European Offshore Wind Deployment Centre

O&M Phase Marine Pollution Contingency Plan

IN THE EVENT OF A SPILL GO STRAIGHT TO SECTION 7.7 FOR ROLE-SPECIFIC CHECKLISTS.

UAB-HSE-PR-005

25/11/2025

DOCUMENT APPROVAL

Prepared By	Reviewed By	Approved By
25/11/2025	04/12/2025 [Redacted]	04/12/2025

Revision	Date	Revision changes
0	06/04/2017	First issue
1	05/06/2017	Post consultation and Removal of Landfall Location 2
2	07/07/2017	Further consultation
3	30/08/2017	Reference to Section 12.1.3 added to Section 7.3
4	30/03/2020	Updated for O&M phase, document reference number changed
5	20/04/2020	References added to Liquid Remediact™ and finalisation for consultation
6	07/08/2020	Addressing stakeholder comments on updated revision for O&M phase
7	21/09/2020	Addressing further comments from Maritime & Coastguard Agency
8	06/05/2021	Addressing comments from Marine Coordination Centre following desk top drill. 24hr site based personnel (Service Leader) to assume primacy in event of WTG pollution incident. Removal of proposal to take samples.
9	20/07/2021	Correcting inconsistencies regarding who assumes primacy & Service Lead reporting responsibilities.
10	11/01/2022	Updates following Desk Top Spill Exercise with Vestas: Inclusion of third party spill response contractor – Ambipar Response Minor updates to tense used when referring to approved consent plans. Updates to include reference to debris in addition to liquid pollution Updates to contact directory.
11	28/03/2023	Correcting minor typos / formatting errors Updates following Desk Top Spill Exercise with Vestas: Spill Observer to act to stop spill first
12	03/02/2025	Update of organisation names/terms (MD-LOT, DESNZ, MRCC) Addition of solid debris arrangements / checklists Updates to contacts directory Removal of Tier 2/3 arrangements such as reference to dispersant use. Restructure of document and correction of internal bookmarks.
13	26/11/2025	Correction of links / bookmarks identified during internal exercise. Addition of POLREP email template on Sharepoint and WTG location appendix. Addition of reference to Scottish Govt 'Accidental deposit of an object at sea' webpage. Addition of reference to Local Resilience Partnership.

O&M Marine Pollution Contingency Plan Overview

Purpose and objectives of the Plan

A Marine Pollution Contingency Plan (MPCP) was prepared to address the specific requirements of the relevant conditions attached to the Section 36 consent and the Marine Licence issued to Aberdeen Offshore Wind Farm Limited (AOWFL).

The overall aim of this revised MPCP is to make provisions in respect of spill and collision incidents occurring during the operation and maintenance (O&M) phase of the Development.

This 'O&M MPCP' confirms that the spill and collision related mitigation measures detailed in the Application will be applied during operation where these remain relevant.

All relevant method statements developed by Contractors and Subcontractors involved in the European Offshore Wind Deployment Centre (EOWDC) will comply with the procedures set out in this O&M MPCP.

Scope of the Plan

This O&M MPCP covers the following:

- A risk assessment of the potential sources and likelihood of a pollution incident;
- Oil and chemical spill response procedures and actions;
- Background and supporting information to support the response procedures, including response strategy guidelines; and
- Confirmation that the spill and collision provisions described within this MPCP align with those considered in the Environmental Statement (ES), Supplementary Environmental Information Statement (SEIS), Marine Licence, S.36 Consent and Marine Licence Application.

Plan Audience

This MPCP is intended to be referred to by relevant personnel involved in the construction and operation of the EOWDC, including AOWFL personnel, Contractors and Subcontractors. Compliance with this MPCP will be monitored by AOWFL and reported to the Marine Directorate Licensing and Operations Team (MD-LOT).

Plan Locations

Copies of this O&M MPCP are to be held in the following locations:

- At AOWFL Head Office;
- At the premises of any agent, Contractor or Subcontractor (as appropriate) acting on behalf of AOWFL;
- At the Marine Coordination Centre; and
- On the AOWFL Sharepoint site.

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1 LIST OF ABBREVIATIONS AND DEFINITIONS

1.1 Defined Terms

Term	Definition / Description
Application	The Application and Environmental Statement submitted to the Scottish Ministers, by the Company on 1st August 2011 and Supplementary Environmental Information Statement submitted to the Scottish Ministers by the Company on 6th August 2012 for consent under section 36 of the Electricity Act 1989 and for a Marine Licence under 20(1) of the Marine (Scotland) Act 2010, for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC) electricity generating station approximately 2 km off the coast of Aberdeenshire in Aberdeen Bay with a generation capacity of up to 100 MW.
Cables	Offshore Export Cables and Inter-array cables.
Cable Laying Strategy (CLS)	The Strategy approved under Condition 25 of the section 36 Consent.
Company	Aberdeen Offshore Wind Farm Limited (AOWFL). AOWFL is wholly owned by Vattenfall and has been established to develop, finance, construct, operate, maintain and decommission the European Offshore Wind Deployment Centre.
Construction	As defined by the Section 36 Consent, (as per section 64(1) of the Electricity Act 1989, read with section 104 of the Energy Act 2004), construction is defined as follows: "construct", in relation to an installation or an electric line or in relation to a generating station so far as it is to comprise renewable energy installations, includes: • placing it in or upon the bed of any waters; • attaching it to the bed of any waters;

	• assembling it; • commissioning it; and • installing it.
Construction Method Statement (CMS)	The Statement approved under Condition 13 of the section 36 Consent.
Contractor	Any Contractor/Supplier (individual or firm) working on the project, hired by AOWFL.
Development	The European Offshore Wind Deployment Centre electricity generating station in Aberdeen Bay, approximately 2 km east of Blackdog, Aberdeenshire, as described in Annex 1 of the section 36 Consent.
Development Area	The area which includes the wind turbine generators, the Inter-array cables and part of the Offshore Export Cable Corridor, including any other works, as shown in Part 4 of the Marine Licence (named as Lease Boundary in the Marine Licence).
Environmental Statement (ES)	The Statement submitted by the Company on 1 August 2011 as part of the Application.
Incident Site	The immediate vicinity of the location of the spill.
Inter-array cables	Electricity cables connecting the WTGs.
Marine Licence	Licence issued by the Scottish Ministers under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Export Cable Corridor.
Offshore Consents	• Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC; • Declarations granted under section 36A of the Electricity Act 1989 to extinguish public rights of navigation so far as they pass through those places within the territorial sea where structures forming part of the Offshore Wind Farm are to be located; and • Marine Licence under Part 4 of the Marine (Scotland) Act 2010 for construction works and deposits of substances or objects in the Scottish Marine Area in relation to the Offshore Wind Farm and Export Cable Corridor.
Offshore Export Cables (OECs)	The offshore export cables (and all associated cable protections) connecting the WTGs to the onshore export cables.
Offshore Export Cable Corridor Landfall	The location where the offshore export cables come ashore.

Oil Spill Response Organisation	The firm contracted to respond to pollution / environmental incidents at EOWDC – currently Ambipar Response
Primary Responder	The person(s) who will assume primacy in the event of a marine pollution incident and manage initial response (Vessel Master or Service Lead).
Section 36 Consent	Consent granted under section 36 of the Electricity Act 1989 for the construction and operation of the EOWDC.
Subcontractor	Any Contractor/Supplier (individual or firm) providing services to the project, hired by the Contractors (not AOWFL).
Supplementary Environmental Information Statement (SEIS)	The Addendum submitted to the Scottish Ministers by the Company on 6th August 2012 as part of the Application.
Vessel Management Plan (VMP)	The Plan approved under Condition 24 of the Section 36 Consent.

1.2 Acronym Definitions

Term	Definition
ACA	Action Co-ordinating Authority
AOWFL	Aberdeen Offshore Wind Farm Limited
BAOAC	Bonn Agreement Oil Appearance Code
CEFAS	Centre for Environment, Fisheries and Aquaculture Science
CGOC	Coastguard Operations Centre (now MRCC)
CS&R	Corporate Security & Resilience
CMS	Construction Method Statement
COSHH	Control of Substances Hazardous to Health
CPS	Counter Pollution and Salvage
CPSO	Counter Pollution and Salvage Officer
DESNZ	Department for Energy Security and Net Zero
EEZ	Exclusive Economic Zone
EOWDC	European Offshore Wind Deployment Centre
ERCoP	Emergency Response Cooperation Plan
ES	Environmental Statement
HSE	Health and Safety Executive
HSSE	Health, Safety, Security and Environment
HVO	Hydrotreated Vegetable Oil
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
ISM	International Safety Management
ITOPF	International Tanker Owners Pollution Federation
JNCC	Joint Nature Conservation Committee
km	Kilometre
LAT	Lowest Astronomical Tide
LRP	Local Resilience Partnership
MCA	Maritime and Coastguard Agency
MCC	Marine Coordination Centre
MD-LOT	Marine Directorate - Licensing and Operations Team
MGN	Marine Guidance Note
MGO	Marine Gas Oil

Term	Definition
ml	Millilitres
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
MRC	Marine Response Centre
MRCC	Maritime Rescue Coordination Centre (formerly CGOC)
MS-ML	Marine Scotland - Marine Laboratory
MSA	Marine Safety Agency
MSN	Merchant Shipping Notice
MW	Megawatt
NCP	National Contingency Plan
nm	Nautical Mile
NSP	Navigational Safety Plan
O&M	Operation and Maintenance
OCM	Offshore COSHH Method
OCNS	Offshore Chemical Notification Scheme
OEC	Offshore Export Cable
OEMP	Offshore Environmental Management Plan
OPEP	Oil Pollution Emergency Plan
OPRC	Oil Pollution Preparedness, Response and Co-operation
OREI	Offshore Renewable Energy Installation
OSCP	Oil Spill Contingency Plan
POLREP	Marine Pollution Report
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
RSPB	Royal Society for the Protection of Birds
S.36	Section 36 Consent
SCG	Strategic Coordinating Group
SCU	Salvage Control Unit
SDS	Safety Data Sheet
SEG	Standing Environment Group
SEIS	Supplementary Environmental Information Statement
SEPA	Scottish Environment Protection Agency
SOLAS	Convention for the Safety of Life at Sea

Term	Definition
SOPEP	Shipboard Oil Pollution Emergency Plan
SOSREP	Secretary of State's Representative for Maritime Salvage and Intervention
STAC	Scientific and Technical Advisory Cell
STOp	Scientific, Technical and Operational Advice Note
TCG	Tactical Coordinating Group
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
UN	United Nations
UTC	Coordinated Universal Time
UV	Ultraviolet
VHF	Very High Frequency
VMP	Vessel Management Plan
VOC	Volatile Organic Compound
WTG	Wind Turbine Generator

2 INTRODUCTION

2.1 Background

On 26 March 2013, Aberdeen Offshore Wind Farm Limited (AOWFL) received consent from the Scottish Ministers under Section 36 (S.36) of the Electricity Act 1989 for the construction and operation of the European Offshore Wind Deployment Centre (EOWDC - also known as the Aberdeen Offshore Wind Farm) and on 15 August 2014 a Marine Licence was attained under section 25 of the Marine (Scotland) Act 2010 (reference MS-00010195).

The Development, which consists of 11 wind turbine generators (WTGs), is located approximately 2 to 4.5 km offshore to the north east of Aberdeen, Scotland, within Aberdeen Bay. The Offshore Export Cables (OECs) are each be between 3.7 – 4.4 km long (maximum total length ~8 km) and reach landfall at the adjacent coastline in Aberdeen Bay (at Blackdog) (Figure 1). The EOWDC was fully commissioned in July 2018.

AOWFL is a company wholly owned by Vattenfall and was established to develop, finance, construct, operate, maintain, and decommission the EOWDC.

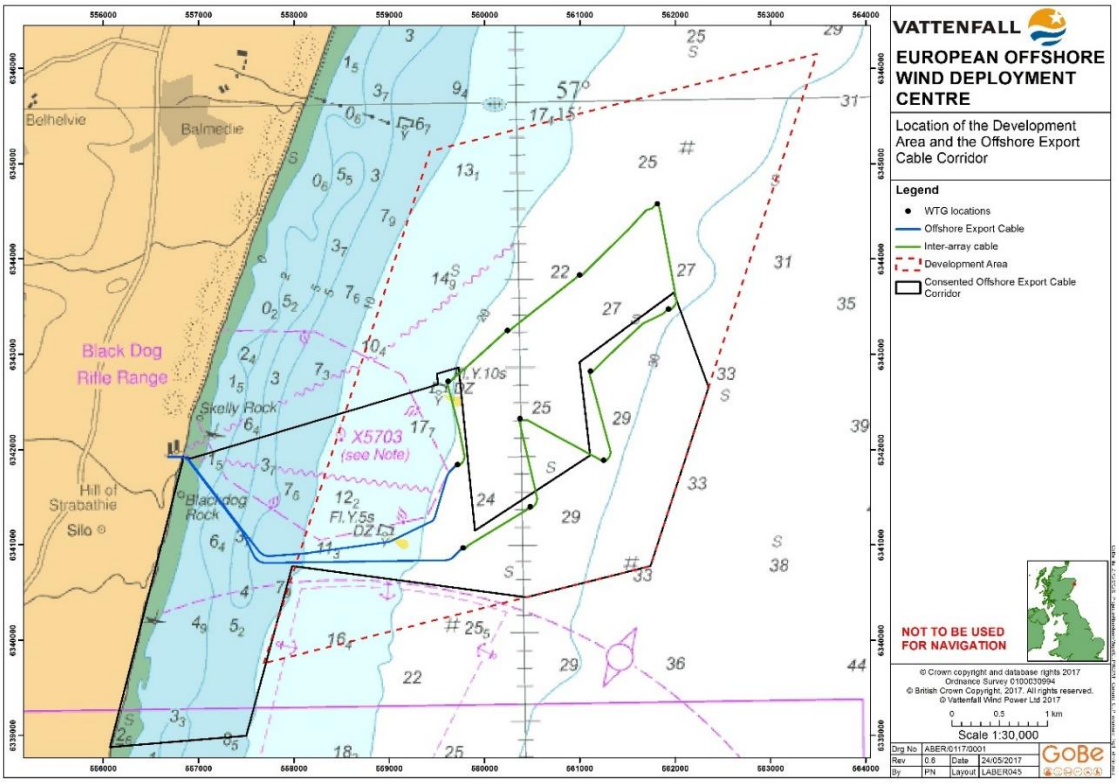


Figure 1 Location of the Development Area and the Offshore Export Cable Corridor.

