Licensee must ensure that all chemicals which are to be utilised in an open system during the construction of the Project have been approved in writing by the Licensing Authority prior to use. Requests for approval must be submitted in writing to the Licensing Authority no later than one month prior to its intended. The Licensee should take all practicable steps to avoid leakages from a closed containment system into the Scottish marine area. Any such leakages must be reported to the Licensing Authority as soon as practicable.
Fluorinated gas emissions	Wind Farm Marine Licence and OfTW Marine Licence Condition 3.1.9	Annually or in the event of a leakage	The Licensee must ensure that all equipment to be utilised in the Works which contains fluorinated greenhouse gases must take precautions to prevent the unintentional release ('leakage') of those gases. Fluorinated greenhouse gases in quantities of 5 tonnes of CO2 equivalent or more and not contained in foams, is checked for leakage in accordance with Article 4 of the Fluorinated Greenhouse Gases (F-Gas Regulation). Records of checks must be kept in accordance with Article 6 of the F-Gas Regulation. These records must be submitted to the Licensing Authority annually and immediately in the event of discovery of leakage. Where the equipment is subject to checks for leakage (Article 4(1) of the F-Gas Regulation) and leakage in the equipment has been repaired, the Licensee must ensure that the equipment is checked by a suitably certified person within one calendar month after the repair to verify that the repair has been effective. In such event,

TOPIC	CONSENT CONDITION REFERENCE	FREQUENCY	CONDITION REQUIREMENTS
			the Licensing Authority must be informed of the date of discovery, date of repair and date of inspection.
HSE	Wind Farm Marine Licence and OfTW Marine Licence Condition 3.2.1.1	In event of an incident	In the event of any breach of health and safety or environmental obligations relating to the Works during the period of this Licence, the Licensee must provide written notification of the nature and timing of the incident to the Licensing Authority within 24 hours of the incident occurring. Confirmation of remedial measures taken and/or to be taken to rectify the breach must be provided, in writing, to the Licensing Authority within a period of time to be agreed by the Licensing Authority.
Deposits	Wind Farm Marine Licence and OfTW Marine Licence Condition 3.2.3.1	Monthly during construction phase or in event of an incident	Detailed Transport Audit Report (TAR) each month during the construction phase of the Works. If the Licensee becomes aware of any substances, objects or materials on the TAR that are missing, or that an accidental deposit has occurred, the Licensee must notify the Licensing Authority as soon as practicable. If the Licensing Authority is of the view that any accidental deposits have occurred and should be removed, then the materials must be removed by the Licensee as soon as is practicable and at the Licensee's expense.
Marine mammals	Wind Farm Marine Licence Condition 3.2.2.3 and OfTW Marine Licence Condition 3.2.2.2	Six months following commencement of construction and at six monthly intervals thereafter.	The Marine Mammal Observer (MMO) must maintain a record of any sightings of marine mammals and maintain a record of the action taken to avoid any disturbance being caused to marine mammals during noisy activities (such as piling). The Licensee must provide the Licensing Authority with the MMO's records no later than 6 months following Commencement of the Wind Farm, and at 6 monthly intervals thereafter.
Noise registry	Wind Farm Marine Licence Condition 3.2.2.4 and OfTW Marine Licence Condition 3.2.2.3	Prior to the commencement of piling	The Licensee must, in the event that driven pile foundations are to be used, submit the appropriate completed noise reduction registry form to the Licensing Authority and the JNCC, stating the proposed date(s), location(s) and nature of the piling activities under authority of this licence.
	Wind Farm Marine Licence and OfTW Marine Licence Condition 3.2.4.3	Within 12 weeks of completion of Wind Farm/OfTW	The Licensee must, in the event that driven pile foundations were used, submit the appropriate completed noise reduction registry form to the Licensing Authority and the JNCC, within 12 weeks of Completion of the Wind Farm/OfTW, stating the actual date(s), location(s) and nature of piling activities carried out under authority of this licence.

4.5.4 Incident Reporting

47. In the event that an environmental or pollution incident occurs and following any required statutory notifications, the Contractor will notify NnGOWL as soon as possible; the Contractor will have the prime responsibility for responding to any incident.
48. An incident response shall be executed in accordance with the Contractors own, compliant response procedures, and/or procedures set out in relevant Consent Plans.
49. The environmental incidents to which there are specific response procedures are listed in Table 4-15.

Table 4-15: NnGOWL incident reporting procedures

INCIDENT TYPE	LOCATION OF NNGOWL RESPONSE PROCEDURE
Pollution incident (oil or chemical spill)	Annex 2 – Marine Pollution Contingency Plan
Archaeology – infringement on AEZs or archaeological discoveries	Refer to the WSI & PAD
Dropped Objects	Section 5.5
Non-compliance with consents conditions or legal requirements	Non-compliance reporting proforma

4.6 Monitoring of EMP Performance and Compliance

50. Compliance with the EMP and other relevant Consent Plans will primarily be monitored by NnGOWL's ECoW. NnGOWL's ECoW monitoring activities will be summarised in the ECoW Monthly Compliance Reports.
51. In addition, the NnGOWL Health and Safety Advisor monitors contractor HSE policies and procedures and ongoing contractor HSE performance.
52. If any non-compliances are observed on-site an on-site risk assessment will be undertaken (Point of Work Risk Assessment) detailing any required immediate corrective actions to be taken will be issued.
53. MS-LOT may also undertake monitoring of compliance with the consents and approved Consent Plans through periodic Site inspections. With appropriate notification, NnGOWL will facilitate access to all offshore construction activities for this purpose.
54. Any observations or corrective actions arising from monitoring activities and inspections will be addressed as necessary, with procedures updated in the EMP as required.

4.7 EMP Document Management

55. The approved EMP will be a controlled document and will be formally issued to Contractors via NnGOWL's document management system.
56. A current copy of the EMP will be held at the following locations:
    - NnGOWL Project Office;
    - At the premises of the main Contractors acting on behalf of NnGOWL;

- All site offices dealing with marine operations including the NnGOWL Marine Coordination Centre; and
- With NnGOWL's ECoW.

57. NnGOWL will ensure that MS-LOT are provided with the most up to date copy of the EMP.

58. A register of document versions and issue dates will be maintained by NnGOWL.

5 Environmental Management and Mitigation Measures

59. The requirement to construct and operate the Project in accordance with the environmental management and mitigation measures identified in the Application arises from specific requirements in the consents related to this EMP, with the relevant condition set out in Table 1-2, requiring that the EMP:

> *'must be in accordance with the Application insofar as it relates to environmental management measures.'*

And,

> *Address… mitigation measures to prevent significant adverse impacts to environmental interests, as identified in the Application and pre-consent and pre-construction surveys, and include the relevant parts of the CMS;'*

60. The following sections set out in this EMP (and the other referenced Consent Plans) are in accordance with the commitments made in the EIA Report and the Addendum. In addition, this section incorporates any other commitments relevant to environmental management and mitigation arising from the consents.

5.1 EIA Report Compliance Register

61. A Compliance Register for the Project has been developed that identifies the environmental management, mitigation (and also monitoring) measures set out in the NnGOWL Application including the EIA Report and Addendum, and the Project Consents, and any other commitments made by NnGOWL to environmental management and mitigation. An excerpt of the compliance register detailing the environmental management measures and mitigation commitments detailed within the EIA Report and Addendum are set out under Annex 1 - NnGOWL Application Commitments Register.

62. The Register addresses the environmental management and mitigation measures relevant to both the construction and operational phases of the Project, but also for each stage of construction as defined by the CMS, in relation to each environmental receptor as per the EIA Report and Addendum.

5.2 Minimise Risk of Vessel Disturbance

63. In addition to the vessel management procedures set out in NSVMP that shall be complied with throughout construction and operation of the Project vessel masters will be required to ensure that disturbance to marine wildlife is minimised as far as practicable. Where appropriate, and safe to do so, vessel masters will adhere to the following principles, in accordance with the Scottish Marine Wildlife Watching Code (SMWWC):

- Consider adhering to existing shipping lanes or indicative transit routes in passage planning in accordance with the NSVMP;
- Avoid sudden changes in speed or direction in transit to and from the Wind Farm Area or Offshore Export Cable Corridor as far as possible and unless required for health and safety reasons or other emergency purposes;
- Keep a good look forward (this particularly applies to smaller vessels);
- Do not intentionally pursue marine mammals or birds; and,
- Do not instigate contact with marine mammals or birds.

5.3 Chemical Usage

64. The requirement to set out the environmental management framework for the use of chemicals during the construction of the Project arises from the requirements detailed in the Offshore Consents (See Table 1-2).

65. The following sections set out the overarching EMP framework relating to the use of chemicals during the construction phase, and specifically sets out:

- Approved notified chemicals; and
- Measures for use, transport and storage.

5.3.1.1 Environmental Management Associated with Chemical Usage

66. The List of Notified Chemicals is a product of the OCNS which manages chemical use and discharge by the UK and Netherlands offshore petroleum industries. Construction activities may require the use of chemicals that are not listed in the OCNS. NnGOWL will notify MS-LOT of all chemicals to be used during construction prior to use. As required by the Wind Farm and OfTW Marine Licence Conditions NnGOWL will seek approval for any chemicals to be used in an open system prior to its use in offshore operations.

67. NnGOWL will require that Contractors comply with the Marine Licence conditions (as set out above) throughout the construction phase of the Project. Table 5-1 sets out measures that Contractors will be required to implement, as appropriate, when using chemicals in accordance with the consents.

68. In addition, NnGOWL require that all Contractors have in place appropriate procedures for the use, transport and storage of chemicals during the construction phase of the Project, as detailed, but not limited to, those set out in Table 5-1.

Table 5-1: Potential chemicals spill scenarios and control measures to be implemented during construction.

INCIDENT SCENARIO	CONTROL MEASURES	LIKELIHOOD WITH CONTROL MEASURES
Incident	All vessels will comply with the measures set out in the NnGOWL NSVMP to prevent vessel to vessel collision, vessel to structure allisions and vessel stranding / grounding. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).	Very low
Leakage within Turbines	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Turbine sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak.	Low

INCIDENT SCENARIO	CONTROL MEASURES	LIKELIHOOD WITH CONTROL MEASURES
	Equipment including hoses, pipes and seals shall be routinely checked during planned maintenance programmes. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).	
Loss of chemical load from vessel collision/allision, or stranding/grounding of vessel.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in the correct handling and use of chemicals. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. All hazardous substances shall have a Safety Data Sheet (SDS) which is intended to provide procedures for handling or working with that substance in a safe manner. The handling and use of chemicals and hazardous substances shall be in compliance with the information on the SDS. COSHH assessments should be conducted for Development specific hazardous substances. Segregated storage facilities will be used to control the separation of hazardous substances. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).	Low
Leakage of fluorinated greenhouse gases (F-gases) from Switchgear	All construction and O&M activities where handling F-Gases will be required will be done so by qualified technicians who hold a F-Gas handling certificate. All equipment containing F-gases will be checked regularly or be fitted with a pressure monitoring device that will set off an alarm in the event of a drop in pressure. During Construction notes of the following items will be recorded and kept for a minimum of 5 years: • Quantity of F-Gas in the equipment when it's installed;	Low

INCIDENT SCENARIO	CONTROL MEASURES	LIKELIHOOD WITH CONTROL MEASURES
	• Quantity of SF6 added during any maintenance (e.g. installation or leak repairs); • Quantity of SF6 recovered during any maintenance works; • Details (name, address and certificate number if relevant) of any companies that work on the equipment; • Dates and results of all mandatory leak checks. In the event of a leak being identified remedial action will be taken as soon as practicable and reported to MS-LOT. Follow inspections will take place within one month to ensure any remedial action is successful.	

5.4 Invasive Non-Native Marine Species

69. The requirement to set out the environmental management framework for the management of invasive non-native species (INNS) arises from specific requirements in the consents related to this EMP, with the relevant condition set out in Table 1-1, requiring that the EMP:

> *"…address, but not be limited to, the following overarching requirements for environmental management during construction:*
>
> *Management measures to prevent the introduction of invasive non-native marine species."*

70. The following sections set out the overarching EMP framework for the management of INNS during the construction phase, and specifically sets out:
    - Relevant legislation to be observed; and
    - NnGOWL environmental management requirements to be adopted.

5.4.1.1 Relevant legislation and guidelines

71. The legislation and guidelines set out in Table 5-2 is relevant to the control of INNS.

Table 5-2: Legislation and guidance relating to the management and control of INNS

LEGISLATION / GUIDELINES	RELEVANT REQUIREMENT
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Ballast Water Exchange Management Plan Ballast Water Record Book International Ballast Water Certificate

LEGISLATION / GUIDELINES	RELEVANT REQUIREMENT
The Merchant Shipping (Anti-Fouling Systems) Regulations 2009	International Anti-fouling System Certificate
Resolution MEPC.207(62) 2011 Guidelines for the Control and Management of Ships Biofouling to Minimize the Transfer of Invasive Aquatic Species	General guidance on minimising biofouling risks

5.4.1.2 NnGOWL INNS environmental management requirements

72. In adopting management measures to prevent the introduction of INNS, NnGOWL will:

- Require that all Contractors adopt the relevant legislative and good practice requirements;
- Require that all Contractors produce EMPs / adhere to NnGOWL EMPs setting out in detail procedures to prevent the introduction of INNS; and
- Ensure the NnGOWL ECoW reviews Contractor EMPs / audits / monitors contractor procedures for compliance.

73. Specific measures that NnGOWL will require are adopted by all Contractors will include:

- A requirement for all vessels of 400 gross tonnes and above to be in possession of a current international Anti-fouling System (AFS) certificate;
- A requirement for all vessels of 24 m or more in length (but less than 400 gross tonnes) to carry a declaration on AFS signed by the owner or authorised agent accompanied by appropriate documentation;
- A requirement for the details of all ship hull inspections and biofouling management measures be documented by the Contractors and, where applicable, recorded in the Planned Maintenance System;
- A requirement for all submersible / immiscible equipment e.g., Remote Operated Vehicles (ROVs) (if required) to be subject to pre-use and post-use checks including checks for the presence of marine growth following check-clean-dry principles[1]. All equipment will be required to be free of marine growth prior to mobilisation; and
- A requirement for all vessels to be compliant (where applicable) with the International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM Convention, developed and adopted by the International Maritime Organisation (IMO, and which entered into force on the 8th September 2017)) (i.e., ships 400 gross tonnes and above designed/constructed to carry ballast water and operating in the waters of more than one Member State), specifically:
  - A requirement, where relevant, for the management of ballast water in accordance with an approved Ballast Water and Sediments Management Plan and records of such management in a Ballast Water Record Book in accordance with the provisions of the Convention;
  - A requirement to ensure, where appropriate, that ballast water management meets the ballast water performance standards as detailed in the BWM Convention;

[1] More information on the check-clean-dry principle can be found here: http://www.nonnativespecies.org/checkcleandry/

- A requirement, where possible, and if required, for Ballast Water Exchange to take place at least 50 nm from the nearest land and in 200 m water depth; and
- Other methods of ballast water management may also be accepted as alternatives to the Ballast Water Exchange standard and Ballast Water Performance standard, provided that such methods ensure at least the same level of protection to the environment, human health, property or resources, and are approved in principle by IMO's Marine Environment Protection Committee (MEPC).

74. In addition, NnGOWL will require that Contractors comply, where appropriate, with the recommendations of Resolution MEPC.207(62) 2011 guidelines for the control and management of ship's biofouling to minimize the transfer of invasive aquatic species including, for example, the implementation of a Biofouling Management Plan outlining the biofouling management measures to be undertaken on vessels.

5.5 Seabed Deposits and Notification of Dropped Objects

75. The requirement to record, notify and potentially recover objects lost or accidentally deposited on the seabed during construction and operation works arises from specific requirements in the consents; the relevant consents conditions are set out in Table 1-2 below (the specific elements of the consents conditions addressed by the procedures described in this section are highlighted in bold).

76. The TAR template required under Wind Farm Marine Licence and OfTW Marine Licence Condition 3.2.3.1 will be provided to MS-LOT for approval in advance of commencement of construction. Reporting requirements related to the TAR are set out in Table 1-2.

77. Notification of dropped objects during the construction or operational phase will be completed using MS-LOT's Offshore Wind & Marine Renewables Dropped Object Proforma. The process to be followed in the event of any construction or operational staff becoming aware that any object has been accidentally (or by need of Force Majeure) dropped or otherwise deposited is set out below in Table 5-3.

78. A copy of the dropped object procedure (Table 5-3) and the Dropped Object Notification Proforma will be available on all construction and operational vessels. Relevant staff will be inducted on the dropped object procedures.

79. Note that separate provisions apply for the accidental loss of pollutants; these procedures are set out in the MPCP (Annex 2 – Marine Pollution Contingency Plan) and must be referred to in place of the following (see also Section 5.7 of this EMP).

Table 5-3: Dropped object process and remediation process.

INTRODUCTION
This dropped objects procedure identifies the measures to be put in place to manage dropped objects during the construction phase of the Project, including recovery where possible, and the recording of losses. This also includes procedures for communicating deposits made under circumstances of Force Majeure. Dropped objects can present a significant hazard to other sea users and the marine environment. Submission of the Offshore Wind and Marine Renewables Dropped Object Form enables MS-LOT, in consultation with other relevant stakeholders, to decide what action should be taken and to allow notification of other sea users of any navigational hazards.
PREVENTION
Consideration should be given to minimising wherever possible the potential for objects to be dropped or otherwise accidentally deposited. Each Contractor should have its own process for ensuring equipment and materials are adequately stored and controlled and that staff are adequately trained and briefed on avoiding dropped objects or accidental deposits, and in the event that they do occur on this notification procedure. Each Contractor should complete the required TAR to record all materials, equipment and components being loaded and transported and deposited under the licensable activities permitted by the Marine Licences. The Contractor will be responsible for ensuring that the relevant Subcontractor details are entered onto the TAR and will issue these to the Marine Coordinator on a monthly basis.
IDENTIFICATION
If any Contractor (or NnGOWL through review of the TAR) becomes aware of any substance or objects on the TAR that are missing, or an accidental deposit occurs (for example by personnel observing or reporting that an object has been lost) the responsible Contractor will log the loss as soon as becoming aware of the incident and notify the NnGOWL Marine Coordinator of the incident, who will notify HM Coastguard. **Note that every reasonable measure should be taken to immediately retrieve dropped objects where this is considered reasonably practicable** (a Marine Licence is not required for such recovery under The Marine Licensing (Exempted Activities) (Scottish Inshore and Offshore Regions) Amendment Order 2012).
NOTIFICATION
The contractor will also complete the Offshore Wind and Marine Renewables Dropped Object Form and submit it to the NnGOWL Marine Coordinator and ECoW. The Marine Coordinator will notify MS-LOT and other relevant stakeholders as identified on the proforma by submitting the completed Offshore Wind and Marine Renewables Dropped Object Form. MS-LOT must also be notified of any activities to recover dropped objects that have been conducted but not been successful (or are considered unlikely to be successful) or that are planned (but may take some time) at the time of notification.
RECOVERY
MS-LOT will provide advice to NnGOWL on appropriate remedial action in relation to each incident reported. MS-LOT may deem it necessary to carry out a side scan survey to locate the substances or objects and may require the deposits to be removed where they are judged to pose a hazard (as set out under Wind Farm Marine Licence and OfTW Marine Licence Condition 3.1.10). Proposals for recovery of the dropped object must be provided to MS-LOT

5.6 Unexploded Ordnance

80. Prior to the construction phase there will be a UXO survey and clearance programme, therefore the risk of discovering previously unidentified UXO will have been reduced to as low as reasonably practicable.

81. However, in the event of a UXO discovery, the Contractors shall inform the NnGOWL HSE Manager and Marine Coordinator immediately.

82. In the unlikely event of needing to detonate a UXO, MS-LOT will be consulted and licences sought as appropriate.

5.7 Pollution Prevention and Contingency Planning

83. The requirement to set out the environmental management framework for the pollution prevention and contingency planning arises from specific requirements in the S36 consent and OfTW Marine Licence related to this EMP, with the relevant condition set out in Table 2.1, requiring that the EMP:

> *'address, but not be limited to, the following overarching requirements for environmental management during construction:*
>
> *Pollution prevention and control method statement, including contingency plan'*

84. In the event of a pollution incident, construction personnel should refer immediately to Annex 2 – Marine Pollution Contingency Plan of this EMP for details on appropriate response procedures.

5.8 Waste Management

85. The requirement to set out the environmental management framework for the management of waste generated by the construction and operation of the Project arises from specific requirements in the consents related to this EMP, with the relevant condition set out in Table 1-1, requiring that the EMP:

> *"…address, but not be limited to, the following over-arching requirements for environmental management during construction:*
>
> *A site waste management plan (dealing with all aspects of waste produced during the construction period), including details of contingency planning in the event of accidental release of materials which could cause harm to the environment. Wherever possible the waste hierarchy of reduce, reuse and recycle should be encouraged"*

86. This section sets out the NnGOWL waste management framework that will be implemented through construction and operation of the Project.

5.8.1.1 Relevant regulatory framework

Definition of waste

87. The definition of "waste" is taken from Article 3(1) of the revised European Waste Framework Directive (WFD) (2008/98/EC), which states that waste is "any substance or object which the holder discards or intends or is required to discard".

88. "Discard" includes the recovery and recycling of a subject or object as well as its disposal. The decision on whether something is discarded must take account of all the circumstances (for example, the nature of the material, how it was produced and how it will be used) and have regard to the aims of the WFD, which include "the protection of human health and the environment against harmful effects caused by the collection, transport, treatment, storage and tipping of waste".

Legislation and Guidance

89. Table 5-4 sets out the relevant legislative drivers for processing and disposing of waste that will be generated during construction and operation of the Project.

Table 5-4: Relevant waste management legislation that will be complied with during construction and operation and maintenance

WASTE MANAGEMENT LEGISLATION	SUMMARY OF REQUIREMENTS
European Waste Framework Directive (WFD) (2008/98/EC)	Sets out the key waste management requirements where onshore disposal is required. Additional detail described under national legislation below.
Waste (Scotland) Regulations 2012 SSI 148 **Waste Management Licensing (Scotland) Regulations 2011 SSI 228** **Environmental Protection (Duty of Care) (Scotland) Regulations 2014 SSI 4**	Transposes the requirements of the WFD into Scottish legislation. Requires all businesses and organisations that produce waste to take all reasonable measures to prevent waste, and to apply the waste hierarchy (refer to Section 5.8.1.3).
International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) Annex IV (sewage) and Annex V (garbage)	Sets out the requirements of waste disposal generated at sea. Under the Convention, the North Sea is designated as a Special Area where the disposal of any waste (except food waste) offshore is prohibited.
Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008	Transposes the MARPOL 73/78 Convention into UK legislation and which places a number of obligations on vessels in terms of managing waste.
Special Waste (Scotland) Regulations 1996 SI 972	Sets out the requirements for the preparation of Consignment Notes for the handling and carriage of special waste (including hazardous waste) as defined within the regulations. Requires the removal of ships' waste to reception facilities and also the avoidance of mixing waste streams.

90. Additional relevant policy and guidance documents include:

- Duty of Care Code of Practice 2016[2];
- SEPA guidance on the production of Site Waste Management Plans 2010[3];
- UK Marine Policy Statement 2011; and
- Zero Waste Scotland 2014[4].

5.8.1.2 Types of Waste

91. The potential waste streams generated by the construction and operation of the Project can be subdivided into three categories:

[2] DEFRA (2016) Waste Duty of Care Code of Practice
[3] SEPA (2010) Site Waste – A Simple Guide to Site Waste Management Plans

[4] Scottish Government (2010) Scotland's Zero Waste Plan. https://www2.gov.scot/Resource/0045/00458945.pdf

- Inert;
- General (non-hazardous); and
- Hazardous.

92. Non-hazardous wastes are accepted at SEPA regulated non-hazardous or inert licenced landfill sites whilst hazardous wastes are accepted at hazardous licenced landfill sites within Scotland. Technical guidance on the interpretation of the WFD definition and classification of hazardous waste versus non-hazardous waste is provided by the Joint Agency technical guidance (WM2): Hazardous Waste (2013) and draft guidance, in preparation, (WM3) Draft Waste Classification (2015).
93. Any unidentified wastes must be treated as hazardous and stored separately from other wastes pending identification and classification. Packaging and containers associated with hazardous materials shall themselves be treated as hazardous waste until such time as they have been satisfactorily cleaned.
94. In the case of construction and operational vessels, the following list provides an example of hazardous waste typically generated by a construction vessel:

- Waste Paint and Paint thinners;
- Waste oil;
- Oiled waste, including oil filters, oily rags, etc.
- Contaminated oil;
- Spent Batteries;
- Waste Anti-freeze;
- Used light bulbs/tubes; and
- All hazardous waste packaging.

5.8.1.3 Waste management process

95. Construction and O&M waste generated from the Project will be managed according to the principles of the waste hierarchy (Figure 5-1). The waste hierarchy ranks waste management options according to what is best for the environment, giving priority to waste prevention. When waste has been generated, priority is given to preparing it for re-use, then recycling, then recovery, and last of all disposal (for example, landfill).
96. The waste hierarchy is a key element of sustainable waste management and is a legal requirement of the revised EU WFD and is central to the Waste (Scotland) Regulations 2012.

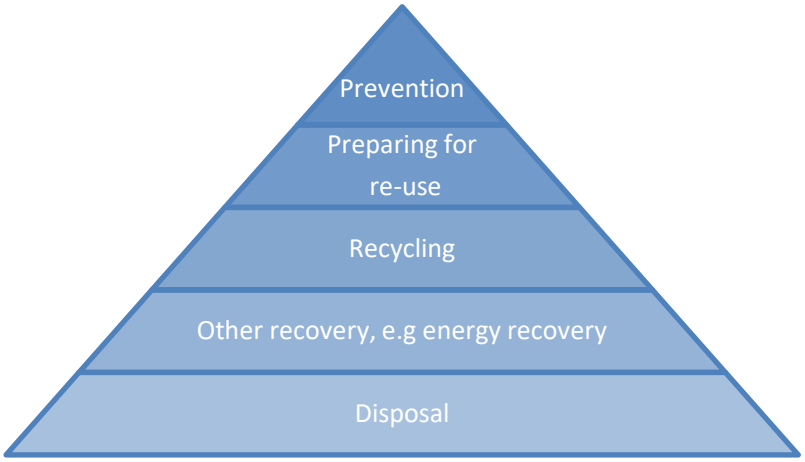

Figure 5-1 Waste Hierarchy (Source: Scottish Government, 2009)

97. NnGOWL will require that all Contractors for the construction of the Project shall:

- Produce, for NnGOWL approval, waste management procedures for their activities providing details of expected waste arisings and proposed procedures for waste management;
- Meet all relevant legislative requirements and obtain whatever additional licences are necessary in relation to waste management;
- Handle waste materials and refuse so that it causes the least possible damage and disturbance;
- Require that all waste is placed in suitable labelled containers; and
- Require that all relevant waste is brought back to shore and disposed of in accordance with the waste management framework.