2.2 Objectives of this Document

The S.36 Consent and Marine Licence contain a variety of conditions that were required to be discharged through approval by the Scottish Ministers/Licensing Authority prior to the commencement of any offshore construction works. These requirements included the approval of a Marine Pollution Contingency Plan (MPCP). The aim of this plan was to make provisions

in respect of spills or collisions during the construction and operation phases of the Development.

As per the review process (Section 3), a periodic review of project documentation identified areas where the MPCP required updating to ensure it was applicable to the operation and maintenance (O&M) phase. Those updates are made within this 'O&M MPCP' document, which is submitted to the Licensing Authority (MD-LOT) for approval. The relevant conditions that are to be discharged by this O&M MPCP document (in full or partially) are presented in full in Table 1.

Table 1 Consent conditions to be discharged by the O&M MPCP

Condition Text	Applicability to O&M MPCP	Where Addressed
Marine Licence Condition 3.1.11		
The Licensee must, no later than three months prior to the Commencement of the Works, submit in writing to the Licensing Authority for their written approval, a Marine Pollution Contingency Plan ('MPCP').	Not applicable	n/a – Addressed in MPCP submitted prior to construction
The MPCP must make provision in respect of spills and collision incidents occurring during the construction and operation of the Works and where such spills or collisions occur then the MPCP must be adhered to in full.	Applicable	Section 7
The MPCP must take into account existing plans for all operations, including offshore installations, that may have an influence on the MPCP.	Applicable	Section 8
Practices used to refuel vessels at sea must conform to industry standards and to relevant legislation.	Applicable	Appendix G
The MPCP must set out how any oil leaks within the turbine nacelle are to be remedied and that such relevant repairs are required to be undertaken without undue delay.	Applicable	Section 5, Section 7
Commencement of the Works must not occur until the Licensing Authority has given its written approval to the MPCP.	Not applicable	n/a – Addressed in MPCP submitted prior to construction
Section 36, Condition 13 (f)		
Prior to the Commencement of Development a Construction Method Statement ("CMS") must be submitted by the Company to the Scottish Ministers and approved, in writing by the Scottish Ministers,	Not applicable	n/a – Addressed in MPCP submitted prior to construction

Condition Text	Applicability to O&M MPCP	Where Addressed
following consultation with Scottish Natural Heritage, Scottish Environment Protection Agency, the Marine and Coastguard Agency, the Planning Authorities, Northern Lighthouse Board, and any such other advisors as may be required at the discretion of the Scottish Ministers. Unless otherwise agreed in writing by the Scottish Ministers, construction of the Development must proceed in accordance with the approved CMS. The CMS must include, but not be limited to, information on the following matters: (a) Commencement dates; (b) Working methods including the scope, frequency and hours of operations; (c) Duration and Phasing Information of key elements of construction, for example turbine structures, foundations, turbine locations, inter-array cabling and land fall cabling; (d) Method of installation including techniques and equipment and depth of cable laying and cable landing sites; (e) The use of Dynamic Positioning vessels and safety/guard vessels; (f) Pollution prevention measures including contingency plans; and (g) Design Statement	The MPCP submitted prior to construction was approved by Licensing Authority. The remaining requirements relating to Condition 13 were set out for approval in the CMS.	

2.3 Linkages with other Consent Plans

This O&M MPCP sets out the provisions made for pollution incidents during the operation of the Development. It forms part of a suite of approved documents that provided the framework for the operation phase – namely the other Consent Plans, required under the S.36 Consent and the Marine Licence, which have relevance to the operational phase.

Marine Licence Condition 3.1.11 (see Table 1 above) requires the MPCP to take into account existing plans for all operations including offshore installations, that may have an influence on the MPCP. The Offshore Environmental Management Plan (OEMP) (required under Condition 17 of the S.36 consent) detailed the procedures for environmental management through all stages of the Development. The OEMP has been updated to ensure relevance to operational phase only, and is now referred to as the O&M OEMP. The Cable Laying Strategy (CLS)

(required under Condition 25 of the S.36 consent) details the methods that will or may be implemented during the operation of the Inter-array cables and the OECs.

In the event of a marine pollution incident, this O&M MPCP will be referred to alongside the AOWFL Emergency Response Plan (ERP) (UAB-HSE-PR-002) and the Emergency Response Cooperation Plan (ERCoP) (UAB-HSE-PR-003).

3 STATEMENTS OF COMPLIANCE

3.1 Introduction

The following statements are intended to reaffirm the AOWFL commitment to ensuring that the Development is operated in such a manner as to meet the relevant requirements set out by the Offshore Consents, as well as other broader legislative requirements.

3.2 Statements of Compliance

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with this O&M MPCP as approved by the Scottish Ministers (and as updated or amended from time to time following the procedure set out in Section 4 of this O&M MPCP).

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with other relevant Consent Plans, as approved by the Scottish Ministers, and as identified in Section 2.3 above.

AOWFL, in undertaking the operation of the EOWDC, will ensure compliance with the limits defined by the original application and the project description defined in the Environmental Statement (ES) and Supplementary Environmental Information Statement (SEIS) and referred to in Annex 1 of the S.36 Consent in so far as they apply to this O&M MPCP (unless otherwise approved in advance by the Scottish Ministers / the Licensing Authority).

AOWFL, in undertaking the operation of the EOWDC, will comply with AOWFL Health, Safety, Security and Environment (HSSE) systems and standards, the relevant HSSE legislation and such other relevant legislation and guidance so as to protect the safety of operational personnel and other third parties.

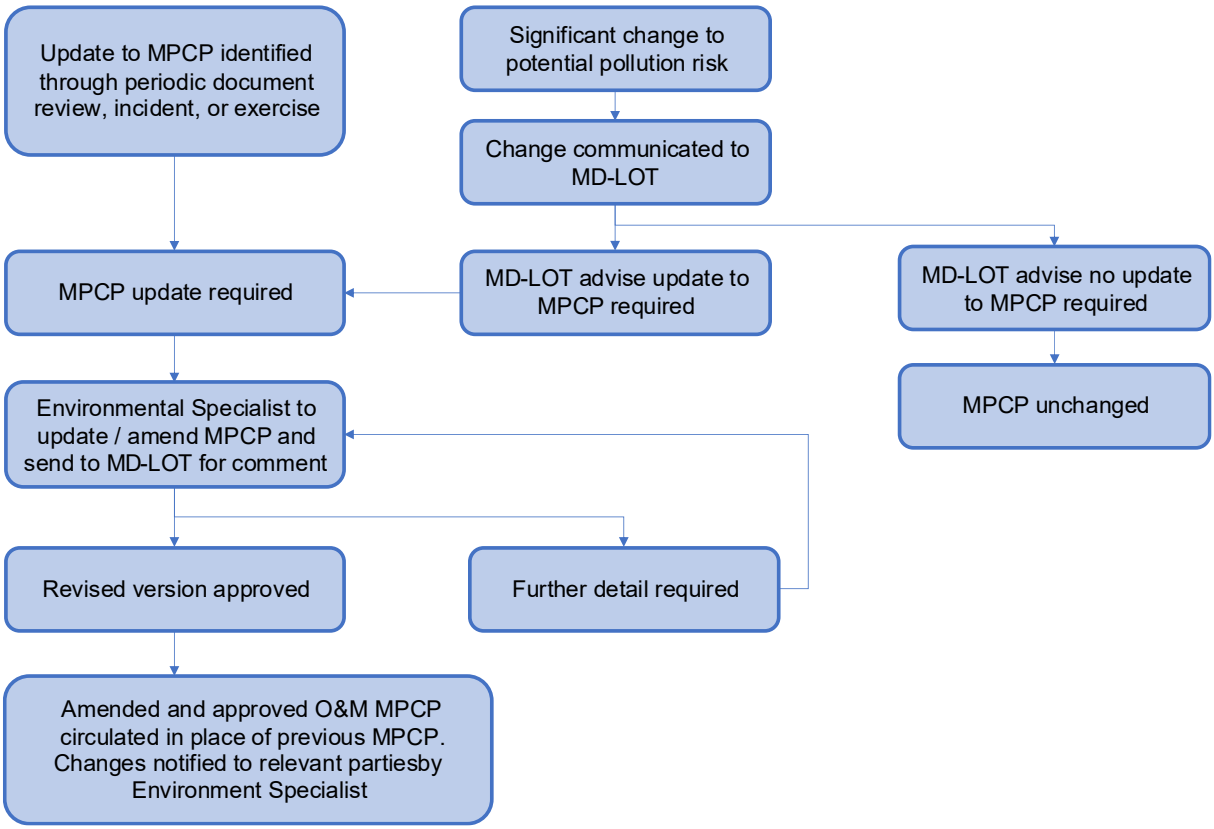
AOWFL, in undertaking the operation of the EOWDC, will take all necessary precautions to prevent pollution from entering the marine environment and / or any incident that leads to such pollution.

AOWFL will, in undertaking the operation of the EOWDC, ensure compliance with all other relevant legislation and require that all necessary licences and permissions are obtained by the Contractors and Subcontractors through condition of contract and by an appropriate auditing process. A list of relevant legislation is provided in Appendix A.

4 UPDATES AND AMENDMENTS TO THIS O&M MPCP

Where it is necessary to update this O&M MPCP in the light of any significant new information related to potential pollution incidents, AOWFL proposes to use the change management process set out in Figure 2; identifying such information, communicating such change to the Licensing Authority, redrafting the O&M MPCP if required, seeking further approval for the necessary amendments or updates and disseminating the approved changes/amendments to responsible parties.

Figure 2 O&M MPCP Change Management Procedure



5 MPCP ROLES AND RESPONSIBILITIES

AOWFL and AOWFL's Contractors are responsible for:

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

The responsibilities of those with specific pollution prevention and response roles are set out below.

5.1 AOWFL

AOWFL recognises that as the Licence Holder, it is responsible for ensuring adequate resources and procedures are in place and available to prevent any oil or chemical spill originating from the Development during its lifetime or where such spills occur to ensure they are adequately dealt with. AOWFL will require that all Contractors and Subcontractors, through conditions of contract, make appropriate provisions commensurate with the level of risk associated with their activities to prevent or respond to any oil or chemical spills during Operation of the Development.

5.1.1 Environmental Specialist

The Environmental Specialist will review Contractor pollution prevention and response documents and arrangements to ensure compliance with this O&M MPCP. The Environmental Specialist will provide advice to the Primary Responder (Vessel Master or Service Lead) as required in relation to potential environmental risk arising from oil or chemical spills.

In the event of a pollution incident, the Environmental Specialist will receive a log of all actions taken and notifications issued during response. The Environmental Specialist will also provide support to the Primary Responder, as required, in determining an appropriate response strategy. On the closure of an incident, the Environmental Specialist will be part of the lessons-learnt exercise and may assist the O&M Manager in conjunction with the Marine Coordinator and H&S Specialist on any required updates to the O&M MPCP.

Throughout the duration of any incident the Environmental Specialist will also ensure any potential adverse effects on wildlife are recorded in Intelex. The incidental records of marine wildlife observations will be provided to MD-LOT as part of the wider reporting strategy (as set out in the OEMP).

Further details on the specific responsibilities of the Environmental Specialist during a marine pollution incident are set out under Section 7.7.

5.1.2 Marine Coordinator

A project Marine Coordination Centre (MCC) is established at Esbjerg, Denmark from where O&M activities are coordinated. In addition to coordinating day-to-day vessel activity in the Development Area, the Marine Coordinator will be the initial AOWFL point of contact in the

event of emergency and pollution incidents, and will report the incident to the predetermined Aberdeen Bay text distribution list (as per the ERP (UAB-HSE-PR-002)). 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. Where a spill is from an AOWFL installation the Marine Coordinator will be responsible for ensuring other installations and vessels are informed if necessary.

Further detail on the specific responsibilities of the Marine Coordinator during a marine pollution incident are set out under Section 7.7.

5.1.3 Vessel Master

The Vessel Master has overall responsibility for their vessel. The Vessel Master is responsible for activating the SOPEP with the contractor responsible for the vessel, or equivalent vessel-specific spill plan once reported, when a spill originates from their vessel. The Vessel Master will maintain the safety of personnel, confirm source, initiate a log of events, undertake the necessary notifications and coordinate the monitoring, and tracking of the spill and submit the POLREP via email to the MRCC and to the Marine Coordinator. The Vessel Master will ensure the POLREP has been received by a follow up email or phone call.

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.

Further detail on the specific responsibilities of the Vessel Master during a marine pollution incident are set out under Section 7.7.

5.1.4 Spill Observer

The Spill Observer is the first person sighting the pollution incident and must report it to the Vessel Master or Marine Coordinator as necessary.

If the spill occurs from a WTG the Spill Observer must, if safe to do so, take actions to stop the leakage at the source, maintain safety of personnel and initiate a log of event and actions.

Further detail on the specific responsibilities of the Spill Observer during a pollution incident are set out under Section 7.7.

5.1.5 Service Leader

The Service Leader will be available whenever there are offshore activities ongoing. Where a spill originates from a WTG the Service Leader will assume primacy in the incident, and lead the response. The Service Leader will ensure the POLREP has been received by the MRCC.

Where a spill originates from a vessel the Service Leader will provide support to the Vessel Master and Marine Coordinator wherever necessary.

Further detail on the specific responsibilities of the Service Leader during a pollution incident are set out under Section 7.7.

5.1.6 Consents Manager

The UK Consents Manager is the primary point of contact with the regulator (MD-LOT). In the event of a pollution incident, the Consents Manager will ensure notifications and updates are submitted to MD-LOT in a timely manner, and ensure all actions are in compliance with the Marine Licence. As the Consents Manager is only available during routine office hours, the initial duties may be carried out by another member of staff; however the Consents Manager will resume their role as primary point of contact with MD-LOT when available. Further detail on the specific responsibilities of the Consents Manager during a pollution incident are set out under Section 7.7.