Annexes

Annex 1 - NnGOWL Application Commitments Register

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Geology and Water Quality	Construction contractors will be required to produce Site Environmental Management Plans (SEMP) and Pollution Control and Spillage Response Plans prior to construction works [or similar]. These plans will reduce the probability of accidental spillage and formalise a contingency plan in the event that one does occur.	To mitigate the effects of leaks or spills on the marine environment.	EMP
Physical Processes	A nearshore survey will be completed to inform the design of the intertidal and nearshore cable laying, and thus minimise impacts.	To mitigate the effects on physical processes	CaP
Physical Processes	A variety of techniques may be employed to reduce or eliminate scour. The following measures will be considered: rock armouring, mattressing, and frond mats.	To ensure the structural integrity of installed infrastructure.	DSLP; CMS; CaP
Physical Processes	Cables will be suitably buried or will be protected by other means when burial is not practicable.	To mitigate the effects on physical processes	CaP
Air Quality	As all atmospheric emissions associated with the development are from vessel emissions, total emissions will be reduced by taking total vessel emissions / fuel use into account when designing the final installation, operation and maintenance, and decommissioning strategies to minimise as far as practicable the number of vessel movements and installation time required.	To mitigate the effects on air quality	VMP
Air Quality	Additionally, all vessels employed during the Project development will comply with the Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 and where practicable, contracts with the vessels will include a requirement for energy management, to minimise energy usage.	To mitigate the effects on air quality	NSVMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Benthic Ecology; Fish and Shellfish; Commercial Fisheries	Cable burial to an appropriate trenching depth to limit the rise in sediment temperature and prevent macrozoobenthic fauna from direct harm as well as limit physical changes that may impair the ecological functioning of benthic communities and to increase the distance between benthic species and electro-magnetic field (EMF) associated with subsea cabling.	To mitigate the effects on benthic habitats	CaP
Benthic Ecology	Conduct a pre-construction cable route survey to identify any sensitive seabed habitats. Should such habitats be recorded, the Offshore Export Cable Corridor will be micro-sited, in consultation with Scottish Natural Heritage (SNH) and other stakeholders via submission, for approval, to MS-LOT of a Cable Plan (CaP).	To mitigate the effects on benthic habitats	CaP
Benthic Ecology; Fish and Shellfish	Although no significant impact arising from the installation of the cables is predicted, it is considered good practice to minimise the extent of any unnecessary habitat disturbance. On this basis, material displaced as a result of cable burial activities should, where techniques allow, be back-filled in order to promote recovery.	To mitigate the effects on benthic habitats	CaP
Archaeology and Cultural Heritage	Direct physical impact on all sites of cultural heritage interest identified will be avoided where possible through micro-siting of both turbines and installation equipment (e.g. jack-ups).	To mitigate the effects on maritime archaeology	WSI & PAD DSLP CaP EMP
Archaeology and Cultural Heritage	Where cultural heritage assets may potentially be subject to direct or indirect impacts, Archaeological exclusion zones (AEZ) will be implemented to prevent potential impacts from anchoring or installation of jack-up vessels. Exclusion zones of at least 100 m will be established around sites identified as being of high vulnerability, while an exclusion zone of a minimum 50 m will be established around those of medium vulnerability. In addition to the construction phase it is also anticipated that the implementation of AEZs will ensure cultural heritage assets are protected from potential impacts during the operation and	To mitigate the effects on maritime archaeology	WSI & PAD DSLP CaP EMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
	decommissioning phases. Absolute exclusion zones of at least 300 m around all protected wrecks within the Development Area.		
Archaeology and Cultural Heritage	Following further survey or investigation confirming the nature and characteristics of an identified asset then an AEZ can be maintained or removed as appropriate and in consultation and agreement with Historic Environment Scotland (HES).	To mitigate the effects on maritime archaeology	WSI & PAD DSLP CaP EMP
Archaeology and Cultural Heritage	The implementation and monitoring of the AEZs will be maintained through a Written Scheme of Investigation (WSI) and Protocol for Archaeological Discoveries (PAD) highlighted below.	To mitigate the effects on maritime archaeology	WSI & PAD DSLP CaP EMP
Archaeology and Cultural Heritage	In order to mitigate the risk of damage to any previously unrecorded archaeological remains a WSI and PAD will be prepared to mitigate construction impacts in the event of any unexpected archaeological discoveries during construction. This protocol will also include appropriate archaeological briefings for all personnel involved in the construction, operation and decommissioning activities associated with the proposed development. The PAD will be in place for the life of the NnG Project and will be updated when required should details within the document change, for example contact details for key stakeholders.	To mitigate the effects on maritime archaeology	WSI & PAD DSLP CaP EMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Archaeology and Cultural Heritage	Should it not be possible to avoid sites of cultural heritage interest, a full programme of archaeological investigation, which may include diver survey or Remotely Operated Vehicle (ROV) investigation, will be undertaken to identify the nature and extent of these sites. Subject to these investigations, an appropriate mitigation strategy will be agreed with HES.	To mitigate the effects on maritime archaeology	WSI & PAD DSLP CaP EMP
Fish and Shellfish	Final monitoring proposals will be discussed with the FTRAG as part of the approval process for the Project Environmental Monitoring Plan (PEMP).	To ensure a robust and appropriate monitoring strategy	PEMP
Marine Mammals	Pile driving will be undertaken using the lowest possible hammer energy to allow satisfactory pile installation and will implement soft starts at the beginning of pile driving operations.	To mitigate the effects of piling noise	PS
Marine Mammals	A detailed monitoring programme will be developed through consultation with Marine Scotland and SNH.	To ensure a robust and appropriate monitoring strategy	PEMP
Marine Mammals	NnGOWL will also participate in regional and national fora such as the Forth and Tay Regional Advisory Groups (FTRAG) and the Scottish Strategic Marine Environment Group (SSMEG) [or similar as superseded], through which a strategic monitoring plan will be developed.	To ensure a robust and appropriate monitoring strategy	PEMP
Marine Mammals	At least six months prior to the start of the development a Project Environmental Management Plan (PEMP) will be submitted to the Scottish Ministers within which details of the planned monitoring to be undertaken will be presented. A monitoring plan for marine mammals will be developed and agreed with Marine Scotland and SNH prior to the start of construction activities.	To ensure a robust and appropriate monitoring strategy	PEMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Ornithology	Following consent, a Project Environmental Monitoring Plan (PEMP) will be developed and agreed with MS-LOT, in discussion with the Forth and Tay Regional Advisory Group (FTRAG).	To ensure a robust and appropriate monitoring strategy	PEMP
Commercial Fisheries	Establishment of and participation in a working group to assist with the following: • Dissemination of Project information; • Application of safety zones and advisory safe passing distances and implications for fisheries; • Navigation of Project construction and maintenance works vessels to and from the site (i.e., agreement of transit lanes to minimise interference to fishing activities, agreement for 'holding' areas for vessels in the event of bad weather); • Procedures in the event of interactions between Project construction and fishing activities (i.e. claims for lost and/or damaged gear); • Burial and protection of inter-array, inter-connector and Offshore Export Cables; • Removal of seabed obstacles during and post-construction; and • Post-construction surveys and seabed rectification procedures.	To mitigate the effects on commercial fisheries	FMMS
Commercial Fisheries	Over trawl surveys will be carried out on the Offshore Export Cable and inter-array and inter-connector cables where cable protection has been required to ensure that the protection scheme has been successful.	To mitigate the effects on commercial fisheries	CaP
Commercial Fisheries	Should snagging occur, the developer would work to the protocols laid out within the guidance by the FLOWW group and 'Recommendations for Fisheries Liaison: Best Practice' guidance for offshore renewable developers, in particular Section 9: Dealing with claims for loss or damage of gear (FLOWW, 2006 and 2014; BERR, 2008).	To mitigate the effects on commercial fisheries	FMMS

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Commercial Fisheries	For any fisheries stakeholders significantly affected by the project, as identified in the EIA report, justifiable disturbance payments will be made following FLOWW best practice guidance.	To mitigate the effects on commercial fisheries	FMMS
Shipping and Navigation; Commercial Fisheries; Other Marine Users	Appropriate liaison to ensure information on the construction of the Offshore Wind Farm is circulated in Notice to Mariners, Kingfisher Bulletin, Navigation Information Broadcasts and other appropriate media. As part of the Notice to Mariners process the information will be supplied to Imray publications.	To mitigate the effects on commercial fisheries	NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users	While construction work is in progress, NnGOWL will provide the required information to the UKHO to ensure Admiralty Charts provide a note over the Wind Farm Area including position of construction buoyage.	To mitigate navigational risk	NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users	The Project construction works will be marked in line with IALA-O136, and as agreed with NLB, MCA and the Civil Aviation Authority (CAA).	To mitigate navigational risk	LMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users	The Project will be designed in compliance with MGN543. Annex 5 (Requirements, Guidance and Operational Considerations for Search and Rescue) specifies “Standards and procedures for generator shutdown and other operational requirements in the event of a SAR, counter pollution or salvage incident in or around an OREI.”	To mitigate navigational risk	LMP NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users	Creation of an ERCoP based on the MCA template and Project Safety Management Systems (SMS), in consultation with the MCA. Procedures will be followed in the event of an emergency situation during the construction phase.	To ensure appropriate provisions are in place to facilitate search and rescue operations.	ERCoP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Shipping and Navigation	The onshore operations base will also serve as a Marine Control Centre that will monitor vessel activity (AIS and non-AIS) and record the movements of vessels around the Wind Farm Area as well as infield (company) vessels working at the Offshore Wind Farm. Possible errant vessels identified in construction areas or safety zones will be identified and contacted.	To mitigate navigational risk	NSVMP
Shipping and Navigation	Construction safety zones of 500 m around major activities will be in place to exclude vessels not associated with the construction works for the Project. Guard vessels, or another nominated vessel, will be used to monitor passing traffic and contact vessels, which could infringe the safety zones. 50 m pre-commissioning safety zones may also be included. Minimum safe passing distance may be requested by vessels where safety zones are not applicable.	To mitigate navigational risk	NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users	NnGOWL will provide the required information to the UKHO so that he Project can be charted by using the magenta turbine tower chart symbol found in the publication NP5011 - Symbols and Abbreviations used in Admiralty Charts. The buried, subsea cables associated with the Project will also be charted on the appropriate scale charts. Offshore Export Cables will be charted by the UK Hydrographic Office on the appropriate scale charts who may provide a note on the charts to state no anchorage areas over charted cables.	To mitigate navigational risk	NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users	During Operation and Maintenance appropriate information will be circulated detailing any major maintenance of the wind farm via Notice to Mariners, Kingfisher Bulletin, Navigation Information Broadcasts and other appropriate media.	To mitigate navigational risk	NSVMP
Shipping and Navigation	During the operational phase, the Project will be marked in line with IALA-O136, and as agreed with NLB, MCA and CAA.	To mitigate navigational risk	LMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Shipping and Navigation	The lowest point of rotor sweep will meet the MCA and RYA recommendation of 22 m above MHWS.	To mitigate navigational risk	DSLP
Shipping and Navigation	Cables will be protected appropriately taking into account fishing and anchoring practices. Positions of the cable routes will be notified to Kingfisher Information Services – Offshore Renewables Cable Awareness (KIS - ORCA) for inclusion in cable awareness charts and plotters for the fishing industry.	To mitigate navigational risk	CaP; NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users; Aviation	The Project will be operated as required in MGN543. Annex 5 (Requirements, Guidance and Operational Considerations for Search and Rescue) specifies Standards and procedures for generator shutdown and other operational requirements in the event of a SAR, counter pollution or salvage incident in or around an Offhore Renewable Energy Installations (OREI).	To mitigate navigational risk	NSVMP
Shipping and Navigation; Commercial Fisheries; Other Marine Users; Aviation	Creation of an ERCoP based on the MCA template and Project SMS, in consultation with the MCA. Procedures will be the followed in the event of an emergency situation during the operational phase.	To ensure appropriate provisions are in place to facilitate search and rescue operations.	ERCoP
Shipping and Navigation; Commercial Fisheries;	Periodic and planned surveys of cables will be undertaken to monitor burial depths/protection and seabed mobility (cable movement).	To mitigate navigational risk	CaP
Shipping and Navigation	Safety zones of 500 m around major maintenance activities to exclude vessels not associated with the works from the offshore site. Guard vessels, or another nominated vessel, will be used to monitor passing traffic and contact vessels, which could infringe the safety zones. Minimum safe passing distance may be requested by vessels where safety zones are not applicable.	To mitigate navigational risk	NSVMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Shipping and Navigation; Commercial Fisheries; Other Marine Users	Appropriate liaison to ensure information on the decommissioning of the Offshore Wind Farm is circulated in Notice to Mariners, Kingfisher Bulletin, Navigation Information Broadcasts and other appropriate media.	To mitigate navigational risk	NSVMP
Aviation	During construction information will be circulated via Notice to Airman (NOTAM) and other appropriate media to ensure information on the construction of the wind farm is promulgated to aviation stakeholders.	To mitigate the risk to aviation stakeholders	NSVMP
Aviation	The UK Hydrographic Office (UKHO) will be provided with the positions and maximum heights of the wind turbines and construction equipment above 150 m LAT. Coordinates and maximum heights of the wind turbines will be provided to the UKHO for aviation charting purposes within one month of the final commissioning of the Project. The UK IAIP is updated on a monthly basis under the Aeronautical Information Regulation and Control (AIRAC) system. Information provided under the AIRAC system shall be distributed by AIS at least 42 days in advance of the effective date with the objective of reaching recipients at least 28 days in advance of the effective date.	To mitigate the risk to aviation stakeholders	NSVMP
Aviation	The Project construction works will be marked in line with CAP 393 (CAA, 2017) and CAP 437 (CAA, 2016a) and as agreed with the CAA. A Lighting and Marking Plan will be submitted for approval, to MS-LOT outlining the Projects lighting and marking strategy to mitigate the risk to aviation safety during construction of the Project.	To mitigate the risk to aviation stakeholders	LMP
Aviation	The Project will be designed as per MGN 543, including Annex 5 which details “Standards and procedures for generator shutdown and other operational requirements in the event of a SAR, counter pollution or salvage incident in or around an Offshore Renewable Energy Installation (OREI)”.	To mitigate navigational risk	NSVMP

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Aviation	Creation of an Emergency Response Co-operation Plan (ERCoP) based on the Maritime and Coastguard Agency (MCA) template and site Safety Management Systems (SMS), in consultation with the MCA. Procedures will be the followed in the event of an emergency during the construction phase.	To ensure appropriate provisions are in place to facilitate search and rescue operations.	ERCoP
Aviation	During the Operational phase information will be circulated via Notice to Airman (NOTAM) and other appropriate media to ensure information on the construction of the wind farm is promulgated to aviation stakeholders.	To mitigate the risk to aviation stakeholders	NSVMP
Aviation	Prior to operation, information in line with that previously provided to the UKHO will be promulgated to NATS Aeronautical Information Services for inclusion in the UK International Aeronautical Information Package and to the Defence Geographic Centre (DGC) for marking on related aeronautical charts and documentation.	To mitigate the risk to aviation stakeholders	NSVMP
Aviation	During the operational phase, the Project will be lit in line with CAP 393 (CAA, 2017) and CAP 437 (CAA, 2016a), and as agreed with the CAA. A Lighting and Marking Plan will be submitted for approval, to MS-LOT outlining the Projects lighting, and marking strategy to mitigate the risk to aviation safety during operation of the Project.	To mitigate the risk to aviation stakeholders	LMP
Archaeology and Cultural Heritage; Seascape, Landscape and Visual	The final turbine layout will be confirmed post-consent and will be subject to consultation and approval by Marine Scotland Licensing Operation Team (MS-LOT).	To gain MS-LOT approval of the turbine layout.	DSLP
Archaeology and Cultural Heritage	Analysis of pre-construction survey data will be undertaken to refine the identified potential marine archaeology assets at infrastructure locations. Appropriate micro siting allowance for identified assets will be agreed in consultation with HES.	To mitigate the effects on maritime archaeology	WSI & PAD

EIA RECEPTOR	DETAILS OF MITIGATION	PURPOSE / GENERAL DESCRIPTION OF COMMITMENT	RELEVANT CONSENT PLAN(S)
Archaeology and Cultural Heritage	The micro-siting allowance and exclusion zones will be detailed in the Written Scheme of Investigation.	To mitigate the effects on maritime archaeology	DSLP; WSI & PAD
Archaeology and Cultural Heritage	Turbines will all be of similar dimensions for hub height and blade tip level subject to turbine and substructure design and installation specification;	To mitigate the effects of the Offshore Wind Farm on the setting of cultural heritage receptors.	DSLP
Archaeology and Cultural Heritage	The Turbines will all be pale grey in colour (Light Grey RAL 7035) with a semi-matt finish.	To mitigate the effects of the Offshore Wind Farm on the setting of cultural heritage receptors.	DSLP
Archaeology and Cultural Heritage	The design analysis (Annex 1 of Appendix 14.1 to the EIA Report) provides 'design objectives' that will be considered when refining the appearance of the final wind farm layout.	To mitigate the effects of the Offshore Wind Farm on the setting of cultural heritage receptors.	DS
Archaeology and Cultural Heritage	Monitoring and enforcing of AEZs around archaeology and cultural heritage receptors will be maintained throughout construction.	To mitigate the effects on maritime archaeology	WSI & PAD
Other Marine Users	A UXO risk assessment will be carried out prior to construction.	To mitigate the effects on other sea users	Note, UXO survey and clearance undertaken and subject to separate marine licence, overview of process in CMS.