5.1.7 O&M Manager

The O&M Manager is available during office hours to initiate the investigation, closure and lessons learned process post incident.

They will be responsible for ensuring an Oil Spill Response Contractor contract is maintained.. Details of the appointed contractor is required to be included within the Contacts Directory (Appendix D) and shared with all parties with responsibilities under this O&M MPCP.

5.2 Contractors

O&M will be carried out by a combination of AOWFL and its Contractors. AOWFL will require that all Contractors and Subcontractors are familiar with this O&M MPCP. Contractors and Subcontractors will ensure that Contractor SOPEP or equivalent Contractor-specific plans are compliant with the approved MPCP.

Contractors are expected to prepare and implement their own MPCPs or bridging document, specific to the works that they are responsible for, which are to be compliant with the content of this document. Contractor-specific MPCPs or bridging documents should clearly interface with existing SOPEPs or equivalent vessel-specific spill plans (for spills that originate from a vessel, or from operations taking place on a vessel related to the activity that they are contracted to carry out). Spill response should be a part of scheduled vessel drills.

In the event of a spill from a vessel or from operations taking place on a vessel or from an installation where AOWFL has 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 AOWFL of their actions.

The specific responsibilities of Contractors including Vessel Masters during a marine pollution incident are set out under Section 7.7.

5.3 Oil Spill Response Contractor

Accredited oil spill / environmental incident response contractor Ambipar Response have been contracted by Vattenfall on a standby basis. The O&M Manager (and Commercial Manager) will be responsible for ensuring the Oil Spill Response Contractor contract is maintained, and for sharing the contact details with all parties with responsibilities under this MPCP.

5.4 MPCP Training

All personnel likely to be involved in a marine pollution incident have to meet AOWFL training requirements and standards.

Those individuals with MPCP responsibilities will be required by AOWFL to have received or to undergo training appropriate to their role in spill response.

Additionally, AOWFL will require that all project personnel involved in O&M activities participate in inductions and subsequent toolbox talks that will brief individuals on the content of the AOWFL O&M MPCP and confirm their role in pollution prevention and response.

AOWFL will establish a programme of ongoing exercises for maintained proficiency and continual improvement in pollution prevention and spill response. This programme may include hands-on equipment deployments, and incident management and notification exercises.

6 POLLUTION CLASSIFICATION

6.1 Introduction

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

- The size and characteristics of the polluting substance;
- Probable and predicted behaviour of the substance in the sea;
- Consideration of the environmental sensitivities that may be affected; and
- Consideration of the consequences of the different response options on the environment as a whole if they were to be adopted.

Oil (hydrocarbon) spills will be classified in accordance with the internationally recognised and accepted three-tier oil spill classification system (Figure 3).

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 sea surface, dissolves in the water, or sinks to the seabed). See Section 7.5 for further information.

Pollution may also take the form of solid debris, if materials dropped into the marine environment subsequently fracture and float. For example blade materials may fall within the solid debris classification of pollution. Whilst this MPCP focuses on response to liquid pollution, response to solid debris pollution will be largely the same as for a liquid spill, and will be reported to all necessary parties. Any object dropped into the marine environment which is expected to remain whole, with no potential for fracturing, will be treated as a Dropped Object incident, rather than a pollution incident. See Section 7.6 for further information.

The operations at AOWFL have been risk assessed from an environmental risk perspective. This risk assessment concludes that any credible oil pollution scenario posed by AOWFL presents a Tier 1 spill scenario, and therefore Tier 2 and 3 incidents are considered as outside the scope of this MPCP. References to the UK National Contingency Plan (applicable for a Tier 3 incident) are included for completeness, as this contains additional relevant information and arrangements.

6.2 Oil Spills Classification

Oil spills are typically classified through a three-tier systems. These are;

- Tier 1 – spills that be managed with immediately available resources. This is likely to be relatively small operational spills which the on-site personnel can manage using local spill kits.
- Tier 2 – requiring additional regional support. This may be the loss of a larger volume of pollutant, or in a more sensitive area, which required additional support. This may require engagement of a specialist Oil Spill Response Organisation (OSRO).
- Tier 3 – national resources are required. This would likely be personnel and equipment contracted or owned by the MCA, via the Counter Pollution and Salvage team.

Figure 3 is provided as an aid to tier definition for any individual reporting and responding to a hydrocarbon spill. The Primary Responder (the person(s) who will assume primacy in the event of a marine pollution incident and manage initial response (Vessel Master or Service Lead)) will compile all available information and decide tier classification and response strategy. If necessary, advice will be sought from the Environmental Specialist and/or Vattenfall's accredited OSRO – Ambipar Response (see Appendix D - Contacts Directory for contact details).

Figure 3 Oil Spill Tier Assessment Table

TICK ALL BOXES THAT APPLY: ☑ IF YOU ARE UNSURE, ASSUME WORST CASE	
TIER 1	
Small oil spills, or those which can be quickly and easily cleaned up using on-site resources or local contractors	
☐ Oil is contained within the incident site ☐ Spill occurs within immediate site proximity ☐ Able to respond to the spill immediately ☐ Source of spill has been contained	☐ Oil is evaporating quickly and no danger of explosive vapours (e.g. diesel) ☐ Spill likely to naturally disperse ☐ No media interest
TIER 2	
Oil spills which pose a threat of significant pollution resulting in the mobilisation of external oil spill response resources on a regional level	
☐ Concentrated oil accumulating in close proximity to the site / vessel, etc. ☐ Spill occurs within the vicinity of the operational site ☐ Not able to respond to the spill immediately ☐ Potential impact to sensitive areas and/or local communities	☐ Potential to impact other installations ☐ Possible continuous release ☐ Danger of fire or explosion ☐ Tier 1 resources overwhelmed, requiring additional Tier 2 regional resources ☐ Local / national media attention
TIER 3	
Oil spills which pose a threat of significant pollution resulting in the mobilisation of national (MCA-owned) oil spill response resources	
☐ Major spill beyond site vicinity ☐ Actual or potentially serious threat to life, property, industry ☐ Significant shoreline impact possible ☐ Significant impact on local communities	☐ Tier 2 resources overwhelmed, requiring national Tier 3 resources (i.e. support from MCA Counter Pollution & Salvage) ☐ Oil migrating towards neighbouring countries ☐ International media attention

6.3 Chemical Spills Classification

Volumes of chemicals used in the Development are not anticipated to exceed a Tier 1 spill (as per the classification in Figure 3Figure 3) if an incident occurred.

7 MARINE POLLUTION INCIDENT RESPONSE PROCEDURES

7.1 Introduction

This section sets out the response strategies and procedures to be adhered to in the event of a marine pollution incident from a vessel or a WTG at the EOWDC.

AOWFL requires that any pollution event is responded to following the procedures set out below, and pollution events are reported to MD-LOT.

Potential spills (i.e. spills which do not enter the marine environment) will be reported internally within Vattenfall via the HSSE incident reporting software 'Intelex'. This programme requires lessons learnt processes to be followed and mitigation to be identified and implemented where appropriate.

AOWFL vessels will respond to spills originating from non-EOWDC related activities / vessels in line with their Shipboard Oil Pollution Emergency Plan (SOPEP), any requests from the MCA, and in line with international regulations.

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

Where a pollution event is part of a wider emergency, such as fire or explosion, reference should also be made to the AOWFL Emergency Response Plan (UAB-HSE-PR-002) and Emergency Response Cooperation Plan (ERCoP) (UAB-HSE-PR-003).

7.2 Oil and Hazardous Liquid Inventory

The AOWLF development consists of eleven Vestas V164 WTGs. Considering the likelihood of simultaneous release from multiple WTGs is minimal, the inventory assessment has been carried out based on the maximum static inventory of a single WTG. The fluid types, volumes and locations within each WTG are detailed in Appendix G.

7.3 Oil Spill Risk Assessment

A full risk assessment of the O&M phase of the EOWDC has been carried out and is reviewed and updated annually. This assessment, 'Aberdeen EnSu Risk Register' is available via the AOWFL Sharepoint site. A summary is contained within Appendix G.

7.4 Oil Spill Response Strategies

A brief summary of potential response techniques for different types of oil (according to their behaviour in water) is presented below, noting that Tier 2 and 3 responses are outside the scope of this O&M MPCP:

- Natural dispersion and monitoring
    - Applicable to all oil types.
    - Allow the oil to naturally biodegrade into the water column.

    - Observe, monitor and report the appearance and direction of travel of the slick.
- Mechanical dispersion (prop-washing)
    - Use of vessel to agitate oil slick on sea surface.
    - Accelerates the breakdown of oil into the water column.
    - If natural dispersion alone is sufficient, this technique should be used sparingly.

7.5 Chemical Spill Response Strategies

Volumes of chemicals utilised within AOWFL are relatively small. Chemical spills that result in a release to sea are considered unlikely.

Under Marine Licence condition 3.1.6, all chemicals to be utilised at the EOWDC must be approved in writing by the Licensing Authority prior to use. In addition, all chemicals to be utilised at the EOWDC 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.

A brief summary of potential response techniques for different groups of chemicals (according to their behaviour if spilled to sea) 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 spreads 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 assessment described in Section 6.2.
- **Dissolvers** - The ability to contain and recover dissolved chemicals is 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.

7.6 Solid Debris Response Strategies

Individual dropped objects such as handheld tools are reported and managed as Dropped Objects, rather than marine pollution. However, in the event of a significant structural issue, or as consequence of a fire on a WTG, there is the potential for the loss of a large solid component, i.e. a blade. This would have the potential to fracture on impact with the sea surface. This would then potentially leave both floating debris (marine navigation hazard, and potential to wash up on the nearby shoreline), and denser solid materials sinking to the seabed.

7.7 AOWFL Response Checklists

The below checklists are designed to facilitate efficient and effective response to the most probable incidents that may be encountered. However they should not be seen as prescriptive and the individuals in the designated roles should continue to consider the most appropriate response, in line with the PEAR principle;

- People
- Environment
- Assets
- Reputation

The key actions for each role are defined by type of incident; spill from a WTG, spill from a vessel, and significant solid debris. Each heading below is linked to the relevant checklist.

7.7.1 - Spill from WTG	7.7.2 - Spill from vessel	7.7.3 - Solid debris
Spill Observer	Spill Observer	First Observer
Vessel Master	Vessel Master	Vessel Master
Marine Coordinator	**Marine Coordinator**	**Marine Coordinator**
Service Leader	**Service Leader**	**Service Leader**
Environmental Specialist	**Environmental Specialist**	**Environmental Specialist**
Consents Manager	**Consents Manager**	**Consents Manager**
O&M Manager	**O&M Manager**	**O&M Manager**

7.7.1 Spills Originating from a WTG

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 WTG.

- When a spill is observed originating from a WTG, it will be reported by the Spill Observer to the Marine Coordinator, who would then issue notification to the AOWF text distribution list (presented within the ERP (UAB-HSE-PR-002)).
- The Service Leader would inform the MRCC by telephone. Verbal notification should be followed up when practicable with the submission of a POLREP via email to the MRCC by the Service Leader. The Service Leader will ensure the POLREP has been received by a follow up email or call.
- The Service Leader will engage the MPCP and assume primacy of the incident.
- The Service Leader will be responsible for ongoing reporting on spill status and will advise on the initial response with the Spill Observer who may utilise spill kits and bunding on the WTG.
- The Environmental Specialist will be available to advise on environmental sensitivities for consideration when developing a response strategy.
- The Service Leader will request support from a specialist accredited Oil Spill Response Contractor (Ambipar Response) as required.

Key actions and notifications in the event of an oil spill originating from an EOWDC WTG are summarised in the following checklists. These checklists should be referred to and completed in the event of an oil spill originating from a WTG and actions and notifications checked off during incident response (following the key stages set out above). Completed checklists and/or personal logs will be submitted to the Service Leader 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 improve future processes.

Spill from WTG – SPILL OBSERVER	
INITIAL ACTIONS	
❒	**If safe to do so,** take any reasonable action to contain or reduce the leak or spill.
❒	Notify (using the **Oil Spill Assessment Form** in Appendix C) 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, including CTV master where appropriate.
ONGOING ACTIONS	
❒	**If safe to do so,** stay in vicinity of the leak or spill and continue observation.
❒	Deploy available spill kit resources. Consider additional resource from adjacent WTGs or the CTV, if needed.
❒	Liaise with Service Leader and assess the ongoing nature of the spill on the following: • Overall extent 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; and • Progress and dispersion of slick during clean-up operations. In the event that on site resources are not able to adequately respond to the existing spill or if the existing spill is likely to escalate inform the Service Lead as soon as practicable who will support the mobilisation of additional resources and assist with seeking advice as required.
CLOSE-OUT ACTIONS	
❒	Assist site team in investigation, close out and lessons learnt process.

Spill from WTG – VESSEL MASTER	
INITIAL ACTIONS	
❒	**Ensure safety of crew, working parties and vessel at all times**
❒	**If safe to do so,** investigate extent of surface pollution, in contact with Marine Coordinator
❒	Task crew to take photographs / video, share with Service Leader / Marine Coordinator
ONGOING ACTIONS	
❒	If requested to do so by Service Leader / Marine Coordinator, conduct mechanical agitation of the slick (informally known as 'prop-washing'). **Note:** Mechanical agitation should only be conducted to prevent a large service slick impacting a sensitive area. A small spill of i.e. hydraulic oil may disperse naturally
CLOSE-OUT ACTIONS	
❒	Provide copies of all Incident Logs to the Service Leader.

Spill from WTG – MARINE COORDINATOR	
INITIAL ACTIONS	
❒	Receive report on spill from Spill Observer.
❒	Send details of incident (including Spill Observer contact details) to predetermined Aberdeen Bay text distribution list (as per ERP (UAB-HSE-PR-002) Appendix A)
❒	Make report to Vattenfall (Corporate Security & Resilience (CS&R) Team on (+44 (0) 203 301 9 301) as soon as it is practicable to do so, and within 30 minutes for significant spills, if required as per normal protocols.
ONGOING ACTIONS	
❒	Ensure all other installations and vessels in the vicinity have been informed of the spill if deemed necessary, using other vessels as VHF support if needed.
❒	Request vessel to track oil spill location, if no risk to personnel or installation.
❒	If requested by the authorities, liaise with the Vessel Master to ensure that the slick is monitored until complete dispersion.
CLOSE-OUT ACTIONS	
❒	Assist site team in investigation, close out and lessons learnt process.