Annex 2 – Marine Pollution Contingency Plan

Environmental Management Plan Annex 2: Marine Pollution Contingency Plan

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Section 5: Pollution Incident Response Procedures

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Acronyms and Abbreviations

ACRONYM	DEFINITION
CGOC	Coastguard Operations Centre
BEIS	Department of Business, Energy and Industrial Strategy
COSHH	Control of Substances Hazardous to Health
DECC	Department of Energy and Climate Change
ECoW	Environmental Clerk of Works
ERP	Emergency Response Plan
HSE	Health and Safety Executive
IFO	Intermediate Fuel Oil
IMO	International Maritime Organisation
ISM	International Safety Management
ITOPF	International Tanker Owners Pollution Federation
MCA	Maritime and Coastguard Agency
MCC	Marine Coordination Centre
MGO	Marine Gas Oil
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
MRC	Maritime Response Centre
MS-LOT	Marine Scotland Licensing and Operations Team
MSN	Merchant Shipping Notice
NCP	National Contingency Plan
NnGOWL	Neart na Gaoithe Offshore Wind Limited
O&M	Operation and Maintenance
OPEP	Oil Pollution Emergency Plan
OSCP	Oil Spill Contingency Plan

OSP	Offshore Substation Platform
POLREP	Marine Pollution Report
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RNLI	Royal National Lifeboat Association
RSPB	Royal Society for the Protection of Birds
SDS	Safety Data Sheet
SEG	Standing Environment Group
SEPA	Scottish Environment Protection Agency
SNH	Scottish Natural Heritage
SOLAS Convention	International Convention for the Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
SOSREP	Secretary of State's Representative
STAC	Science and Technical Advice Cell
UKCS	United Kingdom Continental Shelf
VHF	Very High Frequency

Defined Terms

TERM	DESCRIPTION
Addendum	The Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018.
Application	The Environmental Impact Assessment Report, Habitats Regulations Appraisal Report and supporting documents submitted to the Scottish Ministers by NnGOWL on 16 March 2018, and the Addendum of Additional Information submitted to the Scottish Ministers by NnGOWL on 26 July 2018 and the Section 36 Consent Variation Report 08 January 2019.
Company	Neart na Gaoithe Offshore Wind Limited (NnGOWL) (Company Number SC356223). NnGOWL has been established to develop, finance, construct, operate, maintain and decommission the Project.
Consent Conditions	The terms that are imposed on NnGOWL under the S36 Consent or Marine Licenses that must be fulfilled throughout the period that the Consents are valid.
Consent Plans	The plans, programmes or strategies required to be approved by the Scottish Ministers (in consultation with appropriate stakeholders) in order to discharge conditions attached to the Offshore Consents.
Contractors	Any Contractor/Supplier (individual or firm) working on the Project, hired by NnGOWL.
EIA Report	The Environmental Impact Assessment Report, dated March 2018, submitted to the Scottish Ministers by NnGOWL as part of the Application as defined above.
Inter-array Cables	The offshore cables connecting the wind turbines to one another and to the OSPs.
Interconnector Cables	The offshore cables connecting the OSPs to one another.
Marine Licences	The written consents granted by the Scottish Ministers under the Marine (Scotland) Act 2010, for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Wind Farm (Licence Number 06677/19/0) and the OfTW (Licence Number 06678/19/-10), dated 4 June 2019 and 5 June 2019 respectively.
Offshore Consents	The Section 36 Consent and the Marine Licences.
Offshore Export Cable Corridor	The area within which the offshore export cables are to be located.
Offshore Export Cables	The offshore export cables connecting the OSPs to the landfall site.
OfTW	The Offshore Transmission Works. The OfTW includes the OSPs and offshore interconnector and offshore export cables required to connect the Wind Farm to the Onshore Transmission Works at the landfall.
OfTW Area	The area outlined in red and blue in Figure 1 attached to Part 4 of the OfTW Marine Licence.

OnTW	The onshore transmission works from landfall and above Mean High Water Springs, consisting of onshore export cables and the onshore substation.
Project	The Wind Farm and the OfTW.
Section 36 Consent	The written consent granted by the Scottish Ministers under Section 36 of The Electricity Act 1989 to construct and operate the Wind Farm, as varied by issue of the varied S36 Consent on 4 June 2019.
Section 36 Consent Variation Report	The Section 36 Consent Variation Report submitted to the Scottish Ministers by NnGOWL as part of the Application as defined above on 08 January 2019.
Subcontractors	Any Contractor/Supplier (individual or firm) providing services to the Project, hired by the Contractors (not NnGOWL).
Wind Farm	The offshore array as assessed in the EIA Report including wind turbines, their foundations and inter-array cabling.
Wind Farm Area	The area outlined in black in Figure 1 attached to the Section 36 Consent Annex 1, and the area outlined in red in Figure 1 attached to Part 4 of the Wind Farm Marine Licence.

Consent Plans

CONSENT PLAN	ABBREVIATION	DOCUMENT REFERENCE NUMBER
Decommissioning Programme	DP	NNG-NNG-ECF-PLN-0016
Construction Method Statement and Construction Programme	CMS and CoP	NNG-NNG-ECF-PLN-0002
Piling Strategy	PS	NNG-NNG-ECF-PLN-0011
Development Specification and Layout Plan	DSLP	NNG-NNG-ECF-PLN-0003
Design Statement	DS	NNG-NNG-ECF-PLN-0004
Environmental Management Plan	EMP	NNG-NNG-ECF-PLN-0006
Operation and Maintenance Programme	OMP	NNG-NNG-ECF-PLN-0012
Navigational Safety Plan and Vessel Management Plan	NSVMP	NNG-NNG-ECF-PLN-0010
Emergency Response Cooperation Plan	ERCoP	NNG-NNG-ECF-PLN-0015
Cable Plan	CaP	NNG-NNG-ECF-PLN-0007
Lighting and Marking Plan	LMP	NNG-NNG-ECF-PLN-0009
Project Environmental Monitoring Programme	PEMP	NNG-NNG-ECF-PLN-0013
Fisheries Management and Mitigation Strategy	FMMS	NNG-NNG-ECF-PLN-0008
Marine Archaeology Reporting Protocol	MARP	NNG-NNG-ECF-PLN-0005
Construction Traffic Management Plan	CTMP	NNG-NNG-ECF-PLN-0014

1 Introduction

1.1 Background

1. The Neart na Gaoithe Offshore Wind Farm (Revised Design) received consent under Section 36 of the Electricity Act 1989 from the Scottish Ministers on 03 December 2018 (the S36 Consent) and was granted two Marine Licences by the Scottish Ministers, for the Wind Farm and the associated Offshore Transmission Works (OfTW), on 03 December 2018 (the Marine Licences). The S36 consent and Wind Farm Marine Licence were revised by issue of a variation to the S36 Consent and Marine Licence 06677/19/0 on 4 June 2019, and the OfTW Marine Licence by the issue of Marine Licence 06678/19/1 on the 5 June 2019. The revised The S36 Consent and associated Marine Licences are collectively referred to as 'the Offshore Consents'.
2. The Project is being developed by Neart na Gaoithe Offshore Wind Limited (NnGOWL), which is owned by EDF Renewables.

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Section 5: Pollution Incident Response Procedures

1.2 Objectives of this Plan

3. The S36 Consent and Marine Licences contain a variety of conditions that must be discharged through approval by the Scottish Ministers prior to the commencement of any offshore construction works. One such requirement is the approval of an Environmental Management Plan (EMP), the purpose of which is to provide the over-arching framework for on-site environmental management during construction and operation of the Project (but excluding decommissioning).
4. Condition 14 of the S36 Consent and Condition 3.2.2.10 of the OfTW Marine Licence states that the EMP must include:

   … 'A pollution prevention and control method statement, including contingency plans;'
5. This Annex to the EMP outlines the NnGOWL and Contractor obligations regarding pollution prevention and control measures, and the management of any incidents that may occur.

1.3 Linkages with Other Consent Plans and Project Procedures

6. This MPCP should be read in conjunction with the NnGOWL EMP. The EMP sets out a number of project controls and management measures relating to minimising risk of pollution incidents, including restrictions around chemical usage, procedures for storage and labelling, bunding provisions within turbines and navigational management measures to minimise the risk of collision or allision.
7. In addition, a number of other Project procedures are relevant to emergency response and reporting including the following Project documents:
   - Emergency Response and Cooperation Plan;
   - Emergency Response Plan; and

- Health and Safety Plan.

1.4 Structure of the Plan

8. Table 1-1 below outlines the structure of this document.

Table 1-1: Structure of the MPCP

SECTION	TITLE	SUMMARY OF CONTENT
1	Introduction	Background to consent requirements and overview of the MPCP scope and structure; and Identifies other Consent Plans and NnGOWL documentation that are relevant to pollution prevention and contingency planning and the linkage between those plans/documents and the MPCP.
2	Project Overview	Provides an overview of the Project and an overview of the timing of the offshore construction works.
3	Roles and Responsibilities	Describes roles and responsibilities relevant to the delivery of the MPCP.
4	Pollution Sources and Risk Assessment	Provides a list of the potential sources of pollution, the associated level of risk and the steps to be taken to mitigate against a potential pollution event.
5	Pollution Incident Response Procedures	Specific pollution response procedures and roles of key personnel including detailed reporting procedures in the event of a pollution incident.
Appendix A	Spill Procedures	Outlines spill response procedures to be followed in the event of an offshore spill originating from a NnGOWL-owned offshore structure.
Appendix B	Spill Notification Checklist	Outlines a spill notification checklist to be followed in the event of an offshore spill originating from a NnGOWL-owned offshore structure.
Appendix C	Response Forms	Oil spill response and notification proformas.
Appendix D	Contacts Directory	Provides a template to be populated with contact details for those individuals and organisations with pollution reporting and response responsibilities.

2 Project Overview

9. The Wind Farm Area is located to the northeast of the Firth of Forth, 15.5 km directly east of Fife Ness on the east coast of Scotland (See Figure 2-1). The Wind Farm Area covers approximately 105 km^2. Offshore Export Cables will be located within the 300 m wide Offshore Export Cable Corridor, running in an approximately southwest direction from the Wind Farm Area, making landfall at Thorntonloch beach to the south of Torness Power Station in East Lothian. Figure 2-1 shows the Wind Farm Area and Offshore Export Cable Corridor, boundaries and cable route to shore.

10. The Offshore Consents allow for the construction and operation of the following main components, which together comprise the Project:

    - 54 wind turbines generating a maximum total output of 450 Megawatts (MW);
    - 54 jacket substructures installed on pre-piled foundations, to support the wind turbines;
    - Two alternating current (AC) substation platforms, referred to as Offshore Substation Platforms (OSPs), to collect the generated electricity and transform the electricity from 66kV to 220 kV for transmission to shore;
    - Two jacket substructures installed on piled foundations, to support the OSPs;
    - A network of inter-array subsea cables, buried and/or mechanically protected, to connect strings of turbines together and to connect the turbines to the OSPs;
    - One interconnector cable connecting the OSPs to each other;
    - Two buried and/or mechanically protected subsea export cables to transmit the electricity from the OSPs to the landfall at Thorntonloch and connecting to the onshore buried export cables for transmission to the onshore substation and connection to the National Grid network; and
    - Minor ancillary works such as the deployment of metocean buoys and permanent navigational marks.

11. It is currently anticipated that offshore construction will take two years and will commence in Quarter 1 (Q1) 2020. Details of the programme for construction are provided in the Construction Programme (CoP).

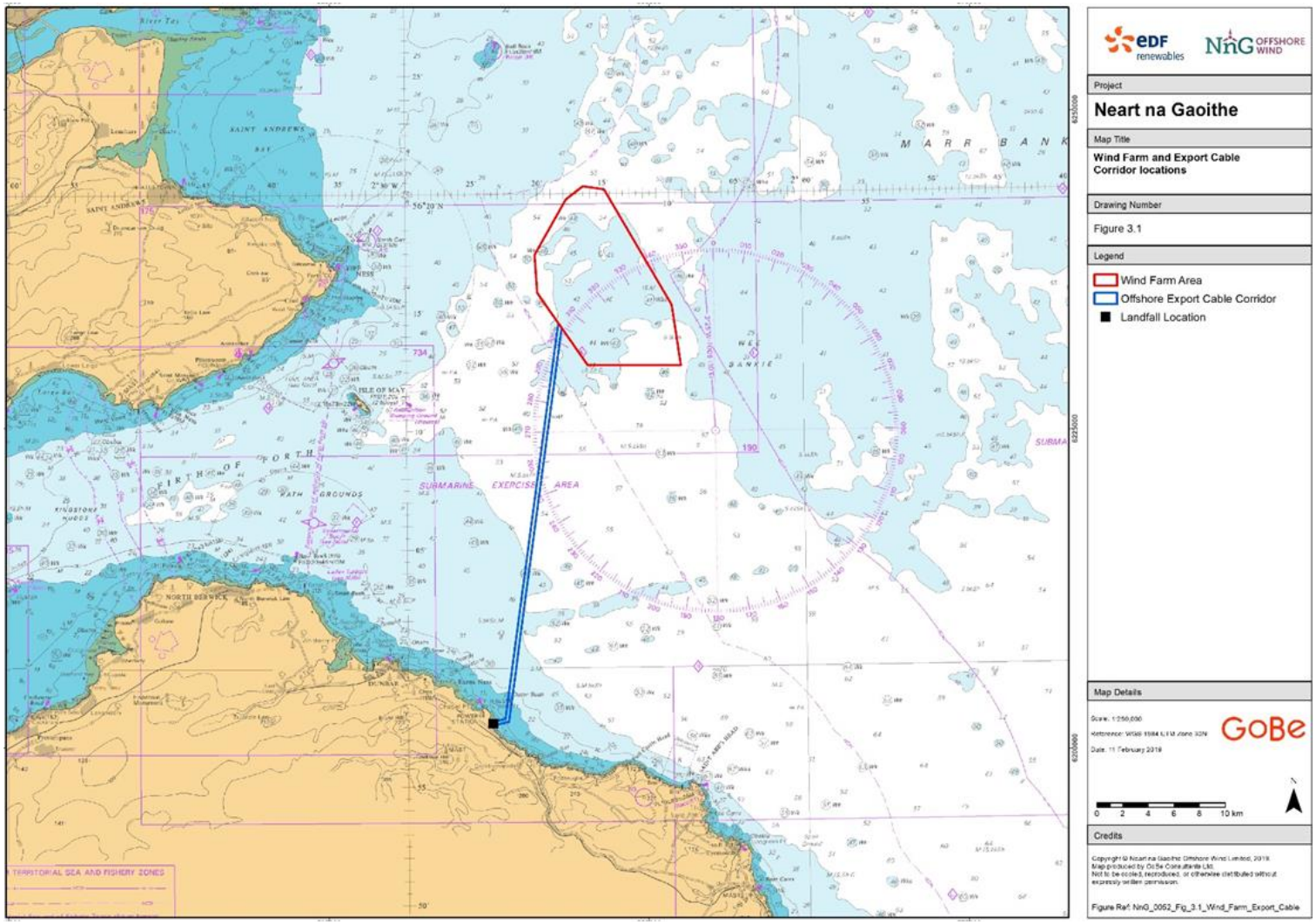

Figure 2-1: Wind Farm Area and Offshore Export Cable Corridor locations

3 Roles and Responsibilities

3.1 Introduction

12. In relation to pollution prevention and control, NnGOWL and NnGOWL's Contractors are responsible for:

- Developing, maintaining, communicating and implementing their own MPCPs, or equivalent spill plans that are consistent with this MPCP;
- Managing an ongoing spill response; and
- Liaising and co-operating with statutory bodies in the event of a spill.