Spill from WTG – SERVICE LEADER	
INITIAL ACTIONS	
❒	Receive notification of the spill from Marine Coordinator
❒	As soon as possible, report the pollution incident to the Aberdeen Maritime Rescue Coordination Centre (MRCC) via phone on +44 (0) 344 382 0723, or VHF radio as a back-up means.
❒	Submit completed **Marine Pollution Report** POLREP form (Appendix C.2) to MRCC Aberdeen via email (zone3@hmcg.gov.uk). Ensure the POLREP has been received by either phone or email confirmation. Note that MRCC Aberdeen will pass the POLREP on to the MCA Counter Pollution and Salvage team, who may advise on actions to be taken, and at the same time issue it to other relevant authorities.
❒	Record all details of the incident and all incoming information and conversations, maintaining a chronological log of events.
❒	Advise Spill Observer to take any reasonable action to contain or reduce the leak if safe to do so and source is identifiable.
ONGOING ACTIONS	
❒	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). Advise the Spill Observer to arrange for photographs / video footage to be taken of the slick.
❒	Work with the Spill Observer to establish the ongoing nature of the spill (using criteria below) and the possible need to mobilise additional resources. • 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. Contact Oil Spill Response Contractor (Ambipar Response Ltd., Appendix E) if there is potential for spill to escalate to Tier 2 or 3 (i.e. that on site resources are not able to adequately respond).
❒	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.
❒	Pass updates to MRCC Aberdeen.
CLOSE-OUT ACTIONS	
❒	Commence the following “stand-down” procedures: • Ensure Local Authority (Aberdeenshire Council, Marine Directorate), 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 any waste arising from a spill is managed in accordance with the procedures set out in the AOWFL Offshore Environmental Management Plan (OEMP) and disposed of responsibly.
❒	Assist O&M Manager in investigation, close out and lessons learnt process.

Spill from WTG – ENVIRONMENTAL SPECIALIST	
INITIAL ACTIONS	
❒	Support Service Leader in confirming the tier classification of the spill
❒	Ensure appropriate spill notifications have been issued as required by this MPCP. Record times and key details of notifications.
❒	Provide advice to Service Lead on environmental sensitivities and assistance to the Marine Coordinator and Primary Responder, if required.
ONGOING ACTIONS	
❒	Provide advice to the Service Lead as required.
❒	Re-evaluate and confirm the potential environmental impact as the situation progresses
CLOSE-OUT ACTIONS	
❒	Remain available to support personnel in compiling their reports.
❒	Work with the O&M Manager 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).

Spill from WTG – CONSENTS MANAGER	
INITIAL ACTIONS	
❒	On notification from the Marine Coordinator, notify MD-LOT within 24 hours for serious incidents (and 72 hours for less serious incidents).
ONGOING ACTIONS	
❒	Provide advice to the Service Lead as required.
❒	Provide ongoing updates to MD-LOT as the situation develops
CLOSE-OUT ACTIONS	
❒	Remain accessible to support personnel in compiling their reports.
❒	Participate in any ‘Lessons Learned’ debrief
❒	Following the ‘lessons learned’ process issue close-out note to MD-LOT setting out remedial action.

Spill from WTG – O&M MANAGER	
INITIAL ACTIONS	
❒	Receive notification of the spill from Marine Coordinator
ONGOING ACTIONS	
❒	Provide ongoing assistance to Service Leader where required.
❒	Liaise with Vattenfall senior management as required.
CLOSE-OUT ACTIONS	
❒	Initiate the investigation, closure and lessons learned process post incident

7.7.2 Spills Originating from a Vessel

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 during maintenance of the wind farm:

- 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 the Maritime Rescue Coordination Centre (MRCC) and to the Marine Coordinator, who then issues notification to AOWF text distribution list (presented within the ERP (UAB-HSE-PR-002)).
- Verbal notification to MRCC Aberdeen should be followed up when practicable with the submission by the Vessel Master of a Marine Pollution Report (POLREP) via email to the MRCC and to the Marine Coordinator. The Vessel Master will ensure the POLREP has been received by a follow-up phone call.
- The Vessel Master (with Contractor responsible for the vessel from which the spill has originated) will engage the vessel Shipboard Oil Pollution Emergency Plan (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 specialist accredited Oil Spill Response Contractor (Ambipar Response) as required. The Service Leader 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 MCA may implement the National Contingency Plan (NCP) (as detailed in Section 8.1.3).
- The Environmental Specialist will be available to advise on environmental sensitivities for consideration when developing a response strategy.

AOWFL will request Contractors to hold a copy of this O&M MPCP on the bridge of any large maintenance vessels.

Key actions and notifications in the event of an oil spill originating from a vessel are summarised in the following checklists. These checklists should be referred to and completed in the event of an oil spill originating from a WTG and actions and notifications checked off during incident response (following the key stages set out above). Completed checklists and/or personal logs will be submitted to the Service Leader 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 improve future processes.

Spill from vessel – SPILL OBSERVER (first person sighting the incident)	
INITIAL ACTIONS	
❒	**If safe to do so,** take any reasonable action to contain or reduce the leak or spill.
❒	Contact all personnel in the vicinity of the leak or spill and warn of the potential hazard.
❒	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.
ONGOING ACTIONS	
❒	**If safe to do so,** stay in vicinity of the leak or spill and continue observation.
❒	As the situation develops, ensure Marine Coordinator is updated regularly
❒	Take pictures of the extent of the spill, share with Marine Coordinator
CLOSE-OUT ACTIONS	
❒	Assist site team in investigation, close out and lessons learnt process.

Spill from vessel – VESSEL MASTER	
INITIAL ACTIONS	
❒	Receive report on spill from Spill Observer and take charge of the situation.
❒	**If safe to do so,** immediately initiate actions to identify source and stop leakage at source.
❒	Maintain safety of: • Personnel; • The installation / vessel; • Any vessel within 500 metres.
❒	Inform the Marine Coordinator of the spill, including 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.
❒	All marine pollution incidents must be reported as soon as is safely possible to HM Coastguard at MRCC Aberdeen via phone on +44 (0) 344 382 0723 or via VHF radio. Where a spill originates from a vessel within Port of Aberdeen SHA, the Vessel Master shall notify the Harbour Master / Aberdeen VTS.
❒	Activate the **Shipboard Oil Pollution Emergency Plan** (SOPEP)
❒	Complete Oil Spill Assessment Form (Appendix C, C.1) to ensure the initial assessment of the oil is accurate and all aspects are considered thoroughly.
❒	Submit completed **Marine Pollution Report** (POLREP) (template is provided in Appendix C, C.2) to MRCC Aberdeen via email zone3@hmcg.gov.uk, and to Marine Coordinator. Ensure the POLREP has been received via phone / email confirmation. Note that MRCC Aberdeen will distribute the POLREP to other relevant authorities, including the MCA Counter Pollution and Salvage team, who may advise on actions to be taken.
❒	Initiate a log of events and actions taken – maintain this log until stand down
ONGOING ACTIONS	
❒	Confirm source and estimate quantity of oil / chemical spilled. Classify spill size and determine likely slick movement. Take photographs and / or video of spilled oil. Pass information to Marine Coordinator.
❒	Assess the ongoing nature of the spill and the possible need to mobilise additional resources. In the event that on site resources are not able to adequately respond to the existing spill or if the existing spill is likely to escalate inform the MRCC & Marine Coordinator as soon as practicable who will support the mobilisation of additional resources and assist with seeking advice as required.
❒	Take steps to reduce or prevent further leakage of the oil/ chemical.
CLOSE-OUT ACTIONS	
❒	Ensure that any waste arising from a spill is managed in accordance with the

	procedures set out in the AOWFL O&M Offshore Environmental Management Plan (OEMP) and disposed of responsibly.
❒	Make an assessment of when to demobilise any response.
❒	Provide copies of all Incident Logs to the Service Leader.
❒	At the end of the incident, stand down response and provide input to report of the incident for AOWFL.

Spill from vessel – MARINE COORDINATOR	
INITIAL ACTIONS	
❒	Receive report on spill from Vessel Master.
❒	Send details of incident to predetermined Aberdeen Bay text distribution list as per ERP (UAB-HSE-PR-002) Appendix A.
❒	Ensure the Vessel Master is arranging for photographs and/or video to be taken of the oil spill.
❒	Maintain contact with the Vessel Master. Provide assistance and support to facilitate communications as required.
❒	Make report to Vattenfall (Corporate Security & Resilience (CS&R) Team on (+44 (0) 203 301 9 301) as soon as it is practicable to do so, and within 30 minutes for significant spills, if required as per normal protocols.
ONGOING ACTIONS	
❒	Advise the Vessel Master to reduce or prevent further oil / chemical leakage without endangering the safety of personnel.
❒	Ensure all other installations / vessels in the vicinity have been informed of the spill (using VHF if required) if deemed necessary.
❒	If requested by the authorities, liaise with the Vessel Master to ensure that the slick is monitored until complete dispersion.
CLOSE-OUT ACTIONS	
❒	Assist O&M Manager in investigation, close out and lessons learnt process.

Spill from vessel – SERVICE LEADER	
INITIAL ACTIONS	
❒	On notification from the Marine Coordinator, record all details of the incident and all incoming information and conversations, maintaining a chronological log of events, including issue of notifications.
❒	Ensure a log keeper is assigned and continues to maintain a chronological log of response procedures, events and conversations.
ONGOING ACTIONS	
❒	Provide ongoing assistance to Marine Coordinator and Vessel Master.
CLOSE-OUT ACTIONS	
❒	Collect copies of all Incident Logs provided by the Vessel Master.
❒	Assist with following “stand-down” procedures, in liaison with the Vessel Master: • Ensure Local Authority (Aberdeenshire Council / Aberdeen City Council), Contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down; • Prepare internal incident report, provide incident log and remain accessible to support personnel in compiling their reports.
❒	Assist O&M Manager in investigation, close out and lessons learnt process.

Spill from vessel – ENVIRONMENTAL SPECIALIST	
INITIAL ACTIONS	
❒	Ensure appropriate spill notifications have been issued as required by this O&M MPCP. Record times and key details of notifications.
❒	Provide advice on environmental sensitivities and assistance to the Marine Coordinator, if required.
ONGOING ACTIONS	
❒	Provide advice to the Marine Coordinator, Primary Responder and/or any response cells that are established as required.
CLOSE-OUT ACTIONS	
❒	Remain accessible to support personnel in compiling their reports.
❒	Work with the O&M Manager to ensure that a “lessons identified” profile is available quickly so that remedial action and the possible upgrading of procedures can take place.
❒	Update/amend this O&M MPCP where necessary, including advising MD-LOT of any changes

Spill from vessel – CONSENTS MANAGER	
INITIAL ACTIONS	
❒	On notification from the Marine Coordinator, notify MD-LOT within 24 hours for serious incidents (and 72 hours for less serious incidents).
❒	Ensure appropriate spill notifications have been issued as required by this O&M MPCP. Record times and key details of notifications.
ONGOING ACTIONS	
❒	Ensure MD-LOT are informed of any significant updates to the incident
CLOSE-OUT ACTIONS	
❒	Remain accessible to support personnel in compiling their reports.
❒	Work with the O&M Manager to ensure that a “lessons identified” profile is available quickly so that remedial action and the possible upgrading of procedures can take place
❒	Following the ‘lessons learned’ process issue close-out note to MD-LOT setting out remedial action to be taken.

Spill from vessel - O&M MANAGER	
INITIAL ACTIONS	
❒	Receive notification of the spill from Marine Coordinator.
ONGOING ACTIONS	
❒	Provide ongoing assistance to Service Leader where required.
CLOSE-OUT ACTIONS	
❒	Initiate the investigation, closure and lessons learned process post incident.

7.7.3 Solid debris from WTG

N.B. This section considers significant dropped solid material, that either poses an environmental risk or a hazard to marine navigation. Small dropped items such as handheld tools are reported into Intelex and by the Consents Manager to the Marine Directorate.

Depending on the initiating event leading to a loss of solid debris, the AOWFL Emergency Response Plan (ERP) (UAB-HSE-PR-002) should also be considered to ensure any other risks or hazards are mitigated.

If any solid object is dropped or lost and enters the water as a result, as a minimum the Consents Manager will inform the licencing authority (MD-LOT). If in any doubt, the below process should be activated.

- When it is observed that a large solid object has been lost from a WTG, the First Observer should inform the Marine Coordinator. The Marine Coordinator would then issue notification to the AOWF text distribution list (presented within the ERP (UAB-HSE-PR-002)).
- The Service Leader would inform the MRCC by telephone. The Coastguard may request further information either by telephone or email. This should be provided in a reasonable timeframe.
- The Service Leader, O&M Manager and Environmental Specialist will collectively agree the appropriate initial response, considering potential adverse impacts on the marine environment and local stakeholders.
- The Environmental Specialist will be available to advise on environmental sensitivities for consideration when developing a response strategy. The Environmental Specialist will also request support from a specialist accredited Oil Spill Response Organisation (Ambipar Response) as required.
- The Consents Manager will report the initial event and subsequent updates to the licencing authority.
- Depending on the scale of the incident and potential impact the Grampian Local Resilience Partnership may convene and request a Vattenfall representative from Aberdeen Bay OWF.

Key actions and notifications in the event of significant solid debris originating from an EOWDC WTG are summarised the following checklists. These checklists should be referred to and completed in the event of significant solid debris from a WTG, and actions and notifications checked off during incident response. Completed checklists and/or personal logs will be submitted to the Service Leader following the incident as part of the auditing process to help identify any lessons learned, and any amendments to procedures required.

Solid debris – FIRST OBSERVER (first person sighting the incident)	
INITIAL ACTIONS	
❒	**Ensure safety of all personnel**
❒	Contact all personnel in the vicinity of the object and warn of the potential hazard.
❒	Notify the Marine Coordinator and provide details of: • Time of incident / observation; • Details of the object that has been lost • Initial observations – floating / sinking? Any other relevant actions.
ONGOING ACTIONS	
❒	**If safe to do so,** stay in vicinity of the incident and continue observation.
❒	As the situation develops, ensure Marine Coordinator is updated regularly.
❒	Take pictures of the extent of the debris, share with Marine Coordinator.
CLOSE-OUT ACTIONS	
❒	Assist site team in investigation, close out and lessons learnt process.

Solid debris – VESSEL MASTER	
INITIAL ACTIONS	
❒	When notified, ensure safety of all personnel
❒	**Liaise with Service Lead / Marine Coordinator if personnel movements are required**
❒	If safe to do so, vessel may be tasked to assess the extent of any floating debris and capture photos / video.
❒	Initiate a chronological log of events and actions taken – maintain this log until stand down
ONGOING ACTIONS	
❒	In discussion with Marine Coordinator, continue to provide on-scene information regarding any floating debris.
CLOSE-OUT ACTIONS	
❒	Provide copies of all Incident Logs to the Service Leader.
❒	At the end of the incident, stand down response and provide input to report of the incident for AOWFL.

Solid debris – MARINE COORDINATOR	
INITIAL ACTIONS	
❒	Receive report on incident.
❒	Send details of incident to predetermined Aberdeen Bay text distribution list as per ERP (UAB-HSE-PR-002) Appendix A.
❒	Request the Vessel Master to arrange for photographs and/or video to be taken of any floating debris.
❒	Ensure all other installations and vessels in the vicinity have been informed of the incident (using VHF if required).
❒	Make report to Vattenfall (Corporate Security & Resilience (CS&R) Team on (+44 (0) 203 301 9 301) as soon as it is practicable to do so, if required as per normal protocols.
ONGOING ACTIONS	
❒	Liaise with the Vessel Master to ensure that the direction of travel of any floating debris is reported to the Coastguard (MRCC Aberdeen).
CLOSE-OUT ACTIONS	
❒	Assist O&M Manager in investigation, close out and lessons learnt process.

Solid debris – SERVICE LEADER	
INITIAL ACTIONS	
❒	On notification from the Marine Coordinator, record all details of the incident and all incoming information and conversations, maintaining a chronological log of events, including issue of notifications.
❒	As soon as possible, report the pollution incident to the Aberdeen Maritime Rescue Coordination Centre (MRCC) via phone on +44 (0) 344 382 0723, or VHF radio as a back-up means.
❒	Ensure a log keeper is assigned and continues to maintain a chronological log of response procedures, events and conversations.
ONGOING ACTIONS	
❒	Provide ongoing assistance to Marine Coordinator and Vessel Master.
CLOSE-OUT ACTIONS	
❒	Collect copies of all Incident Logs from personnel involved.
❒	Assist with following “stand-down” procedures: • Ensure Local Authority (Aberdeenshire Council / Aberdeen City Council), Contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down; • Prepare internal incident report, provide incident log and remain accessible to support personnel in compiling their reports.
❒	Assist O&M Manager in investigation, close out and lessons learnt process.

Solid debris – ENVIRONMENTAL SPECIALIST	
INITIAL ACTIONS	
❒	Ensure appropriate incident notifications have been issued as required by this O&M MPCP. Record times and key details of notifications.
❒	Identify likely materials and associated fates (i.e structural integrity, floating, sinking).
❒	Provide advice on environmental sensitivities and assistance to the Marine Coordinator.
❒	Liaise with Oil Spill Response Organisation (Ambipar Response) to request expert assessment of likely direction and fate of materials.
ONGOING ACTIONS	
❒	Provide advice to the Marine Coordinator, Primary Responder and/or any response cells that are established as required.
❒	Provide Consents Manager with further information as required.
❒	Liaise with MCA Counter Pollution and Salvage team to share Vattenfall intentions as and when requested via Coastguard / MRCC.
❒	Liaise with O&M Manager regarding information to be provided to Vattenfall representative in external stakeholder meetings, such as the Grampian ERP.
CLOSE-OUT ACTIONS	
❒	In consultation with the Service Leader, make an assessment of when to demobilise any response. Ensure all local authorities, contractors, vessels and any external resource suppliers, etc. are contacted, notified of the end of the incident and stood down.
❒	Remain accessible to support personnel in compiling their reports.
❒	Work with the O&M Manager to ensure that a “lessons identified” profile is available quickly so that remedial action and the possible upgrading of procedures can take place.
❒	Update/amend this O&M MPCP where necessary, including advising MD-LOT of any changes

Solid debris – CONSENTS MANAGER	
INITIAL ACTIONS	
❒	On notification from the Marine Coordinator, notify MD-LOT within 24 hours.
❒	Complete Form - accidental deposit of an object at sea and submit to recipients defined within the guidance. **N.B.** Location of WTGs in Appendix H
ONGOING ACTIONS	
❒	As plans are developed, act as point of contact between Vattenfall and MD-LOT. Ensure any concerns are captured in Vattenfall decision-making and future plans.
CLOSE-OUT ACTIONS	
❒	Remain accessible to support personnel in compiling their reports.
❒	Following the 'lessons learned' process issue close-out note to MD-LOT setting out remedial action.

Solid debris - O&M MANAGER	
INITIAL ACTIONS	
❒	Receive notification of the incident from Marine Coordinator
❒	Liaise with Vattenfall senior management as appropriate
❒	Consider additional resources that may be required (Health and Safety Specialist, Emergency Response Officer, Communications team)
ONGOING ACTIONS	
❒	Provide ongoing assistance to Service Leader where required.
❒	Ensure arrangements are made for personnel to conduct shoreline recovery operations as appropriate. Environmental Specialist and Service Leader may continue as point of contact with response contractor (Ambipar Response)
❒	O&M Manager may take over from Service Leader in leading the response once the full details are understood.
CLOSE-OUT ACTIONS	
❒	Initiate the investigation, closure and lessons learned process post incident

7.8 Incident Response Forms

Several Incident Response Forms are provided to be completed as appropriate by the specified person in the event of an oil or chemical spill in Appendix C as listed below:

- Oil Spill Assessment Form;
- Marine Pollution Incident Report - CG77 POLREP;
- Oil Spill Incident Log Sheet; and
- Incident Briefing Checklist.

In addition, the 'Accidental deposit of an object at sea' form is provided on the Scottish Government website.

Offshore renewable energy – accidental deposit of an object at sea: form and guidance - gov.scot

8 INTERFACING OIL POLLUTION CONTINGENCY PLANS AND ORGANISATIONS

Marine Licence Condition 3.2.11 requires that:

The MPCP must take into account existing plans for all operations, including offshore installations, that may have an influence on the MPCP.

The following sections set out how this O&M MPCP will interface with existing oil pollution contingency plans.

Within the UK there are standardised structures and procedures adopted for response to marine pollution events, which clearly define the roles and responsibilities of industry, the UK Government, and local authorities.

In the event of a spill originating from O&M 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 EOWDC drifts towards and/or reaches neighbouring installations and/or vessels, this may instigate activation of their own pollution contingency plans. Where appropriate, AOWFL will work to implement a coordinated response and share pollution response resources.

Other pollution contingency plans, which may interact with this O&M MPCP in the event of a spill originating from the Development, are identified below.

8.1.1 Industry Plans

This MPCP interfaces with the following industry standard plans:

- SOPEPs/equivalent vessel-specific spill plan for each vessel;
- Port and Harbour Oil Spill Contingency Plans (OSCPs); and
- Oil Pollution Emergency Plans (OPEPs) for other offshore installations.

Other installations and operators must be notified in the event of a spill.

Hywind Scotland Pilot Park and Kincardine Offshore Wind Farm are operational and have their own MPCPs. Any future offshore wind farms constructed in the vicinity of the EOWDC will also have approved MPCPs. Furthermore, ports utilised during O&M such as the Port of Aberdeen, will have their own OSCP to cover incidents within their statutory harbour limits. The port's OSCP would take priority over the EOWDC O&M MPCP in the event of a major spill within the harbour and port limits, in terms of response to an incident.

Assuming pollution from an unidentifiable source is drifting towards the EOWDC, AOWFL shall comply fully with any instructions from the MCA or other relevant authority in order to facilitate an appropriate pollution response. This may include shut-down of the wind farm to allow mechanical recovery of the pollution or dispersant application in accordance with the MCA's Marine Guidance Notice (MGN) 564. In addition, the Spill Observer will escalate the reporting procedures and initial response actions as detailed within Section 7.7.1. As soon as the source has been identified, the relevant installation/operator will be notified by the MCA. AOWFL and/or their Contractors will continue to provide a supporting role where appropriate.

8.1.2 Local Authority Plans

In the event of actual or threatened shoreline impact, the the relevant emergency plan may be activated, and the mechanism for a multi-organisation response, the Grampian Local Resilience Partnership (LRP), may be activated. In this instance, AOWFL may be invited to present its response plans to the LRP. The LRP stakeholders may have their own resources they choose to mobilise or deploy. This will be discussed through ongoing Grampian LPR meetings.

8.1.3 National Contingency Plan (NCP)

In the event of a significant pollution incident, which calls for a Tier 2 or Tier 3 response (see Section 6.2 for Tier definition), the MCA will notify their Counter Pollution and Salvage (CPS) team. The Head of CPS may decide to activate the NCP. In such an event, the MCA may establish a Marine Response Centre (MRC) to oversee the response, or assume primacy and run the response themselves.

In addition to a pollution incident, the NCP may be activated in the event of a vessel salvage incident which requires a significant level of intervention. In the context of the EOWDC, this would most likely be a vessel suffering a significant failure, with the potential to impact a WTG.

Further information is given in Appendix E2, and the NCP is available online at https://www.gov.uk/government/publications/national-contingency-planncp

9 COMPLIANCE WITH APPLICATION AND SEIS

9.1 Introduction

In addition to the conditions presented in Table 1, Condition 7 of the S.36 Consent states:

“The Development must be constructed and operated in accordance with the terms of the Application and the accompanying Environmental Statement and the Supplementary Environmental Information Statement, except in so far as amended by the terms of the Section 36 consent and any direction made by the Scottish Ministers.”

Section 9.2 sets out that the commitments made in the Application, ES and SEIS will be delivered.

9.2 Delivery of the Marine Pollution Related Mitigation Proposed in the ES

The ES and associated SEIS detailed a number of mitigation commitments relevant to the operational phase of the Development. Appendix F sets out where each commitment has been addressed within this O&M MPCP.

10 REFERENCES

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Oil Spill Response Limited (OSRL) (2006) Spill Responder's Handbook.

SEPA (2013) PPG 1 General Guide to the Prevention of Pollution.

SEPA (2011) GPP 2 Above Ground Oil Storage Tanks.

SEPA (2017) GPP 5 Works and Maintenance in or near Water.

SEPA (2012) PPG 6 Working at Construction and Demolition Sites.
SEPA (2011) PPG 7 Safe Storage - The Safe Operation of Refuelling Facilities.
SEPA (2004) PPG 8 Safe Storage and Disposal of Used Oils.
CIRIA (2001) C532 Control of Water Pollution from Construction Sites.
CIRIA (2006) C648 Control of Water Pollution from Linear Construction Projects – Technical Guidance.
CIRIA (2015) C741 Environmental Good Practice on Site.

APPENDIX A - MPCP LEGISLATION REGISTER

Table A1 provides a list of the relevant legislation that has been taken into account in the drafting of this MPCP.

Table A1 - Legislation Register

Legislation	Relevance to EOWDC	Summary	Regulatory Body
Offshore Chemicals (Amendment) Regulations 2011, extending Offshore Chemical Regulations 2002 (as amended)	Control of Chemical Usage	Provides a mandatory control system for the use and discharge of chemicals by the offshore oil and gas industry. Under the terms of the Marine Licence (condition 3.1.6) the Offshore Chemical Regulations should be followed during construction and O&M works with utilised chemicals selected from the List of Notified Chemicals.	DESNZ, Marine Directorate
Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008	Sewage and Garbage treatment, storage and disposal	Implement both the revised Annex IV of MARPOL 73/78 – Regulations for the Prevention of Pollution by Sewage from Ships, and the Annex V of MARPOL 73/78 (including amendments) – Regulations for the Prevention of Pollution by Garbage from Ships. Implements into UK law international regulations on treatment and disposal of garbage and food waste from vessels operating in UK water. All ships of 100 gross tonnage or above and every ship which is certified to carry 15 or more persons must carry a Garbage Management Plan and a Garbage Record Book. The regulations also provide powers for the MCA to issue an International Sewage Pollution Prevention Certificate to ships in the same categories.	MCA
International Convention for the Control and Management of Ships' Ballast Water and Sediments (BWM) – adopted 2004	Ballast water management	Objective to prevent, minimise and ultimately eliminate the transfer of harmful aquatic organisms and pathogens though control and management of ships' ballast water and sediments. Under this regulation, all ships in the UK are required to have a Ballast Water Exchange Management Plan and a Ballast Water Record Book and to be surveyed and issued with an International Ballast Water Management Certificate.	MCA
The Merchant Shipping (Anti-Fouling Systems) Regulations 2009	Anti-fouling Pollution prevention	Prohibits the use of harmful organotin compounds in anti-fouling paints used on ships and will establish a mechanism to prevent the potential future use of other harmful substances in anti-fouling systems	MCA

Legislation	Relevance to EOWDC	Summary	Regulatory Body
		and places into UK law Regulation (EC) 782/2003 on the prohibition of organotin compounds on ships. Provides powers for the MCA to issue an International Anti-fouling System Certificate to ships of 400 gross tonnage or above and ships of less than 400 gross tonnage with a length of greater than 24 metres.	
The Marine (Scotland) Act 2010 (in respect of Scottish territorial waters) and the Marine and Coastal Access Act 2009 (in respect of the offshore area)	Deposition of substances	These Acts provide that a licence must be obtained for the deposition of any substance or object (including waste), either in the sea or on or under the sea bed. On 15 August 2014 a marine licence was attained under section 25 of the Marine (Scotland) Act 2010 (reference 04309/16/0)[1].	Marine Directorate
Control of Substances Hazardous to Health Regulations 2002 (COSHH)	Control of substances hazardous to health	Assessment, prevention or control of exposure and monitoring of substances hazardous to health.	HSE
The REACH Enforcement Regulations 2008 (as amended)	Chemical usage	These enforce Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) which require chemical users to demonstrate the safe manufacture of chemicals and their safe use throughout the supply chain. Under REACH, the users of chemicals as well as their manufacturers and importers have a responsibility to ensure that the risks to both human health and the environment are adequately assessed.	DESNZ, Marine Directorate
The Classification, Labelling and Packaging (CLP) Regulations 2009	Chemical Usage	The CLP Regulation adopts the United Nations' Globally Harmonised System (GHS) on the classification and labelling of chemicals across all European Union countries, including the UK.	HSE
Merchant Shipping Act 1995	Prevention of pollution	The Merchant Shipping Act 1995 provides the framework for regulation of ship-source pollution.	MCA
The Merchant Shipping (Prevention of Oil Pollution) Regulations 1996 (as	Prevention of oil pollution	These Regulations give effect to Annex I of MARPOL 73/78 (prevention of oil pollution) in UK waters. They address oily drainage from machinery spaces on vessels and	DESNZ, Marine Directorate, MCA