13. The overarching responsibilities of NnGOWL and Contractors in relation to pollution prevention and control are set out immediately below. The responsibilities of those with specific roles in the event of a pollution incident are also described.

3.2 NnGOWL

14. NnGOWL recognise that as the Licence Holder, the company is responsible for ensuring adequate resources and procedures are in place and available to ensure that any oil or chemical spill originating from the Project during its lifetime is adequately dealt with. As such, NnGOWL will have the following responsibilities in relation to marine pollution and contingency planning:

- Require that all Contractors, through conditions of contract, make appropriate marine pollution response provisions commensurate with the level of risk associated with their activities to respond to any oil or chemical spills;
- Review Contractor pollution prevention procedures and plans in accordance with Licence requirements, NnGOWL procedures and current legislation;
- Ensure that measures are implemented in accordance with this MPCP, ensuring compliance with procedures and legislation through audits and inspections;
- Monitor the pollution prevention performance of the Project through maintaining an overview of incidents; and
- Ensure that all pollution incidents are reported in line with Section 5 - Pollution Incident Response Procedures.

3.2.1 Marine Coordinator

15. A project Marine Coordination Centre (MCC) will be established from where Construction activities will be coordinated. Operation and maintenance (O&M) activities will be managed remotely from the MCC. In addition to coordinating day-to-day vessel activity in the Project Area, the Marine Coordinator will be the main NnGOWL point of contact in the event of emergency and pollution incidents.

16. Where a spill is from an NnGOWL installation the Marine Coordinator will report the spill to the Coastguard Operations Centre (CGOC) Aberdeen. Any spill response actions will be managed and coordinated by the MCC unless the Maritime and Coastguard Agency (MCA) assume control of the spill Iresponse. If the MCA assume primary control of the spill response the MCC will assist making any NnGOWL resources available and facilitating with communications as required.

17. In the event of a pollution incident originating from a vessel or vessel-related activity, the Marine Coordinator will assist with the coordination and execution of the ongoing response, maintaining close

communication with the Vessel Master (see Section 3.3.1 below) and liaising with the CGOC Aberdeen, other contractors and statutory authorities as required. Primary responsibility for response will remain with the Vessel Master as set out in the vessels Shipboard Oil Pollution Emergency Plans (SOPEP) and described below.

3.2.2 Environmental Clerk of Works

18. The Environmental Clerk of Works (ECoW) will review Contractor pollution prevention and response documents and arrangements to ensure compliance with this MPCP. The ECoW will provide advice to the Primary Responder[1] as required in relation to potential environmental risk arising from oil or chemical spills.

19. In the event of a pollution incident, the ECoW will be notified by the Marine Coordinator and in turn report the incident to MS-LOT. The ECoW will receive copies of logs of all actions taken and notifications issued during response to enable ongoing reporting to MS-LOT. The ECoW will also provide support to the Primary Responder, as required, in determining an appropriate response strategy. On the closure of an incident, the ECoW will be part of the lessons-learnt exercise and may assist the Construction Manager / O&M Site Manager in conjunction with the Marine Coordinator and Health, Safety and Environment (HSE) Manager on any required updates to the MPCP.

20. Where a pollution incident requires a Tier 2 or Tier 3 response (see Section 4.3 for Tier definition) the ECoW will be available to engage with the MCA and established response cells (see details on the National Contingency Plan (NCP), Section 3.4) including the Standing Environment Group (SEG) to provide project specific environmental information to feed into the response strategy.

21. Throughout the duration of any incident the ECoW will also maintain a record of any observed mortality or other effects on marine biota (such as marine mammals, birds and fish) as may be reported to them. These incidental records will be provided to relevant response cells, including the SEG and will, where appropriate, be considered in the formulation of a response strategy. The incidental records of marine wildlife observations will be provided to Marine Scotland - Licensing and Operations Team (MS-LOT) as part of the wider reporting strategy (as set out in the EMP).

3.2.3 Other Relevant Roles

22. The NnGOWL Project Director will be responsible for requiring that sufficient resources and processes are in place to deliver/comply with the MPCP. They will be responsible for reporting on any marine pollution incident to the NnGOWL Board, and for addressing Contractor non-compliance.

23. The NnGOWL HSE Manager is responsible for providing support, advice and guidance on all aspects of Safety, Health & Environmental management on the Project. In relation to this MPCP the HSE Manager will review contractor pollution response documents and arrangements to ensure they are fit-for-purpose. The HSE Manager and their team will conduct auditing in relation to the MPCP provisions. In the event of a spill the NnGOWL HSE Manager will provide advice to the Primary Responder as required.

24. The Construction (during construction) and Operation & Maintenance Manager (during operation) is available to provide assistance to the Marine Coordinator and Vessel Master wherever necessary and is responsible for initiating the investigation, closure and lessons learned process post-incident.

[1] The Primary Responder will be the individual or organisation who has primary responsibility for coordinating response actions and resources in the event of an oil spill or pollution incident.

25. The Consents and Environment Team will be responsible for ensuring incident response complies with the Offshore Consents and Consent Plans where possible.

3.3 Contractors

26. Offshore construction and O&M work will be primarily carried out by Contractors. NnGOWL will require that all Contractors are familiar with this MPCP.

27. Contractors are expected to prepare and implement their plans specific to their scope of works, which are to be compliant with the content of this document, for example SOPEP or a contractor specific MPCP. Contractor documents should clearly interface with this MPCP or other existing documents such as harbour Oil Spill Contingency Plans (OSCPs, or similar). Spill response should be a part of scheduled vessel drills.

28. In the event of a spill from a vessel or from operations taking place on a vessel or from an installation where NnGOWL have not yet taken ownership, the Contractor will assume primacy of the incident and be responsible for implementing an immediate response in accordance with their own SOPEP (or other relevant spill plan), which will be consistent with the requirements of this MPCP, and for informing NnGOWL of their actions.

29. The specific responsibilities of Contractors engaged on the Project in relation to pollution prevention and control are:

- Follow and implement current best practice;
- Submit complete pollution prevention procedures or SOPEPs (as appropriate) and method statements in advance of commencement of work, or review by NnGOWL, in order to ensure compliance with this MPCP, other relevant NnGOWL procedures and any other applicable legislation;
- Understand and implement procedures relevant to their role as laid out in this MPCP and associated documentation;
- Ensure that they have adequate pollution response capabilities commensurate with the level of risk associated with their specific scope of works;
- Maintain environmental records, including waste management records in accordance with legal requirements;
- Ensure that pollution prevention considerations form an integral part of Design and Implementation of the Project works and to include reviews as part of regular project meetings;
- Facilitate dissemination of pollution prevention requirements to their teams including sub-contractors;
- Report and liaise with NnGOWL on all pollution issues;
- Attend pollution prevention training as required; and
- Investigate any pollution incidents and take corrective action as required in liaison with NnGOWL.

3.3.1 Vessel Masters

30. The Vessel Master has overall responsibility for their vessel. The Vessel Master is responsible for activating the SOPEP (or equivalent spill response plan) when a spill originates from their vessel. If the SOPEP is activated the vessel master will be the Primary Responder of the incident unless primacy is

assumed by the Secretary of State's Representative (SOSREP) as detailed within the NCP (Refer to Section 3.4).

31. The Vessel Master will maintain the safety of personnel, confirm source, initiate a log of events, undertake the necessary notifications and coordinate the monitoring, tracking and sampling of the spill and report the spill to the Maritime and Coastguard Agency and the Marine Coordinator (see Section 5.2).

32. The Vessel Master will liaise with the MCA and other relevant authorities as advised by the MCA to decide upon and implement the initial response strategy in line with the vessel SOPEP.

3.4 Interfaces with Other Pollution Contingency Plans or Organisations

33. Within the UK there is an adopted structure and procedure for response to marine pollution events, which clearly defines the roles and responsibilities of industry, the UK Government and Local Authorities.

34. In the event of a spill originating from Project activity, the Marine Coordinator will ensure that other operators and/or vessels in the vicinity that may be impacted, are notified. Where a spill originating from the Project drifts towards and/or reaches neighbouring installations and/or vessels, this may instigate activation of their own pollution contingency plans. Where appropriate NnGOWL will work to implement a co-ordinated response and share pollution response resources.

35. Assuming pollution from an unidentifiable source is drifting towards the Project, NnGOWL shall comply fully with any instructions from the MCA or other relevant authority in order to facilitate an appropriate pollution response. As soon as the source has been identified, the relevant installation/operator will be notified and NnGOWL and/or their Contractors will continue to provide a supporting role.

36. Other pollution contingency plans, which may interact with this MPCP in the event of a spill originating from the Project, are as follows:

- Industry plans – These include SOPEPs/equivalent vessel-specific spill plans for vessels, port and harbour OSCPs, and oil pollution emergency plans (OPEPs) for other offshore installations.
- Local Authority plans – In the event of actual or threatened shoreline impact, the oil spill contingency plan administered by the relevant Local Authority will be implemented.
- NCP - In the event of a significant oil spill incident, which calls for a Tier 2 or Tier 3 response (see Section 4.3 for Tier definition), the MCA may decide to implement the NCP. In such an event, the MCA may establish a Marine Response Centre (MRC) and the SOSREP has the powers to direct actions to be taken. In this instance the SOSREP will be considered the Primary Responser and NnGOWL will, as far as practicable, make all resources available to the SOSREP to respond to the incident.

4 Pollution Sources and Risk Assessment

4.1 Introduction

37. This section identifies the type and size of oil and chemical spill that the NnGOWL spill response arrangements will need to be able to address. It looks at the potential sources and likelihood of spills that could occur from typical operations, gives an overview of the potential 'operational' and 'worst case' scenarios, and the prevention and control measures proposed by NnGOWL to minimise or eliminate spill risks.

38. The severity of effects from a spill are dependent on a wide range of factors, including:

- The volume of oil or chemical spilled;
- The physical and chemical nature of the product;
- The location of the spill and proximity of shoreline or other sensitivities;
- The weather and sea state conditions during and following the spill; and
- Hydrographic conditions.

39. Given this variety of factors, accurate predictions of impacts before a spill are difficult to make. Rapid access to information on the environmental conditions and features is essential in spill response.

40. 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 sink beneath the surface over time, and can persist in the marine environment for long periods of time, depending on the type of hydrocarbon released. For these reasons, hydrocarbon spills are considered in more detail in the below sections.

4.2 Hydrocarbon and Chemical Inventory

41. The type of hydrocarbons and chemicals that may be used during the construction and O&M phases of the Project are listed in Table 4-1. Within the table, hydrocarbons are allocated to one of four 'groups' as defined by International Tanker Owners Pollution Federation (ITOPF) classification. Group 1 hydrocarbons are considered to be least persistent (i.e. if spilled, they will dissipate and not form a surface emulsion) whilst Group 4 hydrocarbons are very persistent (i.e. if spilled, they will not evaporate or disperse).

42. Information on the volume of these hydrocarbon types involved in the Project activity at any one time will be dependent on the specific vessels available to undertake the construction works. Key Contractors will provide vessel data sheets for each of the main construction vessels to NnGOWL. In the event of a pollution incident this information will be made available to the primary responder or response cells if required.

Table 4-1 Types of hydrocarbons and chemicals to be used during the Construction and Operational Phases of the Project

TYPE OF OIL	ITOPF OIL GROUP	COMMENTS
Intermediate Fuel Oil (IFO)	Group 3	Used as fuel for vessels involved in construction, maintenance activities and routine O&M activities.
Marine Gas Oil (MGO) (*Diesel*)	Group 2	Used as fuel for vessels involved in construction and O&M activities including routine and major maintenance activities.
Lubricating Oil	Group 3	Used for vessels involved in construction and O&M activities.
Hydraulic Oil	Group 2/3	Hydraulic oil used within plant equipment.
Chemicals	N/A	Various chemicals used routinely e.g. paints, paint thinners, solvents, coolants and cleaning fluids.
Transformer Oil	Group 3	Synthetic ester oil used in OSPs and turbines.
Gear Oil	Group 3	Oil for yaw gear in turbines.

4.3 Spill Classification

43. The response strategy that will be adopted in the event of a spill will ultimately depend upon several factors:

- The size and characteristics of the spilled oil/chemical;
- It's probable and predicted behaviour 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.

44. Oil spills will be classified in accordance with the internationally recognised and accepted three tier oil spill response classification system. 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).

45. For general oil spill response, it is common to divide levels of response into three tiers, according to the severity of the spill and the resources required to combat it. The three tiers are commonly defined as follows.

- **Tier 1** response is that which is immediately available on site, geared for the most frequently anticipated oil spill;
- **Tier 2** response is for less frequently anticipated oil spills of larger size and for which external resources on a regional level will be required to assist in monitoring and clean-up; and
- **Tier 3** response is in place for the very rarely anticipated oil spill of major proportions and which will possibly require national and international resources to assist in protecting vulnerable areas and in the clean-up.

46. The conventional view of a Tier 3 scenario is one involving an exceptionally large volume of spilled oil, for example from a major ship-sourced accident, an oil well blowout, or other such rare but highly significant event. However, a Tier 3 response may also be required for more modest volumes, perhaps where Tier 2 arrangements may be largely absent or overwhelmed, highly sensitive areas threatened, or highly-specialised strategies being required that are not available locally.

4.4 Spill Scenarios and Control Measures

47. Potential spill scenarios are dictated by the hydrocarbon and chemical inventories on the vessels and offshore installations. 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.

48. A brief risk assessment of potential spill scenarios and proposed mitigation measures to minimise or eliminate the risks has been carried out for the Project (construction and operational phase as appropriate) and is presented in Table 4-2. The risk assessment will be updated (if necessary) to ensure that the worst case spill scenario is assessed.