[1] Consent subsequently varied. Current reference as of Dec 2021: 00008967

Legislation	Relevance to EOWDC	Summary	Regulatory Body
amended)		installations and sets limits for the levels of oil in discharged water from these sources. Vessels and installations are required to hold a valid Oil Pollution Prevention Certificate. Vessels are also required to hold a current, approved SOPEP in accordance with guidelines issued by the International Maritime Organization (IMO). Oil tankers of 150 gross tonnage and above and all ships of 400 gross tonnage and above are required carry an Oil Record Book to record when specific operations take place on board which have the potential to lead to oil pollution from vessels and an approved SOPEP.	
Bonn Agreement for cooperation in dealing with pollution of the North Sea by oil and other harmful substances (1983)	Prevention of oil pollution Pollution protection	An agreement to combat oil pollution and to stimulate active cooperation and mutual assistance among states bordering the North Sea in case of casualties or other incidents at sea that are of great concern for the protection of the coasts and related interests.	DESNZ, Marine Directorate, MCA
Marine Management Organisation (MMO) (2016) Approved oil spill treatment products	Oil spill response	Quick reference list of products approved for use within the UK Continental Shelf.	MMO
Marine Safety Agency (MSA) (1996) MSN No. M.1663, Vessels Engaged in Oil Recovery. (It should be noted that this MSN expired but was not superseded so this will be followed as best practise).	Oil spill response	Provides guidelines for the design, construction, ship's equipment and operation of offshore support vessels, which may be required to have the capability of handling, storing and transporting oil recovered from a spill in emergency situations.	MSA
The Merchant Shipping (Ship-To-Ship Transfers) Regulations 2010 (as amended)	Refuelling operations Cargo transfers	Bring in controls on ship-to-ship transfers in UK waters, including prohibiting ship-to-ship transfers and bunkering operations outside harbour authority waters and put in place a legislative regime for assessing and licensing harbour authorities which propose to allow ship-to-ship transfers in their waters. Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012" sets out detailed requirements regarding Ship to Ship Transfers of a cargo consisting wholly	MCA

Legislation	Relevance to EOWDC	Summary	Regulatory Body
		or mainly of oil. The Notice is given statutory force by the Merchant Shipping (Ship to Ship Transfers) Regulations 2010 (as amended). An exemption is provided in MSN 1829 for vessels to refuel, or be refuelled by daughter-craft, so as not to impair operationally necessary refuelling.	
The Merchant Shipping (Oil Pollution Preparedness, Response and Cooperation Convention) Regulations 1998 (OPRC Regulations) (as amended)	Oil spill	The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 introduce into UK law the oil spill planning requirements and legal oil spill reporting requirements of the Oil Pollution Preparedness, Response and Co-operation (OPRC) Convention.	DESNZ, Marine Directorate, MCA
The Merchant Shipping (International Safety Management (ISM) Code) Regulations 2014	Pollution prevention	Provides for the application of the ISM Code on all vessels to which the Convention for the Safety of Life at Sea (SOLAS) applies and to other vessels to which European Commission regulations apply. The ISM Code provides an international standard for the safe management and operation of ships and for pollution prevention.	MCA
The Merchant Shipping (Dangerous or Noxious Liquid Substances in Bulk) Regulations Amendments 2004	Chemical transportation	These Regulations contain restrictions on all ships carrying in bulk noxious liquid substances or unassessed liquid substances.	MCA
Merchant Shipping (Reporting Requirements for Ships Carrying Dangerous or Polluting Goods) Regulations 1995/2498 (as amended, 2204/SI 2110 and 2005/SI1092)	Pollution response	These regulations contain requirements in connection with reporting requirements for discharges, during the operation of a ship, of oil or noxious liquid	MCA
Merchant Shipping (Dangerous Goods and Marine Pollutants) Regulations 1997/2367	Pollution prevention	Regulations apply to ships carrying dangerous goods in bulk or packaged form or marine pollutants in packaged form.	MCA

Legislation	Relevance to EOWDC	Summary	Regulatory Body
Merchant Shipping (Prevention of Pollution: Substances Other than Oil) (Intervention) Order 1997/1869	Pollution prevention	These regulations list the substances other than oil to which the restrictions contained in the Merchant Shipping Act 1995 apply. Also see MGN 37 (M) for guidance on the application of this legislation.	MCA
Wreck Removal Convention Act 2011	Reporting, locating and removal of wrecks	Includes provisions on the reporting, locating, marking and removal of wrecks and provisions regulating the liability for costs involved in dealing with wrecks.	MCA

APPENDIX B - RESPONSE STRATEGY GUIDELINES

This Appendix provides supporting information to personnel involved in planning and executing oil spill response for AOWFL's offshore operations.

The following sections provide information on each type of response strategy available in the event of a spill at sea and provides details on factors affecting selection and deployment of response.

The response strategy adopted will depend upon the spill details and the prevailing environmental conditions. The essential information required as a basis for decision making is:

- Size and status of the oil spill (e.g. controlled or uncontrolled);
- Location of the oil slick;
- Type of oil and its characteristics;
- Meteorological information, current and predicted weather and sea state;
- Authorities informed;
- Action taken; and
- Evidence gathered, e.g. samples and photographs.

More information will be required as the situation develops, for example as a part of the monitoring process, a survey of the location of seabirds might be carried out to determine the advisability of using dispersants. Aerial surveillance and monitoring will also form an integral part of the response, for example in the case of a large oil spill where dispersant is being used.

The response strategies available to AOWFL are outlined below:

- **Main Strategies** (strategies expected to be adopted in the majority of oil spills):
  - Monitor and Evaluate (Section based upon the internationally recognised Bonn Agreement Oil Appearance Code (BAOAC) 2004);
  - Natural dispersion – maintain the spill under observation but with no active intervention (Section based on (BAOAC) 2004);
- **Alternative Strategies** (alternative strategies in the unlikely event of a larger oil spill, that would require the appointment of an accredited Oil Spill Response Contractor):
  - Chemical dispersion (Section based on MMO and Marine Scotland - Marine Laboratory (MS-ML) issued guidance on dispersant use (Annex 4 PON1 Guidance, 22nd March 2011));
  - Mechanical containment and recovery (Section based on OSRL (2006) Oil Spill Responders Handbook); and
  - Onshore clean-up (Section based on OSRL (2006) Oil Spill Responders Handbook).

The appropriate response 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 threatened by the spill.

It should be noted that Tier 2 and 3 spills are beyond the scope of this O&M MPCP. Therefore only the 'main strategies' are presented here. In the unlikely event of a Tier 2 or Tier 3 spill, Vattenfall's contracted OSRO (Ambipar Response) and external parties will be called upon to provide appropriate response guidance and resources.

B.1 Monitor & Evaluate

Monitor and evaluate is the primary response strategy for oil spills that pose no significant threat to the coastline or sensitive resources, as the normally high energy conditions offshore within the UKCS will naturally break up the oil spill. It is recognised that it is essential to monitor an oil spill until complete dispersion. Where surveillance from a vessel is insufficient, aerial surveillance should be considered. Use of a surveillance aircraft would constitute a Tier 2 or 3 spill and is therefore beyond the scope of this O&M MPCP.

All oil spills must be monitored until they have completely dispersed. During operations, small spills in close proximity to installations can be monitored by using a small vessel.

B.2 Natural Dispersion

If the oil slick does not immediately threaten any sensitivity or resource and prediction methods show that the oil will disperse by itself, then the valid response strategy is to monitor the oil slick until it disperses naturally.

This is the preferred response strategy for spills from the Development. According to the results of the risk assessment presented in Appendix G the most likely oil spills associated with the EOWDC are of a light non-persistent type and of relatively low volume. Therefore, allowing natural dispersion, in conjunction with continued monitoring and evaluation, would be the most appropriate response strategy in most cases.

The future movement and behaviour of the oil should be predicted, as far as possible, using weather forecasts and computer modelling until it has completely dispersed. This would be available through an accredited OSRO (i.e. Ambipar Response), or other third party with access to oil spill computer modelling software. Oil on the sea surface should be monitored by direct observation.

Natural dispersion relies on the various weathering processes and their overall contribution to oil slick removal. Natural dispersion processes are summarised in Table B2 below.

Table B2 - Fate of spilled oil in the marine environment – natural processes

Weathering process	Description	Rate and contribution to slick removal	Relevance to diesel
Spreading	Oil will tend to spread out on the surface of the water. The rate and degree to which it does will depend upon the viscosity of the oil and the surface tension between the oil and the water. The higher the temperature, the lower the viscosity and the greater the degree and speed of spreading. Under the influence of wind the oil will become unevenly distributed. It will tend to break up into patches or ribbons, thickest in the leading edge and thinnest at the trailing edge.	Rapid cover of large areas.	Very rapid spreading
Evaporation	Evaporation will remove the more volatile molecules from the surface of the oil slick into the atmosphere. It will act fastest when there is a large surface area of oil exposed to the air and will increase with temperature. It will be more predominant when the proportion of lighter to heavier molecules in the oil is high and the energy in the sea and atmosphere is high (rough conditions).	Rapid, particularly for lighter oils. It may account for 10 – 75 % of removal of oil from the sea surface depending upon the initial type.	Major means of removal
Dissolution	The soluble elements of the oil (the lighter molecules) will preferentially be removed from the slick into the water column and they will subsequently be diluted by dispersion. Aided by high energy in the sea.	Active soon after a spill occurs, but overall it is a relatively minor pathway.	Can be important
Dispersion	The oil layer on the surface of the sea is broken into small droplets which then disperse into the water column. The rate at which this occurs and the degree to which it occurs will depend upon the composition of the oil. Aided by high energy in the sea.	An important process for removing oil from the surface and facilitating bio-degradation. Most important for the less viscous oils.	Important

Weathering process	Description	Rate and contribution to slick removal	Relevance to diesel
Bio-degradation	Biodegradation is the ultimate means of removal of free oil from the environment. Aided by ample nutrient supply, dispersion of oil, moderate temperatures, and high energy environments.	Minor importance in the short term but very important in the long term.	Important as an end fate after dispersion
Drift	Drift of the oil slick is facilitated by wind, waves and surface water currents.	Important in distributing oil and moving it into or out of sensitive areas.	Can be important

Other qualities to note are:

- Diesel is a low viscosity distillate fuel made from light gas oil. Typically it has a density of 0.82-0.84 kilograms per litre. It contains a high proportion of light ends and so evaporation will play an important part in the removal of the oil from the surface of the sea. Spill evaporation rate will depend on the volume and rate of spill.
- Lube and hydraulic oils are refined products. They have no light ends and behave as viscous oil. Evaporation will be limited and spreading relatively slow, however, they are dispersed rapidly by natural wave action.

APPENDIX C - INCIDENT RESPONSE FORMS

C.1 Oil Spill Assessment Form

To be completed by the Spill Observer (for spill from WTG) or Vessel Master (for spill from vessel). This form 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 FORM	
This form is designed to assist those personnel who have the primary responsibility of assessing the oil spill incident. These personnel are likely to be: • Spill Observer; 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 Volatile Organic Compounds (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	Appendix G5 for total maximum quantities
Predict oil fate; determine direction and speed of oil 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; and • Sea state.

C.2 Marine Pollution Incident Report - CG77 POLREP

An incident report form, **CG77 POLREP**, is to be completed by either the Service Lead (in the case of spill from a WTG) or the Vessel Master (in the case of spill from vessel) as detailed in Section 5.1, and issued to the Coastguard at MRCC Aberdeen:

MRCC Aberdeen	**Tel:** 0344 382 0723	zone3@hmcg.gov.uk

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

Where a spill arises from a vessel or vessel related activity the Vessel Master will provide updates to MRCC and to the Marine Coordinator throughout any pollution incident verbally and/or via updates to the POLREP in line with the SOPEP. Where a spill arises from a WTG the Service Lead will provide updates to the MRCC verbally and through submission of a POLREP. An editable version of the POLREP is available via the AOWFL Sharepoint here.

Also as a prepopulated email template here (download to desktop to use).

Reporting Pollution

CG77 - POLREP

INITIAL INCIDENT REPORT

A. Classification: -	
B. Date/Time/Observer: -	
C. Position and Extent of Pollution: - **N.B.** location of WTGs in Appendix H	
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: -	

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

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

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

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

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

E. Weather: - Conditions and Sea State

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

G. Source and Cause of Pollution: - from vessels or other undertaking. If from a vessel, say whether as a result of apparent deliberate discharge or a casualty. If the latter, give a brief description. Where possible, give name, type, size, nationality and Port of Registry of polluting vessel. If vessel is proceeding on its way, give course, speed and destination, if known.

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

I. Not Used

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

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

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

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

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

C.3 Oil Spill Incident Log Sheet

To be completed by all key personnel involved in the oil spill response (see Section 5). 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

C.4 Incident Briefing Checklist

To be completed by the Service Lead 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 **Service Lead** 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	

APPENDIX D - CONTACTS DIRECTORY

The Contacts Directory will be held and managed by the Marine Coordinator for notification purposes. The Environmental Specialist is responsible for ensuring it is fully up to date at all times.