49. The NnGOWL-specific risk assessment in Table 4-2 shows that small operational type spills (e.g., Tier 1 category) are the most likely. However, the risk assessment cannot predict with certainty the Tier level outcome of any spill, and under a worst case spill scenario, it is possible (although considered highly unlikely) that a Tier 2 or Tier 3 response could be required.

50. The main source of hydrocarbons associated with the Project will be MGO or IFO used to fuel construction and O&M vessels. The quantities of MGO and IFO will be limited to the bunkering capabilities of the vessels. The potential worst case spill scenario associated with the Project would be a complete loss of fuel inventory from two large vessels as a result of collision, or where a passing vessel collides with a wind farm vessel or structure.

51. Once spilled into the marine environment, oil immediately begins to undergo weathering, a term used to describe many natural, physical, chemical and biological changes. The changes that the oil undergoes will often influence the effectiveness of response options. Prevailing meteorological and oceanographic conditions, as well as the type of oil spilled, will determine its ultimate fate.

Table 4-2: Potential spill scenarios and control measures for the Project

POTENTIAL POLLUTANT	SPILL SCENARIO	CONTROL MEASURES	LIKELIHOOD WITH CONTROL MEASURES	LIKELY TIER
Hydrocarbons **Intermediate Fuel Oil (IFO)** **Marine Gas Oil (MGO) (Diesel)**	**Vessel refuelling** Loss of fuel during vessel to vessel refuelling at sea or refuelling at port.	NnGOWL and/or contractors will undertake operationally necessary refuelling at sea as required, to fuel vessels that are extremely restricted in their capability to leave station to take on fuel, such as jack ups. Preparation and review of task-specific risk assessments, method statements and fuel transfer planning tools and checklists. Refuelling operations will be planned in advance and if practicable will aim to commence during daylight and in good weather conditions. Fuel transfer operations will be carefully conducted under the supervision by an appointed responsible person on board (e.g. Chief Engineer) and in accordance with each vessel's stipulated procedure and checklist. A bunker plan shall be developed and posted on the Bridge and in the Machinery Control Room. Before fuel transfer starts a meeting will be held with all ship staff involved in the operation and the following subjects should be discussed, as a minimum: • Bunker plan, including any anticipating changes; • Risk assessment; • Individual roles and responsibilities in the process; • Emergency situations; and • Bunkering Checklists. Only hoses fitted with non-return valves shall be used for the offshore transfer of fuel or other fluids.	**Low**	**Tier 2**
	Equipment refuelling Loss of fuel during refuelling of equipment (on vessel or on turbine / OSP)).		**Low**	**Tier 1**

		Vessels over 400 GRT will carry a SOPEP in compliance with The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996. Vessels over 400 GRT will carry an Oil Record Book in compliance with The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996. In the Oil Record Book particulars are entered of: • Details of fuel and oil bunker operations; • Disposal of sludge (oil residues); • Discharge overboard or disposal otherwise of machinery space bilge water; • Condition of oil discharge monitoring and control systems; • Accidental or other exceptional discharges of oil; and • Additional operational procedures and general remarks. • Appropriate training of personnel and supervision of activity. Compliance with conditions related to vessel refuelling set out in Merchant Shipping Notice (MSN) 1829 “Ship to Ship Transfer Regulations 2010/2012”. A visual lookout will be made at all times during fuel transfer operations to verify hose integrity throughout the transfer and in order to spot any leaks immediately. All storage tanks and/or areas shall be bunded to at least 110% of the total oil storage inventory volume. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. Regular inspection and maintenance of equipment. The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc. will be regularly inspected and drained or cleaned.		

		Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.		
	Vessel to vessel collision Loss of fuel from collision between two vessels.	All vessels will comply with the measures set out in the Navigational Safety and Vessel Management Plan (NSVMP) to prevent vessel to vessel collision and vessel to structure allision.	**Very low**	**Tier 2** **(possible but unlikely Tier 3)**
	Vessel to structure allision Loss of fuel from allision between vessel and structure (e.g., wind turbine).		**Very low**	**Tier 2** **(possible but unlikely Tier 3)**
	Vessel stranding / grounding Loss of fuel due to vessel stranding / grounding.	All vessels will comply with the measures set out in the NSVMP to prevent vessel stranding / grounding.	**Very low**	**Tier 2** **(possible but unlikely Tier 3)**
	Failure of plant or equipment Release of fuel due to failure of plant or equipment.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel. All storage tanks and/or areas shall be bunded to at least 110% of the total oil storage inventory volume.	**Low**	**Tier 1**

		The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc. will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.		
	Spillage during use of equipment Small spills during equipment operation.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. The means of preventing any fuel oil from escaping into the bilges such as trays beneath oil pumps, heaters etc., special oil gutter ways etc. will be regularly inspected and drained or cleaned. Oil pressure pipes and fuel oil pipes and fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	**Low**	**Tier 1**
Lubricating Oil	Incident Loss of lubricating oil from collision between two vessels, or allision between vessel and structure, or stranding/grounding of vessel.	All vessels will comply with the measures set out in the NSVMP to prevent vessel to vessel collision, vessel to structure allision and vessel stranding / grounding.	**Very low**	**Tier 2**
	Leakage within Turbines Leakage of lubricating oil,	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Turbine sensors will enable early detection of loss of fluid and leaks.	**Low**	**Tier 1**

	transformer oil or grease within nacelle.	There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Gear oil seals shall be routinely checked during planned maintenance programmes.		
	Leakage within OTMs Leakage of transformers.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Transformer oil seals shall be routinely checked during planned maintenance programmes.	**Low**	**Tier 1**
	Spillage during use of equipment Small spills during equipment operation.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. Fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	**Low**	**Tier 1**
	Failure of plant or equipment Release of lubricating oil due to failure of plant or equipment.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel.	**Low**	**Tier 1**
Hydraulic Oil	Incident Loss of hydraulic oil from collision between two vessels, or collision between vessel and structure, or stranding/grounding of vessel.	All vessels will comply with the measures set out in the NSVMP to prevent vessel to vessel collision, vessel to structure allisions and vessel stranding / grounding.	**Very low**	**Tier 1**

	Leakage within turbines	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Turbine sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Oil seals shall be routinely checked during planned maintenance programmes.	**Low**	**Tier 1**
	Failure of plant or equipment Release of hydraulic oil due to failure of plant or equipment, e.g., hydraulic hoses.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. All plant and equipment shall only be operated by adequately trained and competent personnel. All storage tanks and/or areas shall be bunded to at least 110% of the total oil storage inventory volume.	**Low**	**Tier 1**
	Spillage during use of equipment Small spills during operation.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. Fittings will be inspected regularly to ensure that leaks are detected at an early stage and rectified.	**Low**	**Tier 1**
Chemicals	Incident Loss of chemical load from vessel collision/allision, or stranding/grounding of vessel.	All vessels will comply with the measures set out in the NSVMP to prevent vessel to vessel collision, vessel to structure allisions and vessel stranding / grounding. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).	**Very low**	**Tier 1**

	Leakage within turbines Leakage of coolant or transformer fluid within nacelle.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. Turbine sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect lubricating oil in the unlikely event of a leak. Equipment including hoses, pipes and seals shall be routinely checked during planned maintenance programmes. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).	**Low**	**Tier 1**
	Spillage during use Spillage of paints, paint thinners, solvents, cleaning fluids etc during use.	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in the correct handling and use of chemicals. Personnel shall be trained in spill prevention awareness, and in the use of spill kits. Spill kits shall be readily available for mopping up any minor spills. All hazardous substances shall have a safety data sheet (SDS) which is intended to provide procedures for handling or working with that substance in a safe manner. The handling and use of chemicals and hazardous substances shall be in compliance with the information on the SDS. COSHH assessments should be conducted for Project specific hazardous substances. Segregated storage facilities will be used to control the separation of hazardous substances. Chemicals will, where relevant, be selected, stored and managed in accordance with the Offshore Chemical Regulations 2002 (as amended).	**Low**	**Tier 1**

5 Pollution Incident Response Procedures

5.1 Introduction

52. This section sets out the response procedures to be adhered to in the event of a marine pollution incident. It is supported by the following:

- Appendix A – Spill Procedures: to be followed in the event of an offshore spill originating from a NnGOWL-owned offshore structure.
- Appendix B – Spill Notification Checklist: Spill notification checklists to be completed in the event of an offshore spill originating from a NnGOWL-owned offshore structure.
- Appendix C – Response Forms: Oil spill response and notification proformas.

53. NnGOWL require that any spill (actual or probable) into the marine environment, no matter how small, and no matter whether it arises from NnGOWL activities or not, is responded to following the procedures set out below.

54. Priority in the event of a spill is to take measures to ensure the safety of personnel and the offshore installations and vessels, and to prevent escalation of the incident.

55. Where a spillage is part of a wider emergency, such as fire or explosion, reference should also be made to the following documents:

- Emergency Response Cooperation Plan (ERCoP); and,
- Emergency Response Plan (ERP) (NNG-NNG-HSE-PLN-0003)

5.2 Response Procedures

5.2.1 Spills Originating from a Vessel

56. The process set out below should be followed in the event of a marine pollution (hydrocarbon or chemical) incident where a spill originates from a vessel, from vessel related activity or from a Contractor owned asset prior to transfer of ownership to NnGOWL during construction or maintenance of offshore installations:

- When a spill is observed, it will be reported to the Vessel Master.
- The Vessel Master will report the spill as soon as it is safe to do so via phone, to CGOC Aberdeen and then to the Marine Coordinator. Verbal notification should be followed up when practicable with the submission by the Vessel Master of a Marine Pollution Report (POLREP) (Appendix C – Response Forms) via email to the CGOC and to the Marine Coordinator. The Vessel Master will ensure the POLREP has been received by a follow up email and call.
- The Vessel Master (with Contractor responsible for the vessel from which the spill has originated) will engage the vessel SOPEP and assume primacy for the incident, ensuring ongoing reporting on spill status as necessary and initiating response or clean-up operations as required. The Vessel Master and relevant Contractor, as the Primary Responder, will request support from a specialist accredited Oil Spill Response Contractor as required. The Marine Coordinator 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) response is required the NCP (see Section 3.4) will be implemented.
- The HSE team and the ECoW will be available to advise on health and safety, and environmental sensitivities for consideration when developing a response strategy.
- The detailed stages of this process are outlined in Appendix A – Spill Procedures. The outlined procedure will be followed in managing a marine pollution incident originating from a vessel or vessel related activity.

57. NnGOWL will request Contractors to hold a copy of this MPCP on the bridge of any large construction vessels.

58. The flow of information between the personnel named above is summarised in Figure 5-1Following initial notification of the spill, communications between all parties is likely to be regular and ongoing throughout the response.

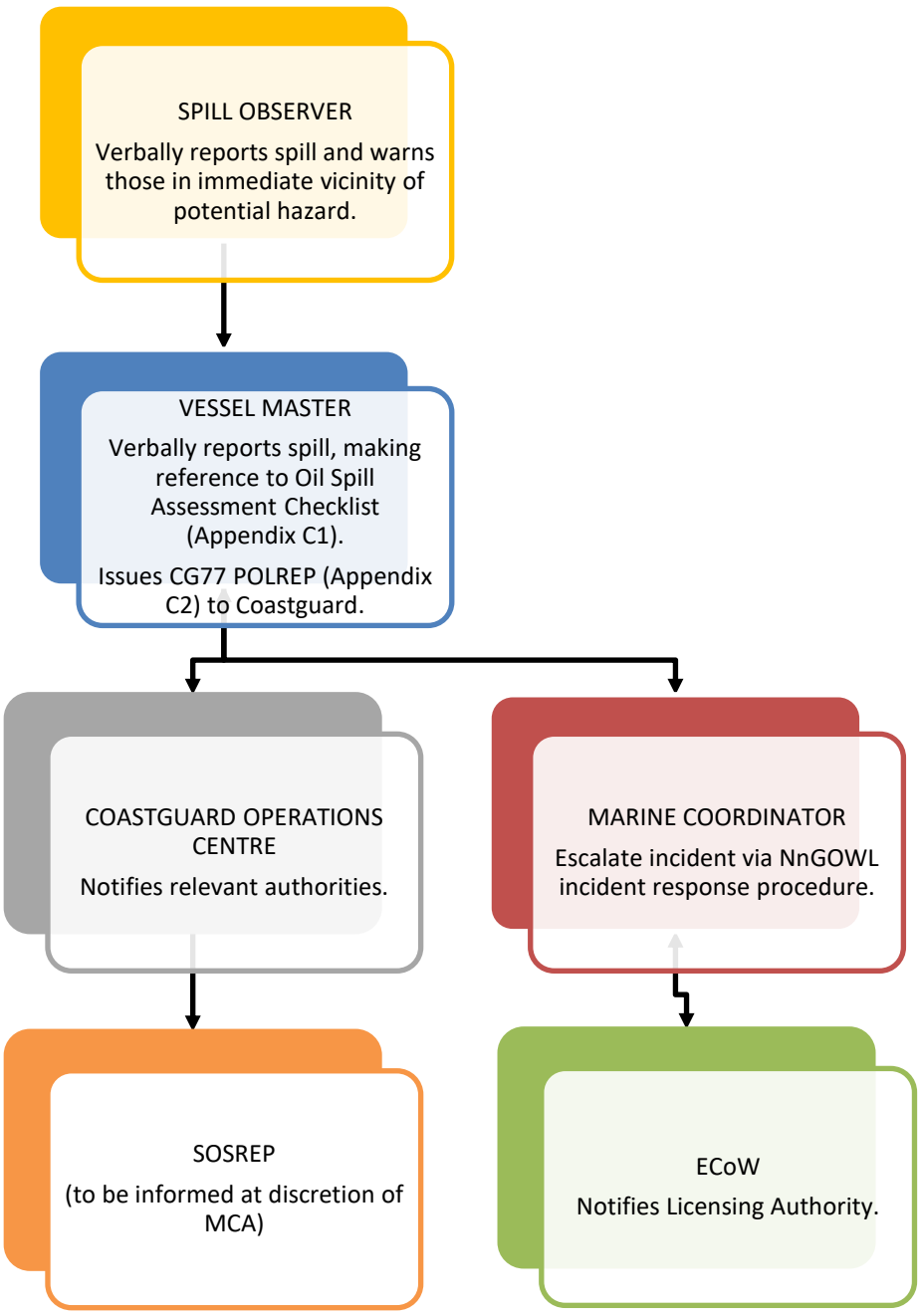

Figure 5-1: Flow of information during initial reporting of a spill originating from a vessel or vessel related activity

5.2.2 Spills Originating from a Turbine or OSP

59. When a spill is observed originating from a turbine or OSP, it will be reported to the Marine Coordinator by the Spill Observer and the Marine Coordinator will then report the spill to CGOC Aberdeen via phone. Verbal notification should be followed up when practicable with the submission of a POLREP via email to the CGOC by the Marine Coordinator. The Marine Coordinator will ensure the POLREP has been received by a follow up email and call.