Organisation	Contact Name	Telephone (office hours)	Fax	24 hr. Telephone	Mobile / Pager / Email
AOWFL Emergency Calling List					
Marine Coordinator (Esbjerg)	-	[Redacted]	-	[Redacted]	mcc@vattenfall.com
O&M Manger	Steven Wares	[Redacted]	-	-	[Redacted]
Service Leader	Grant Hutton	[Redacted]	-	-	[Redacted]
	Cameron Binnie	[Redacted]	-	-	[Redacted]
H&S Specialist	Stephen McSeveney	[Redacted]	-	-	[Redacted]
Environmental Specialist	Jamie Gathercole	[Redacted]	-	-	[Redacted]
Vattenfall CS&R				[Redacted]	
Additional internal contacts					
Communications team	Tim Dunford	[Redacted]	-		[Redacted]
	Joanne Hutchinson	[Redacted]	-		[Redacted]
	Peter Kocen	[Redacted]	-		[Redacted]
Senior Stakeholder Manager	Gabby Waterman	[Redacted]	-		[Redacted]
Contractors					
Vestas	Andrew Wilson	[Redacted]	-	-	[Redacted]

Organisation	Contact Name	Telephone (office hours)	Fax	24 hr. Telephone	Mobile / Pager / Email
Vestas	Suzanne Ross	[Redacted]	-	-	[Redacted]
Oil Spill Response Contractors					
Ambipar Response	Duty Manager			[Redacted]	
Coastguard Centres					
MRCC Aberdeen	-	+44 (0)344 382 0723	-	+44 (0)344 382 0723	zone3@hmcg.gov.uk
Marine Directorate					
Marine Directorate	Duty Officer	-	-	[Redacted]	MD.MarineRenewables@gov.scot
MD Licensing and Operations Team	Casework Manager	-	-	-	[Redacted]
Marine Scotland Marine Laboratory	-	-	-	-	spillresponse@marlab.ac.uk
Department for Energy Security and Net Zero (DESNZ)					
DESNZ	Duty Officer	[Redacted]	-	[Redacted]	-
Ports					
Aberdeen Harbour	Harbour Master	[Redacted]	[Redacted]	[Redacted]	-
Peterhead Harbour	Harbour Master	[Redacted]	[Redacted]	-	[Redacted]
Environmental Agencies and Local Authorities					
SEPA	Pollution hotline	-	-	+44(0)800 807 060	-
	Aberdeen Office	[Redacted]	[Redacted]	-	-
NatureScot	Duty Officer	[Redacted]	-	[Redacted]	Marinepollution@nature.scot

Organisation	Contact Name	Telephone (office hours)	Fax	24 hr. Telephone	Mobile / Pager / Email
Aberdeenshire Council	Grampian Emergency Planning Unit	[Redacted]	-	-	admin@gepu.sol.co.uk
Other Contacts (for possible information and advice)					
International Tanker Owners Pollution Federation (ITOPF)	Main	[Redacted]	-	[Redacted]	-
RSPB	East Scotland Regional Office, Aberdeen	[Redacted]	-	-	-
Whale and Dolphin Conservation		[Redacted]	-	-	-

APPENDIX E - LEGAL FRAMEWORK AND GOVERNMENT RESPONSIBILITIES

E.1 Government Responsibilities

A number of UK government organisations have responsibilities for oil spill prevention, planning and response. Figure E1 summarises the key government bodies and their offshore jurisdiction.

Figure E1 - Government organisations and corresponding offshore jurisdiction

Government Organisation	Role	Offshore Jurisdiction (nautical miles)				
		1	3	6	12	200
Department for Transport (DfT) Maritime & Coastguard Agency (MCA) – HM Coastguard (HMCG)	Responsible for: • Government response to an oil spill anywhere around the UK coast; • Providing assistance to local councils responsible for shoreline clean-up (discharges this responsibility through MCA). Responsible for the co-ordination of all civil maritime search and rescue operations in the UK. In the event of a spill, the HMCG will be contacted in the first instance and will then liaise with the MCA department and others as necessary.	→	→	→	→	→
MCA - Counter Pollution & Response Branch (CPRB)	Responsible for the National Contingency Plan (NCP) and oversees the actions of those responsible for salvage and clean-up operations.	→	→	→	→	→
Marine Scotland (MS) - Marine and Fisheries	MS are responsible for approving the use of dispersants or other oil treatment products in UK waters. MS has a wider responsibility for protecting fisheries and the marine environment, with assistance from the MS – Marine Laboratory (ML) and the Centre for Environment, Fisheries and Aquaculture Science (Cefas). Local fisheries concerns are handled by the MS Fish Health Inspectorate (FHI).	→	→	→	→	→
Joint Nature Conservation Committee (JNCC) Scottish Natural Heritage (SNH)	Government's statutory advisors on wildlife affairs and nature conservation. The organisation responsible for providing advice on the environmental sensitivities during a pollution incident. They are the official agencies to be consulted by the local authorities and operators at the planning stage and prior to any oil spill clean-up operation.	→	→	→	→	→
Scottish Environment Protection Agency (SEPA)	Responsible for water quality up to three nautical miles offshore and fisheries up to six nautical miles offshore.	→	→	→		
Local Authority (LA)	Responsible for clean-up of beached oil in their authorities. The area pollution officer is responsible for drawing up a local contingency plan for inshore and onshore clearance and for co-ordinating a local response for oil spill clean-up operations. They would require the mobilisation of a Shoreline Response Centre (SRC) that both the MCA and operator representatives would attend.	→				

E.2 Interfaces with National Contingency Plan, Bonn Agreement and Others

Whilst the previous section outlines UK government organisation responsibilities for oil spill prevention, this section outlines the legal framework within which the responses must be coordinated including the National Contingency Plan and Bonn Agreement.

E.2.1 National Contingency Plan (NCP)

Introduction

The NCP for Marine Pollution from Shipping and Offshore Installations has been developed by the UK Government and sets out the arrangements at a national level for dealing with spillage of oil or other hazardous materials at sea in UK waters. The NCP is designed for incidents of national significance which, in most cases, would be classified as large Tier 2 or Tier 3 pollution incidents. The plan involves a great number of organisations from central and local Government and private industry.

Activation of the NCP

Note that the activation of the NCP is not the responsibility of an Offshore Operator. Activation of the NCP is the responsibility of the MCA. It should also be noted that the activation of the NCP in response to an incident at the EOWDC is extremely unlikely, and therefore this section is mainly provided for information purposes.

Role of the MCA

Once notified of the incident the MCA will determine the need to activate the NCP, and whether or not to establish a MRC. The MRC will consider and implement the most appropriate means to contain, disperse and/or remove pollutants from the scene in the event of a significant incident. In addition, the MCA will determine the need to activate the Scotland Standing Environment Group (see below).

Role of the SOSREP

The role of the SOSREP is to represent the Department for Transport and the Department for Energy Security and Net Zero (DESNZ) by removing or reducing the risk to persons, property and the UK maritime environment arising from incident involving ships, fixed or floating platforms or subsea infrastructure within UK waters. The SOSREP will also determine the need for a Salvage Control Unit (SCU) to monitor salvage activity and ensure that actions being taken in the case of a shipping incident do not have an adverse effect on safety and the environment. The SOSREP may also give a Direction that will oblige the various stakeholders involved to take specific action, in the overriding public interest.

Role of the Environment Group

The Scotland Standing Environment Group (SEG) is able to to provide advice on public health and environmental issues that require a regional or national response. Once active, the SEG is referred to as the Environment Group (EG). The scope of the EG functions will be directly proportional to the scale and nature of the incident, its geographical location, extent, severity,

pollutant involved, potential hazard to human health and environmental sensitivities. The scale of the incident and response and their constituent phases are likely to evolve over time and the functions of the SEG will need to be graduated to meet changing requirements, escalating or diminishing in the input to each phase over time (MCA Scientific, Technical and Operational Advice Note (STOp) notice 2/15).

E.2.2 The Bonn Agreement

The Bonn Agreement, which entered into force in 1983, is the mechanism by which the North Sea States and the European Community (the Contracting Parties), work together to:

- Help each other in combating pollution in the North Sea Area from maritime disasters and chronic pollution from ships and offshore installations;
- Carry out surveillance as an aid to detecting and combating pollution at sea.

The Bonn Agreement is the major counter-pollution interstate agreement for northern Europe. The North Sea States party to the Bonn Agreement are:

- Belgium;
- Denmark;
- France;
- Germany;
- Ireland;
- The Netherlands;
- Norway;
- Spain;
- Sweden;
- United Kingdom of Great Britain and Northern Ireland.

The Bonn Agreement sets out command and control procedures for pollution incidents likely to affect participating parties, as well as channels of communication and resources available. It sets out the mechanism by which North Sea States, and the European Community, will work together to combat pollution in the North Sea area from maritime disasters, chronic pollution from ships and offshore installations and recommends the command structure and operational co-ordination between the parties. The Agreement is largely oriented towards major spills; however, it is not confined to such events and will apply as necessary to any spills within the Bonn regions, which are of sufficient severity to warrant joint action.

In the event of an oil spill entering any waters of Member States other than those of the origination state, it may be necessary to implement the response strategies agreed with participating parties under the Bonn Agreement. The Bonn Agreement becomes operational when agreement to the request for its implementation is reached. Responsibility for implementing joint action rests with the Action Co-ordinating Authority (ACA) of the State on whose side of the median line a spill originated.

The experience gained through the Bonn Agreement has been codified in the Bonn Agreement Counter Pollution Manual. This sets out:

- Agreed General Strategy;
- Specific Policies agreed on many issues;
- Agreed approaches on Response operations;

- Arrangements for joint Exercises;
- Agreed arrangements for Reporting;
- Agreed approaches on Surveillance of oil spills.

The Bonn Agreement Counter Pollution Manual is available online at: https://www.bonnagreement.org/publications

E.2.3 Industry Plans

The EOWDC MPCP interfaces with the following industry standard plans, as appropriate for the planned operations as outlined in Section 7.

The interaction of these plans in relation to potential oil spill size is shown in Table E1.

Table E1 Interaction of contingency plans

INCREASING SIZE OF SPILL AND POTENTIAL CONSEQUENCES →		
Tier 1 Spill	Tier 2 Spill	Tier 3 Spill
EOWDC MPCP in force for the life of the Development.*		
Shipboard Oil Pollution Emergency Plan (SOPEP) (or equivalent vessel-specific spill plan) carried by each contracted vessel and in force prior to and following the time the vessel is deployed on location. EOWDC MPCP is in force for the duration of operations on location.		
Port and Harbour OSCPs.		
Kincardine and Hywind offshore wind farm OSCP		
	Local Authorities Plan (in the event that an oil spill reaches 1 mile from the shore).	
	National Contingency Plan (NCP) provides for the monitoring of all offshore oil spill incidents and Operator's response actions.	

APPENDIX F - COMPLIANCE WITH ENVIRONMENTAL STATEMENT MITIGATION MEASURES

Table F1 presents the commitments made by AOWFL in the ES and associated SEIS to mitigation measures relevant to this O&M MPCP.

Table F1 - ES and SEIS pollution-related mitigation relevant to this O&M MPCP

Source and Reference	Details of Commitment	Implementation
ES – Shipping and Navigation	Compliance with MCA's Marine Guidance Notice (MGN) 371 including Annex 5 - Annex 5 specifies "Standards and procedures for generator shutdown and other operational requirements in the event of a search and rescue, counter pollution or salvage incident in or around an OREI."	O&M MPCP Section 8.1.1 (Note that MGN 371 has now been superseded by MGN543)
ES- Scoping Opinion	Adherence to MARPOL regulations which set out requirements to establish Pollution Action Plans to control pollution incidents.	O&M MPCP Appendix A.
ES - Scoping Opinion	Adherence to the required legislation for the use of paints and biocides.	O&M MPCP Appendix A.
ES – Marine Ecology Technical Report	Adherence to regulatory operational standards such as MARPOL 73/78, the UK Merchant Shipping (prevention of pollution) Regulations 1983 and the Merchant Shipping (Prevention of Pollution by Garbage) Regulations 1988, UK Offshore Chemical Regulations 2001 will ensure that such a potential release is minimised.	O&M MPCP Appendix A.

APPENDIX G - OIL AND CHEMICAL POLLUTION SOURCES AND RISK ASSESSMENT

G.1 Introduction

This section identifies the type and size of oil and chemical spill that the EOWDC spill response arrangements will need to be able to address. It considers 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 AOWFL to minimise or eliminate spill risks.

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.

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.

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

G.2 Spill Scenarios, Prevention and Control Measures

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.

A risk assessment of potential spill scenarios and proposed mitigation measures to minimise or eliminate the risks was carried out for the Development (construction and operational phase as appropriate), and is presented in Table G1. The risk assessment has been reviewed for the O&M phase to ensure that the worst case spill scenario is assessed.

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. This response

concept can also be applied to certain chemical spills. The three tiers are commonly defined as follows (Figure G1):

- Tier 1 response is that which is immediately available on site, geared for the most frequently anticipated spill;
- Tier 2 response is for less frequently anticipated 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 spill of major proportions and which will possibly require national and international resources to assist in protecting vulnerable areas and in the clean-up.

Figure G1 The tiered response concept

The conventional view of a Tier 3 scenario is one involving an exceptionally large volume of spilled oil, for example from a major ship-source 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 of oil or chemicals, 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.

The EOWDC-specific risk assessment in Table G1 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.

The main source of hydrocarbons associated with the Development will be Marine Gas Oil (MGO) used to fuel O&M vessels. The quantities of MGO will be limited to the capacity of the vessels. The potential worst case spill scenario associated with the Development 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.

Once spilled in 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.

The changes that chemicals undergo once spilled are variable depending on the type of chemical and are summarised in Section 7.5.