60. The Marine Coordinator will engage the MPCP and assume primacy of the incident. The Marine Coordinator will be responsible for ongoing reporting on spill status and will coordinate an initial response with the Spill Observer who may utilise spill kits on the turbines or OSPs. The Marine Coordinator will request support from a specialist accredited Oil Spill Response Contractor as required.

61. The quantities and type of hydrocarbons and chemicals on the turbines and OSPs are not sufficient to warrant a Tier 2 or Tier 3 response. Any leakage from the equipment within the nacelle will be contained by the nacelle cover and any leakage from the transformer in the tower will be contained by a bund. Similarly, adequate bunding will be installed within the OSPs to ensure loss of the oil and chemical inventory would be contained within the OSP platform. It is therefore not anticipated that the MCA would implement the NCP or take command of an incident from an offshore structure associated with the Project. However, the MCA will be kept informed by verbal communications and through ongoing submission of the POLREP.

62. The flow of information between the personnel named above is summarised in Figure 5-2. Following initial notification of the spill, communications between all parties is likely to be regular and ongoing throughout the response. Appendix A – Spill Procedures provides detailed spill response procedures for personnel who will have key responsibilities in the event of a spill originating from a NnGOWL owned turbine or OSP.

63. The detailed stages of this process are outlined in Appendix A – Spill Procedures.

64. The flow of information between the personnel named above is summarised in Figure 5 1. Following initial notification of the spill, communications between all parties is likely to be regular and ongoing throughout the response.

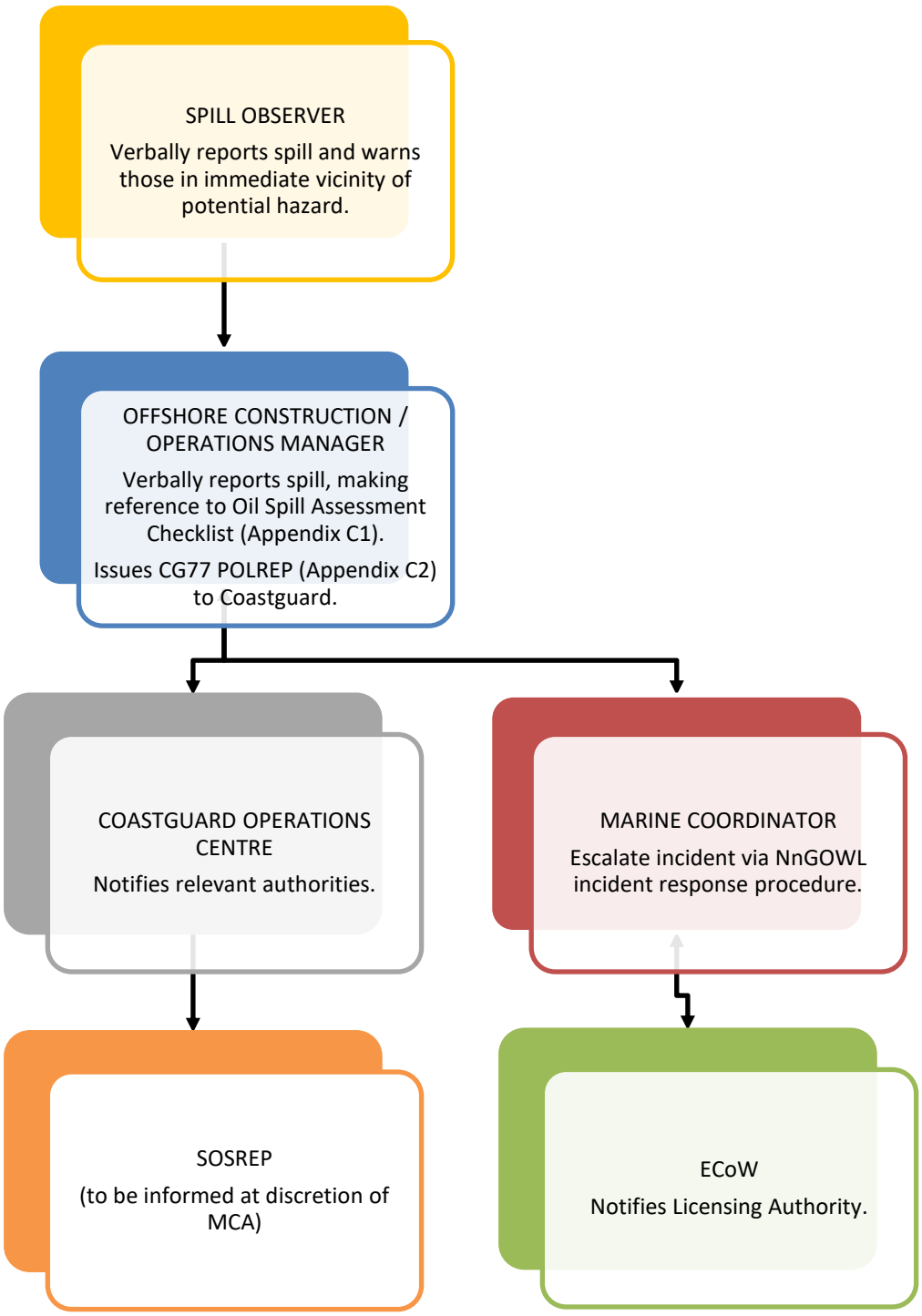

Figure 5-2: Flow of information during initial reporting of a spill originating from a turbine or OSP

5.3 Spill Response Strategies

65. The appropriate 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.

66. Table *5-1* presents the response strategies that are generally followed on the UK Continental Shelf (UKCS), according to spill Tier and oil type.

Table 5-1- General response strategies according to spill Tier and oil type

TIER & RESOURCES	RESPONSE STRATEGIES	
	NON-PERSISTENT OIL (MGO 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.
Tier 2 **(medium spill)** **Spill Response Contractor and additional support where necessary**	Natural dispersion and monitoring. Chemical dispersion only if safety or environmental sensitivities are threatened, in consultation with the relevant authorities.	Consult specialist services from a spill response contractor. Continue to monitor and evaluate strategy using aerial surveillance. Boat-based dispersant application likely to be the primary response strategy – liaise with an oil spill response contractor as required. Consider mechanical recovery where possible. Mobilise shoreline containment and recovery equipment if shoreline is threatened – spill response contractor to engage additional support if necessary.
Tier 3 (large spill) **Appointment of a Tier 2/3 Spill Response Contractor**	Natural dispersion and monitoring (aerial surveillance). Chemical dispersion only if safety or environmental sensitivities are threatened, in consultation with the relevant authorities.	Contract specialist services through the appointment of a Tier 2/3 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 spill response contractor. Consider mechanical recovery where possible. Mobilise shoreline containment and recovery equipment if shoreline is threatened.

67. Prior to construction the Contractors will make provisions for oil spill response capabilities commensurate with their level of risk associated with their scope of works.

68. The majority of spills likely to occur during construction and operation would be small spills that would fall within a Tier 1 response category comprising small volumes of light non-persistent oil types. The spill response strategies most appropriate to this oil spill risk are detailed immediately below.

5.3.1 Tier 1 Oil Spill Response Strategies

5.3.1.1 Monitor and Evaluate

69. For all spills, any oil slick should be monitored from the outset. In the case of the Project, this will typically involve monitoring by use of a vessel, either already on site, or mobilised for the specific purpose. Monitoring should be carried out by personnel that have adequate training in oil slick monitoring and evaluation.

70. 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.

5.3.1.2 Natural Dispersion

71. If light non-persistent 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.

72. 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.

73. If a light oil has been spilled, such as diesel or hydraulic oil, the process of natural dispersion can be aided by a technique called 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.

74. Note that prop-washing will involve interference with the vessels 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.

75. Prop-washing should only be carried out if considered safe to do so by the Vessel Master. An alternative to prop washing is to agitate the slick with vessel fire hoses.

5.3.2 Tier 2/3 Oil Spill Response Strategies

76. In most cases, any oil spills from the Project 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 MCA will implement the NCP and SOSREP will take command of the incident. The Marine Coordinator will maintain continued communications with those on site (such as Vessel Masters) and provide assistance to the relevant response cells established by the MCA. The ECoW on the project will, where necessary or requested to do so, liaise with the SEG and Science and Technical Advice Cell (STAC), as may be established through the procedures outlined in the NCP.

77. Any oil spill response resources held by the Key Contractors will be made available to the MCA throughout the duration of the incident. The following additional resources may be deployed in response to a Tier 2 or Tier 3 incident.

5.3.2.1 Dispersant Application

78. 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.

79. Due to the light nature of the oils associated with the Project, 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.

80. Appropriate consultation is required with regulatory bodies before initiating the use of dispersant as a response.

81. Formal approval for dispersant use from MS-LOT will be required in water depths of less than 20 metres or within 1 NM of such depths.

82. However, 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.

83. 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.

84. A dispersant response capability would be available through the appointment of a Tier 2 and Tier 3 response contractor. Due to the unlikely scenario of a large spill requiring dispersant application NnGOWL do not propose engaging an oil spill response contractor. Dispersant application capabilities would therefore have to be procured during an incident.

85. 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).

86. The MMO has published a list of the latest oil treatment products approved for use on the UKCS (MMO, 2018).

5.3.2.2 Containment and Recovery

87. 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.

88. Mechanical containment and recovery capability would be available through the appointment of a Tier 2/3 response contractor.

89. 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.

90. 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.

5.3.3 Offshore Chemical Spill Response

91. Volumes of chemicals utilised in the Project will be relatively small. Chemical spills are considered unlikely.

92. Under Marine Licence condition 3.1.7, all chemicals to be utilised during construction must be approved in writing by the Licensing Authority prior to use. In addition, all chemicals to be utilised in an 'open' system must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemical Regulations 2002, unless approved in writing by the Licensing Authority.

93. A brief summary of potential response techniques for different groups of chemicals (according to their behaviour on contact with water) is presented below:

- Gases and Evaporators - The release of a gas or evaporating liquid chemical has the potential to generate vapour clouds that might be toxic or form an explosive mixture with air. In an open environment, toxic vapour will usually disperse as a result of natural air movement and often the only feasible response measure will be to monitor any vapour cloud/plume as it disperses.
- Floaters - Floaters may spread across the water surface to form a slick. For spills involving relatively persistent chemicals that float, it may be possible to detect and monitor floating materials. If safe, it may be possible to consider deploying booms to contain and control the movement of substances. Skimmers and other oil response equipment may also be used to recover material from the surface. Containment and recovery may not be advisable when dealing with highly toxic or flammable chemicals. In certain circumstances, sorbent materials may be deployed to collect and concentrate a chemical spill. The assessment of these chemicals may utilise the oil spill Tier Strategy described in Section 4.3.
- Dissolvers - The ability to contain and recover dissolved chemicals in extremely limited. Providing means to accelerate the natural processes of dispersion and dilution may be the only way to respond to spills of such chemicals. Some dissolved chemical plumes may, in theory, be neutralised, flocculated, oxidised or reduced by the application of other chemicals, but chemical treatment is unlikely to be practical and would not normally be recommended.
- Sinkers - Chemicals that sink have the potential to contaminate the seabed and may persist in sediments. Any response may therefore need to consider the recovery of any chemicals and heavily contaminated sediment. In shallow waters, mechanical dredgers and pump/vacuum devices may be used to recover materials.

6 References

Marine Management Organisation. Approved oil spill treatment products. Available from: https://www.gov.uk/government/publications/approved-oil-spill-treatment-products [Accessed on 17/05/2019]

Maritime and Coastguard Agency (2014) The National Contingency Plan A Strategic Overview for Responses to Marine Pollution from Shipping and Offshore Installations. Available from: https://www.gov.uk/government/publications/national-contingency-planncp [Accessed on 17/05/0219]]

Appendix A – Spill Procedures

The following stages will be observed in managing a marine pollution incident where the spill originates from an NnGOWL-owned offshore installation:

ASSESS SITUATION AND COMMENCE RESPONSE
ACTIONS to be taken by Spill Observer: • Contact all personnel in the vicinity of the leak or spill and warn of the potential hazard. • If safe to do so, stay in vicinity of the leak or spill and continue observation. • If safe to do so, take any reasonable action to contain or reduce the leak or spill using minor spill kits on the WTGs and OTMs.
NOTIFICATIONS to be made by Spill Observer: • The Spill Observer shall notify the Marine Coordinator.

REPORT SPILL
ACTIONS to be taken by Spill Observer: • If safe to do so, immediately initiate actions to identify source and stop leakage at source. • Maintain safety of personnel; the installation and any vessel within 500 metres. • Initiate a chronological log of events and actions taken – maintain this log until stand down.
NOTIFICATIONS to be made by the Marine Coordinator: • All marine pollution incidents must be reported as soon as is safely possible to the Coastguard Operations Centre (CGOC) Shetland via phone (or via Very High Frequency (VHF) radio) on 01595 692976. • The initial verbal report to CGOC Aberdeen via phone (or VHF radio) must be followed up when practicable with the submission of a **Marine Pollution Report** (POLREP) via email (or fax) to CGOC Aberdeen at aberdeen.coastguard@mcga.gov.uk. The Marine Coordinator will submit the POLREP. • Note that CGOC Aberdeen will pass the POLREP on to the MCA Counter Pollution and Response Branch, who will advise on actions to be taken, and at the same time issue it to other relevant authorities. • The Marine Coordinator will notify other operators/users in the vicinity of the spill.

- The Marine Coordinator will inform the NnGOWL Environmental Clerk of Works (ECoW) of the incident and the other responsible NnGOWL personnel (Project Manager and HSE Manager).
- Ensure a log keeper is assigned to monitor response operations and keep a chronological log of events and conversations.

CLASSIFY AND QUANTIFY SPILL

ACTIONS to be taken by Spill Observer:

- Confirm source and estimate quantity of oil / chemical spilled. Classify spill size and determine likely slick movement.
- Assess the ongoing nature of the spill and the possible need to mobilise additional resources.

NOTIFICATIONS to be made by Marine Coordinator:

- Updates on status of incident to be passed to CGOC Aberdeen (verbally and/or via submission of updates to the POLREP form) (and other response organisations as relevant).

DECIDE UPON RESPONSE STRATEGY

ACTIONS to be taken by Marine Coordinator:

- Marine Coordinator to liaise with contractors and vessels and request and coordinate support if required.

SAMPLE OIL AND TRACK SLICK

ACTIONS to be taken by Marine Coordinator:

- If no risk to personnel or installation, request a vessel to track oil spill location and take samples and photographs of spilled oil.
- Sampling of the oil spill and tracking will be undertaken by trained personnel.
- Liaise with Spill Observer and other resources as available (e.g. standby vessels) to assist with slick monitoring.

MONITOR AND EVALUATE SPILL

ACTIONS to be taken by Marine Coordinator:

- Liaise with the Spill Observer to maintain slick monitoring, as required, and observe the following:

- Overall extent and on-going nature of oil slick;
- Direction of movement, especially noting other installations and vessels in the vicinity;
- Proximity to environmentally sensitive areas (as set out in the EIA Report and the Addendum of Additional Information and other relevant Consent Plans;
- Areas possibly in need of urgent clean-up measures;
- Need for additional assistance and back-up services;
- Progress and dispersion of slick during clean-up operations.

- Ensure that the slick is monitored until complete dispersion.

STAND DOWN AND PREPARE INCIDENT REPORT

ACTIONS to be taken by Marine Coordinator:

- Ensure that any waste arising from a spill is managed in accordance with the procedures set out in the NnG Environmental Management Plan (EMP and disposed of responsibly.
- Make an assessment of when to demobilise any response. Commence "stand-down" procedures as follows:
  - Ensure all local authorities, contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down;
  - Prepare internal incident report and remain accessible to support other personnel in compiling their reports.

Appendix B – Spill Notification Checklist

Key actions and notifications for spills originating from a turbine or OSP for the following personnel are summarised in Checklists Checklist C-1 to Checklist C- 3, respectively:

Spill Observer (first person sighting the pollution incident)
Marine Coordinator
NnGOWL Environmental Clerk of Works (ECoW)

Checklists should be referred to and completed in the event of an oil spill and actions and notifications checked off during incident response (following the key stages set out above). Completed checklists will be submitted to the Marine Coordinator following the incident as part of the auditing process to determine lessons learned from any spill response procedures, and any amendments to procedures required to prevent the incident occurring again. Following initial notification of the spill, communications between all parties should be regular and ongoing throughout the response.

Please note, these checklists cover incidents originating from a NnGOWL-owned offshore structure. For spills originating from a vessel please refer to the vessels MPCP-compliant SOPEP.

Checklist C-1: SPILL OBSERVER (first person sighting the pollution incident) – Actions & Notifications

ACTIONS BELOW SHOULD BE COMPLETED BY THE PERSON WHO OBSERVES THE SPILL	
INITIAL ACTIONS	
❒	Notify the Marine Coordinator and provide details of: Time of spill; Possible source of spill; Current spill location; Oil / chemical type; Estimation of quantity of oil / chemical spilled; and Any other relevant actions.
❒	Contact all personnel in the vicinity of the leak or spill and warn of the potential hazard.
ONGOING ACTIONS	
❒	**If safe to do so,** stay in vicinity of the leak or spill and continue observation.
❒	**If safe to do so,** take any reasonable action to contain or reduce the leak or spill.

Checklist C- 2: Marine Coordinator – Actions & Notifications

COMPLETION OF THE ACTIONS BELOW ARE THE RESPONSIBILITY OF THE MARINE COORDINATOR	
INITIAL ACTIONS	
❒	Receive report on spill from Spill Observer and take charge of the situation.
❒	If safe to do so, immediately initiate actions to assist with identifying the source and stop leakage at source.
❒	Maintain safety of: Personnel; The installation; Any vessel within 500 metres.
❒	Notify CGOC Shetland of spill via telephone (or Harbour / Port Authority if spill in harbour/port).
❒	Activate the MPCP.
❒	Submit completed POLREP form to CGOC Shetland via email or fax.
❒	On notification from the Spill Observer, record all details of the incident and all incoming information and conversations, maintaining a chronological log of events, including issue of notifications.
❒	Notify the ECoW of the spill.
❒	Maintain contact with the Spill Observer. Ensure the slick is being observed, and determine likely slick movement (towards other installations/environmentally sensitive areas/coastal regions).
❒	Assist the Spill Observer in arranging for photographs and samples to be taken of the slick.
ONGOING ACTIONS	
❒	Work with the Spill Observer and to reduce or prevent further oil / chemical leakage without endangering the safety of personnel.
❒	Assess the ongoing nature of the spill and the possible need to mobilise additional resources. Seek advice from an oil spill response contractor as required on the following: Overall extent and on-going nature of oil slick; Direction of movement, especially noting other installations and vessels in the vicinity; Proximity to environmentally sensitive areas; Areas possibly in need of urgent clean-up measures; Need for additional assistance and back-up services;

	Progress and dispersion of slick during clean-up operations.
❒	Ensure a log keeper is assigned and continues to maintain a chronological log of response procedures, events and conversations.
❒	Liaise with and co-operate with statutory bodies as necessary in determining and managing spill response.
❒	Ensure all other installations and vessels in the vicinity have been informed of the spill if deemed necessary.
❒	If no risk to personnel or installation, request vessel to track oil spill location and take samples of spilled oil. Ensure spill is tracked until complete dispersion.
CLOSE-OUT ACTIONS	
❒	Make an assessment of when to demobilise any response. Commence "stand-down" procedures in liaison with the Marine Coordinator as follows: Ensure all local authorities, contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down; Prepare internal incident report and remain accessible to support personnel in compiling their reports.
❒	Collect copies of all Incident Logs available.
❒	Ensure that a "lessons identified" profile is available quickly so that remedial action and the possible upgrading of procedures can take place.

Checklist C- 3: ECoW – Actions & Notifications.

COMPLETION OF THE ACTIONS BELOW IS THE RESPONSIBILITY OF THE ECOW	
INITIAL ACTIONS	
❒	On notification from the Marine Coordinator, notify the NnG Consents and Licensing Team at the earliest opportunity and, in any event, within 24 hours.
❒	On notification from the Marine Coordinator, notify the Licensing Authority within 24 hours for serious incidents (and 72 hours for less serious incidents).
❒	Ensure appropriate spill notifications have been issued as required by this MPCP. Record times and key details of notifications.
❒	Provide advice on environmental sensitivities and assistance to the Marine Coordinator and primary responder, if required.
ONGOING ACTIONS	
❒	Provide advice to the Marine Coordinator as required.
CLOSE-OUT ACTIONS	
❒	Remain accessible to support personnel in compiling their reports.
❒	Work with the NnG Project Team to ensure that a “lessons identified” profile is available quickly so that remedial action and the possible upgrading of procedures can take place (and update/amend this MPCP where necessary).
❒	Following the ‘lessons learned’ process issue close-out note to MS-LOT setting out remedial action and amendments and updates to the MPCP and procedures.

Appendix C – Response Forms

C1 – Oil Spill Assessment Checklist

To be referred to by the Primary Responder. This checklist ensures that the initial assessment of the oil spill is accurate and all aspects likely to affect the spill classification such as quantity, oil type and likely fate of the spilled oil, are considered thoroughly.

OIL SPILL ASSESSMENT CHECKLIST	
This checklist is designed to assist those personnel who have the primary responsibility of assessing the oil spill incident. These personnel are likely to be: The Marine Co-ordinator; or The Vessel Master.	
STEP	**GUIDANCE**
Determine Essential Details	Location of pollution incident; Source of spill; Oil type; Extent of oil spill; Time of incident; Potential hazardous circumstances; Any other relevant information (particularly: is spill contained or ongoing?).
Assess Safety Hazards	Until otherwise established, assume oil spill is giving off potentially dangerous VOCs (i.e. gas or hydrocarbon vapours). ELIMINATE IGNITION SOURCES Approach Oil Spill from upwind to reduce effects of vapours. APPROACH ONLY IF SAFE TO DO SO!
Determine Oil Spill Source	If source unknown, investigate with care. Instigate actions to stop spillage at source. IF SAFE TO DO SO!
Estimate quantity of Oil released if exact amount unknown	To be conducted by trained personnel
Predict oil fate; determine direction and speed of oil	To be conducted by trained personnel

movement in addition to weathering characteristics	
Assess prevailing and if possible future weather conditions	Determine: Wind speed and direction; State of tide and current speed; Sea state.

C2 - 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 Marine Coordinator as detailed in Section 5 in the event of a spill and issued to CGOC Aberdeen:

CGOC Aberdeen	Tel: 01224 592334	aberdeen.coastguard@mcga.gov.uk

The Vessel Master or Marine Coordinator should not delay sending a report. If certain information is lacking, this may 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 an installation the Marine Coordinator will provide updates to the CGOC verbally and through submission of a POLREP.

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

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

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

C3 - Oil Spill Incident Log Sheet

To be completed by all key personnel involved in the oil spill response, including the Marine Coordinator. As a minimum, key decisions and events, communications, and deployment of resources should be recorded.

Name:	
Team:	
Role:	
Location:	
DATE / TIME	**COMMUNICATION / ACTION TAKEN / NOTES**

C4 - Incident Briefing Checklist

To be completed by the Marine Coordinator / Vessel Master as appropriate when briefing other members of staff.

BRIEFING CHECKLIST	
This checklist is designed to facilitate an effective response team briefing and should be used by the Marine Coordinator when briefing other members of staff.	
STEP	**NOTES**
Specify Safety Hazards	
Extent of Problem **Size of spillage, type of oil, source**	
Slick Trajectory **Tide and Wind conditions**	
Response Actions **Strategies to consider**	
Resource Mobilisation **Equipment and personnel**	
Planning Cycle **Meetings schedule**	
Additional Information **Communications, Waste Disposal, Weather Forecast**	

C5 - Dispersant Application

Prior to dispersant application, the information in the form below is required to be submitted to Marine Scotland, unless there are force majeure circumstances where there is a genuine risk to human life or to the safety of an installation or vessel. Under such circumstances, dispersants may be used without prior agreement.

This information should be completed by the Primary Responder (Vessel Master or Marine Coordinator) following discussion with an external oil spill response organisation.

MARINE SCOTLAND EMAIL: MS.SPILLRESPONSE@SCOTLAND.GSI.GOV.UK AND SPILLRESPONSE@MARLAB.AC.UK; FAX NUMBER: 01224 295524	
INSTALLATION / SPILL INFORMATION	
Name and contact details for person requesting approval / advice:	
Name of Responsible Person:	
Name of site:	
Location of spill (in degrees of Latitude and Longitude):	
Oil type or description of appearance if not known. If crude oil, state type:	
Volume of oil spilled – preferably in tonnes:	
Source of oil spill:	
Potential for further spillage:	
Description of slick – including dimensions and colour:	
DISPERSANT USE INFORMATION	
Dispersant type(s):	
Dispersant proprietary name(s):	
Marine Scotland approval status:	
Quantity / quantities proposed for use:	
Method(s) of application:	
Have efficacy tests been undertaken to confirm hydrocarbons are amenable to treatment (e.g. bottle tests / test sprays)? If so, what were the results?	

Location(s) of application:	
Water depth (m) in application area(s):	
Minimum distance (km) from nearest shoreline:	
Minimum distance (km) from nearest median line:	
Environmental sensitivities relevant to location(s) of application (including any protected sites within 20 km):	
Prevailing weather conditions: **Wind speed** **Wind direction** **Wave height**	
Other methods of response being applied or considered and assistance being sought (e.g. oil spill response contractor):	

The information in the form below is required to be submitted to Marine Scotland after the use of dispersant (adapted from DECC, 2015[2]).

MARINE SCOTLAND EMAIL: MS.SPILLRESPONSE@SCOTLAND.GSI.GOV.UK AND SPILLRESPONSE@MARLAB.AC.UK; FAX NUMBER: 01224 295524	
INSTALLATION / SPILL INFORMATION	
Name of operator:	
Name of site:	
Location (in degrees of Latitude and Longitude):	
DISPERSANT USE INFORMATION	
Date:	
Dispersant proprietary name(s):	
Quantity / quantities used:	

[2] Department of Energy and Climate Change (DECC) (2015) Guidance Notes for Preparing Oil Pollution Emergency Plans, for Oil & Gas Installations and Relevant Oil Handling Facilities, January 2015

Method(s) of application:	
Location(s) of application:	
Prevailing weather conditions at time of use: **Wind speed** **Wind direction** **Wave height**	
Reason for use:	
Was approval or advice obtained prior to use?	
Estimate quantity of oil treated:	
Comments on effectiveness of treatment:	
Other relevant observations / comments on use:	
Name and contact details for person reporting use:	
Date and time report was completed:	

Appendix D – Contacts Directory

ORGANISATION	CONTACT NAME	TELEPHONE (OFFICE HOURS)	FAX	24 HR. TELEPHONE	MOBILE / PAGER / EMAIL
NnGOWL					
Marine Coordinator		+44(0) 07508421406			
Construction Manager	Mick Hoyle	+44 (0) 7881102695			
HSE Manager	Jed Mawson	+44 (0) 7939378788 or			
Project Director	Matthias Haag	+44 (0) 7521010490			
Offshore HSE Advisor	Kevin Tyrens	+44 (0) 7875110353			
EDF 24 HR Emergency Reporting Line					
Offshore Consents Manager	Ewan Walker	+44 (0) 7850 207 515			
ECoW	Sarah MacNab	+44 (0) 7766900074			
NnGOWL CONTRACTORS					
Marine Installation					
Turbines					
Electrical Package					
OIL SPILL RESPONSE ADVISORS					

MCA AND COASTGUARD CENTRES					
CGOC Aberdeen	Duty Officer	01224 592334	TBC	01224 592334	aberdeen,coastguard@hmcg.gov.uk
Maritime & Coastguard Agency (MCA)	Admin Operations Advice Scientific Advice Head of Counter Pollution & Response Branch	02380 329483 02380 329407 02380 329411 02380 329525	02380 329485 02380 329446 (MEOR)	TBC	If contact with MCA outside office hours is needed, then the relevant local coastguard office should be contacted.
Royal National Lifeboat Association (RNLI)	-				
MARINE SCOTLAND					
Marine Scotland	Duty Officer	07770 733423 (mobile)	01224 295511	07770 733423 (mobile)	07770 733423 spillresponse@marlab.ac.uk
DEPARTMENT OF BUSINESS ENERGY AND INDUSTRIAL STRATEGY					
BEIS	Duty Officer				
PORTS					
To be added					
ENVIRONMENTAL AGENCIES AND LOCAL AUTHORITIES					
Scottish Environmental Protection Agency (SEPA)	Pollution hotline	-	-	0800 80 70 60	-
Scottish Natural Heritage (SNH)	National Oil Spill Officer	0131 3162610	0131 3162690		07774 161273 (mobile)

					07699 761509 (Pager)
Add local authority emergency response / duty officers numbers					
OTHER INSTALLATIONS					
Inch Cape Offshore Wind Farm operators					
Seagreen Wind Energy					
OTHER CONTACTS (FOR POSSIBLE INFORMATION AND ADVICE)					
International Tanker Owners Pollution Federation (ITOPF)	Main	0207 566 6999	-	07623 984 606	-
Royal Society for the Protection of Birds (RSPB)	North Scotland Regional Office, Inverness	01463 715000	-	-	-