Table G1 Potential Spill Scenarios and Control Measures for the Development

Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
Hydrocarbons Marine Gas Oil (MGO) (Diesel)	Vessel refuelling Loss of fuel during vessel to vessel refuelling at sea or refuelling at port.	Refuelling at sea is not anticipated given the proximity of the EOWDC to Aberdeen with larger vessels undertaking regular transits and should be bunkered with deck equipment fuelled in port before transit to the Development. Although it is not expected to be required, should ship transfer operations occur then compliance with conditions related to vessel refuelling set out in Merchant Shipping Notice (MSN) 1829 “Ship to Ship Transfer Regulations 2010/2012”.	Very low	Tier 2
	Equipment refuelling Loss of fuel during refuelling of equipment (on vessel or on structure).	Bunkering operations shall be visually monitored both within the machinery space and also on deck at the hose connection point. These persons shall not have any other duties allocated during this period of time. At least two appropriate communication methods shall be available and an emergency stop or emergency stop alarm to shore or other vessel shall be available. Vessels are to be fitted with save-alls and / or oil recirculation / overflow systems. Vessels under 400 GT may not necessarily be fitted with such facilities and should have suitable oil spill equipment to hand. Personnel shall be trained in spill prevention awareness and in the use of spill kits (See Section 6.4). 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.	Very low	Tier 1
	Vessel to vessel collision	All vessels will comply with the measures set out in the Navigational Safety Plan	Very low	Tier 2

Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	Loss of fuel from collision between two vessels.	(NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime rules) to minimise the risk of vessel to vessel collision and vessel to structure allision.		(possible but unlikely Tier 3)
	Vessel to structure allision Loss of fuel from allision between vessel and structure (e.g., WTG).		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 Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime rules) to minimise the risk of 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 portable/ temporary onshore storage tanks and/or areas shall be bunded to at least 110% of the total oil storage inventory volume. 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
	Spillage during use of equipment Small spills during equipment operation. (e.g. turbine nacelle)	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	Low	Tier 1

Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
		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.		
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 Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) (including compliance with all international maritime rules) to minimise the risk of vessel to vessel collision, vessel to structure allision and vessel stranding / grounding.	Very low	Tier 2
	Leakage within WTGs Leakage of lubricating gear oil or grease within nacelle.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG 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. Gear 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	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	Low	Tier 1

Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	due to failure of plant or equipment.	personnel. All portable/ temporary storage tanks and/or areas shall be bunded to at least 110 % of the total oil storage inventory volume.		
Hydraulic Oil	Incident Loss of hydraulic 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 Navigational Safety Plan (NSP) (ABE-ENV-QB-0008) to prevent vessel to vessel collision, vessel to structure allisions and vessel stranding / grounding.	Very low	Tier 1
	Leakage within WTGs Leakage of lubricating gear oil or grease within nacelle.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG 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 portable/ temporary 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	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.	Low	Tier 1

Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	Small spills during operation.	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.		
Transformer Oil	Leakage of transformer oil within WTG tower.	The WTG tower transformer has its own bund to collect transformer oil in the unlikely event of a leak.	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 Navigational Safety Plan (NSP) (LF000005-PLN-128) 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) and The Offshore Chemicals (Amendment) Regulations 2011.	Very low	Tier 1
	Leakage within WTG Leakage of coolant or transformer fluid within nacelle and/or tower.	All equipment shall be operated and maintained in good order and in accordance with legal requirements. WTG sensors will enable early detection of loss of fluid and leaks. There is a bunded area within the nacelle to collect liquid 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). The WTG tower transformer has its own bund to collect liquids in the unlikely event of a leak.	Low	Tier 1
	Spillage during use Spillage of paints, paint thinners, solvents, cleaning	Preparation and review of task-specific risk assessments and method statements. Personnel shall be trained in the correct handling and use of chemicals.	Low	Tier 1

Potential Pollutant	Spill scenario	Control measures	Likelihood with control measures	Likely Tier
	fluids etc during use.	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).		

G.3 Vessel to Vessel refuelling

The EOWDC Marine Licence condition which specifies the requirement for a Marine Pollution Contingency Plan (Condition 3.1.11) states that:

Practices used to refuel vessels at sea must conform to industry standards and to relevant legislation.

This section includes additional detail and is provided to clearly address the requirements of this Marine Licence condition, noting that it is considered highly unlikely that vessel to vessel refuelling at sea will occur given the close proximity of several east coast ports.

Merchant Shipping Notice (MSN) 1829 "Ship to Ship Transfer Regulations 2010/2012" (MCA, 2012) sets out detailed requirements regarding Ship to Ship Transfers of a cargo consisting wholly or mainly of oil. The Notice is given statutory force by the Merchant Shipping (Ship to Ship Transfers) Regulations 2010 (as amended) and should be read in conjunction with those Regulations, which specify in detail what can and cannot be transferred and the penalties for any offences that are committed.

Ship to Ship transfers outside of port authority areas are generally prohibited within the UK territorial sea. An exemption is provided for vessels to refuel, or be refuelled by daughter-craft, so as not to impair operationally necessary refuelling. It is anticipated that Ship to Ship transfers will not be necessary during the O&M of the Development beyond 'operationally necessary' refuelling of vessels.

Note that these regulations only cover transfers between vessels, they do not regulate transfers from a vessel to an Offshore Renewable Energy Installation (OREI). Transfers of fuel from vessels to such installations (such as may be required for the refuelling of temporary diesel generators on the foundations) should be carried out with due regard to crew and vessel safety and with appropriate environmental safeguards (see Table G2 for potential spill scenarios and control measures for the Development).

Table G2 below provides an extract from MSN 1829 as relevant to ship to ship refuelling arrangements.

Table G2 MSN 1829: Mother-craft/daughter-craft refuelling arrangements

3. Mother-craft/daughter-craft refuelling arrangements
3.1 The regulations provide a specific exemption for vessels to refuel, or be refuelled by daughter-craft (e.g.: tenders, rescue boats, safety boats) so as not to impair local, operationally necessary refuelling where returning to shore is not practicable.
3.2 Examples of 'operationally necessary' refuelling include, but are not limited to, the fuelling of jack ups, platforms and other temporary installations as well as vessels with extremely restricted capability to leave station to take on fuel such as dredgers, workboats operating offshore from mother-craft and accommodation vessels.
3.3 Transfers of fuel to and from daughter-craft should be carried out with due regard to crew and vessel safety and with appropriate environmental safeguards.

3.4 Particular care should be taken to ensure that appropriate training has been provided to those carrying out the transfer and that equipment is maintained correctly on both the supplying and receiving craft.

G.4 Use of Chemicals

This section presents additional detail to that presented in Table G1 and is provided to clearly address the requirements of the relevant Marine Licence conditions.

List of Notified chemicals

Condition 3.1.6 of the Marine Licence states;

'The Licensee must ensure that all chemicals which are to be utilised in the Works have been approved in writing by the Licensing Authority prior to use. All chemicals utilised in the Works must be selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002, unless approved in writing by the Licensing Authority.

The List of Notified Chemicals is a product of the Offshore Chemical Notification Scheme (OCNS) which manages chemical use and discharge by the UK and Netherlands offshore petroleum industries, but which is also applied to the offshore renewables industry where relevant. The scheme is regulated in the UK by the Department for Energy Security and Net Zero (DESNZ) using scientific and environmental advice from the Centre for Environment, Fisheries and Aquaculture Science (Cefas) and MS-ML. A description of the OCNS is provided in Table G3 below.

As noted in Table G3 the OCNS does not apply to all chemicals. The transfer and use of general items such as certain types of lubricants and oils will not appear on this List of Notified Chemicals.

Table G3 The Offshore Chemical Notification Scheme

The Offshore Chemical Notification Scheme (OCNS) applies to all chemicals used in the exploration, exploitation and associated offshore processing of petroleum on the UK Continental Shelf. It incorporates "operational" chemicals/products* which, through their mode of use, are expected in some proportion to be discharged. This includes rig washes, pipe dopes, jacking greases and hydraulic fluids used to control wellheads and blow-out preventers. As well as those chemicals used in the actual production of hydrocarbons, those generated offshore (such as sodium hypochlorite) must also be notified. ***Chemicals not covered*** The scheme does not apply to chemicals that might otherwise be used on a ship, helicopter or other offshore structure. Products used solely within domestic accommodation areas – such as additives to potable water systems, paints and other coatings, fuels, lubricants, fire-fighting foams, hydraulic fluids used in cranes and other machinery – are also exempt. Source: https://www.cefas.co.uk/data-and-publications/ocns/

Use, Storage and Transport of Chemicals

AOWFL will require their Contractors to ensure that:

- Where relevant, chemicals are selected from the List of Notified Chemicals assessed for use by the offshore oil and gas industry under the Offshore Chemicals Regulations 2002 and the Offshore Chemicals (Amendment) Regulations 2011.. Where the Development requires the use of chemicals not listed in the List of Notified Chemicals, AOWFL will request approval in writing from MD-LOT prior to their use in accordance with Marine Licence condition 3.1.6;
- All substances and objects deposited are inert (or appropriately coated or protected) and do not contain toxic elements; and
- Suitable bunding and storage facilities are employed to prevent the release of chemicals into the marine environment.

AOWFL will require that these requirements are addressed within Contractors' risk assessments and method statements. Each Contractor shall provide a complete chemical inventory within their risk assessments, detailing how and when chemicals are to be used, stored and transported in accordance with good practice guidance, including where relevant (but not limited to):

- Transport of chemicals in line with the International Maritime Dangerous Goods (IMDG) Code;
- Storage of chemicals in line with the UK Control of Substances Hazardous to Health Regulations (COSHH) 2002 (as amended), the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Enforcement Regulations 2008 (as amended), the CLP Regulation (European Regulation (EC) No 1272/2008) and Health and Safety Executive guidance on offshore storage of chemicals (OCM (Offshore COSHH Method) guidance note 8), in addition to applicable manufacturer's guidance on storage; and
- Use of chemical products in accordance with manufacturer's instructions and recommendations.

On board each vessel a nominated individual will be responsible for ensuring that all chemicals are adequately stored and protected and shall, in conjunction with project and marine personnel, ensure that an efficient Stock Control System is in operation. This system shall include records for receipt, distribution and balance of all chemicals. Chemicals shall be stored securely, where possible.

The nominated individual will ensure that all special instructions and delivery notes from the supplier are rigorously complied with during handling, storage and use. Correct lifting procedures shall be followed to ensure safe, efficient chemical handling. Personnel shall be kept informed of all precautions concerning the storage and handling of chemicals arriving on-board.

Safety Data Sheets (SDS) and Control of Substances Hazardous to Health (COSHH) sheets for each chemical substance will be reviewed to inform the risk assessment and will be appended to the risk assessments. These data sheets must also be held on site where the chemicals are stored and/or used. The risk assessments and method statements will also

contain control measures to ensure that risk to the marine environment is minimised during use, storage and transport of chemicals. By law suppliers of chemicals must provide an up to date SDS if a substance is dangerous for supply under the REACH regulation. Control of substances hazardous to health will be undertaken in compliance with COSHH regulations.

G.5 Hydrocarbon and Chemical Inventory

The types and volumes of hydrocarbons and chemicals that are held on each of the WTGs are listed in Table G5. Within the table, the likely fate of the substances if released to sea is detailed.

In addition to the substances held during routine operations on each WTG, vessels supporting the Development will carry additional hydrocarbons and chemicals, both as fuel oil and to support operations. In the event of a pollution incident this information will be made available to the Primary Responder or response cells if required.

Table G4 - Volumes of hydrocarbons and chemicals held per WTG at the EOWDC.

Tye / name of substance	Maximum volume per WTG	Likely fate if released to sea
Cooling liquid / Longlife antifreeze	900 litres (350 litres in tower, 550 litres in nacelle)	The material is not expected to be harmful to aquatic organisms and is expected to be readily biodegradable
Hydraulic oil / Texaco Rando WM 32	800 litres	The hydraulic oil is considered not environmentally hazardous. Would spread out to form a large surface slick. Expected to naturally disperse in normal sea conditions around the EOWDC
Gear lube oil / Mobilgear SHC XMP 320	1900 litres	Gear oil would be relatively viscous, with minimal spread. May form a small surface slick. Expected to naturally disperse in normal sea conditions around the EOWDC
Yaw gear oil / Shell Omala S4 WE 320	95 litres	Gear oil would be relatively viscous, with minimal spread. May form a small surface slick. Expected to naturally disperse in normal sea conditions around the EOWDC
Yaw gear grease / Shell Gadus S5 T 460 1.5	2 kg	Gear grease may initially act as a semi-solid if released to sea. Expected to naturally disperse in normal sea conditions around the EOWDC
Yaw gear grease / Klüberplex AG 11-462	2 kg	Gear grease may initially act as a semi-solid if released to sea. Expected to naturally disperse in normal sea conditions around the EOWDC
Blade bearing lube / Shell Rhodina Grease BBZ	15 litres (5 litres per blade)	Lube oil would be relatively viscous, with minimal spread. May form a small surface slick. Expected to naturally disperse in normal sea conditions around the EOWDC
Insulation fluid / MIDEL 7131	5500 litres	Insulation fluid would be low viscosity at sea temperatures. The material is not expected to be harmful to aquatic organisms and is expected to be readily biodegradable
Tower damper fluid / WAY LUBRICANT X320	5000 litres	Lubricating oil would be low viscosity at sea temperatures. The material is not expected to be

Tye / name of substance	Maximum volume per WTG	Likely fate if released to sea
		harmful to aquatic organisms and is expected to be readily biodegradable
Generator fuel / Hydrotreated vegetable oil (HVO)	2800 litres	Initial spread on the sea surface, forming a slick. Likely evaporation and natural dispersion within 12 hours in normal sea conditions around the EOWDC.
Marine Gas Oil (MGO) (Diesel)	Dependent on vessel	Used as fuel for vessels supporting the EOWDC. Initial spread on the sea surface, forming a slick. Likely evaporation and natural dispersion within 12 hours in normal sea conditions around the EOWDC.

APPENDIX H – WTG LOCATIONS

Below are the latitude and longitude (format WGS84) of all 11 WTGs at Aberdeen Bay OWF. Water depth at Lowest Astronomical Tide (LAT), metres.

WTG ID	Latitude	Longitude	Depth LAT (m)
A01	57° 12.948' N	002° 0.671' W	21.75
A02	57° 13.420' N	002° 0.758' W	19.86
A03	57° 13.703' N	002° 0.132' W	23.02
A04	57° 14.010' N	001° 59.371' W	27.29
A05	57° 14.405' N	001° 58.551' W	29.73
B01	57° 13.476' N	002° 0.627' W	23.5
B02	57° 13.704' N	001° 59.921' W	27.3
B03	57° 13.203' N	002° 0.013' W	25.38
B04	57° 12.960' N	001° 59.151' W	31.54
B05	57° 13.465' N	001° 59.274' W	29.51
B06	57° 13.809' N	001° 58.50' W	31.51