

Norfolk Vanguard Offshore Wind Farm Outline Project Environmental Management Plan

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Glossary

CoCP	Code of Construction Practice
DCO	Development Consent Order
DML	Deemed Marine Licence
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
EMS	Environmental Management System
EPCI	Engineering, Procurement, Construction and Installation
EPS	European Protected Species
ERCoP	Emergency Response Co-operation Plan
ES	Environmental Statement
FLO	Fisheries Liaison Officer
HSE	Health, Safety and Environment
IAPP	International Air Pollution Prevention
IMCA	International Marine Contractors Association
IMO	International Maritime Organisation
IOPP	International Oil Pollution Prevention Certificate
IPMP	In Principle Monitoring Plan
km	Kilometres
MARPOL	International Convention for the Prevention of Pollution from Ships
MCA	Maritime and Coastguard Agency
MMMP	Marine Mammal Mitigation Protocol
MMO	Marine Management Organisation
MPCP	Marine Pollution Contingency Plan
MW	Megawatt
NV East	Norfolk Vanguard East
NV West	Norfolk Vanguard West
OWF	Offshore wind farm
PEMP	Project Environmental Management Plan
PPG	Pollution Prevention Guidance
SAC	Special Area of Conservation
SECAs	Sulphur Emission Control Areas
SNCBs	Statutory Nature Conservation Bodies
SOPEP	Shipboard Oil Pollution Emergency Response Plan
TBT	Tool Box Talk
WSI	Written Scheme of Investigation

Terminology

Array cables	Cables which link the wind turbines and the offshore electrical platform.
Interconnector cables	Buried offshore cables which link the offshore electrical platforms
Landfall	Where the offshore cables come ashore at Happisburgh South
Offshore accommodation platform	A fixed structure (if required) providing accommodation for offshore personnel. An accommodation vessel may be used instead
Offshore cable corridor	The corridor of seabed from the Norfolk Vanguard OWF sites to the landfall site within which the offshore export cables will be located.
Offshore electrical platform	A fixed structure located within the wind farm area, containing electrical equipment to aggregate the power from the wind turbines and convert it into a more suitable form for export to shore.
Offshore export cables	The cables which bring electricity from the offshore electrical platform to the landfall.
Offshore project area	The overall area of Norfolk Vanguard East, Norfolk Vanguard West and the offshore cable corridor
Safety zones	A marine zone outlined for the purposes of safety around a possibly hazardous installation or works / construction area under the Energy Act 2004.
Scour protection	Protective materials to avoid sediment being eroded away from the base of the foundations as a result of the flow of water.
The Applicant	Norfolk Vanguard Limited
The OWF sites	The two distinct offshore wind farm areas, Norfolk Vanguard East and Norfolk Vanguard West
The project	Norfolk Vanguard Offshore Wind Farm, including the onshore and offshore infrastructure

1 INTRODUCTION

1.1 Background

1. Norfolk Vanguard Limited ('the Applicant', an affiliate company of Vattenfall Wind Power Ltd) is seeking a Development Consent Order (DCO) for Norfolk Vanguard, an offshore wind farm (OWF) (hereafter 'the project') in the southern North Sea.
2. The OWF comprises two distinct areas, Norfolk Vanguard East (NV East) and Norfolk Vanguard West (NV West) ('the OWF sites'), within which wind turbines, offshore electrical platforms, accommodation platforms and array cables will be located. The offshore wind farm will be connected to the shore by offshore export cables installed within the offshore cable corridor from the wind farm to a landfall point at Happisburgh South, Norfolk. From there, onshore cables would transport power over approximately 60km to the onshore project substation at Necton, Norfolk. The project will connect into the National Grid at the existing National Grid substation at Necton.
3. Norfolk Vanguard is located approximately 47km from the closest point the Norfolk Coast. NV East covers an area of approximately 297km² and NV West covers an area of around 295km². Once built, Norfolk Vanguard would have between 90 and 200 wind turbines, up to two offshore electrical platforms, up to two accommodation platforms, two metmasts, two LiDAR, two wave buoys and a network of up to 600km of array cables.
4. Construction of the project under either approach would be anticipated to commence between 2020 and 2021 for the onshore works, and around 2024 for the offshore works.
5. A description of the Norfolk Vanguard is outlined in Volume 1, Chapter 5 Project Description of the Environmental Statement (ES).

1.2 Purpose of this Document

6. There are potential environmental sensitivities associated with an offshore wind farm development, which need to be identified and considered before construction of the project takes place.
7. These potential effects are outlined in the project ES (document reference 6.1), including embedded mitigation through project design and additional mitigation in the form of good practice that will require to be adhered to during the construction and operation phases of the project.

8. This outline Project Environmental Management Plan (PEMP) is provided as part of the DCO application in order to demonstrate the linkages between the impact assessments for the offshore components of Norfolk Vanguard (detailed in ES Chapters 8 to 18), offshore development activities, and likely conditions associated with any development consent.
9. An Outline Code of Construction Practice (OCoCP) (document reference 8.1) is provided with the DCO application to provide information relating to the onshore works.
10. The main purpose of this outline PEMP is therefore to set out the framework for the final PEMP (required under DCO Schedules 9 and 10 [condition 14(1)(d)] and Schedules 11 and 12 [condition 9(1)(d)] of the Deemed Marine Licences (DMLs), including the controls that are proposed to manage the environmental risks associated with the construction and operation of the offshore components of Norfolk Vanguard. The document is based on the Norfolk Vanguard ES, industry good practice and relevant legislation (at the time of preparation).

2 SCOPE

11. Schedules 9 and 10 Condition 14(1)(d) of the Deemed Marine Licences (DMLs) states that the PEMP will include the following scope:

A project environmental management plan (in accordance with the outline project environmental management plan) covering the period of construction and operation to include details of—

- i. *a marine pollution contingency plan to address the risks, methods and procedures to deal with any spills and collision incidents of the authorised scheme in relation to all activities carried out;*
- ii. *a chemical risk assessment to include information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance;*
- iii. *waste management and disposal arrangements;*
- iv. *the appointment and responsibilities of a fisheries liaison officer;*
- v. *a fisheries liaison and coexistence plan (which accords with the outline fisheries liaison and co-existence plan) to ensure relevant fishing fleets are notified of commencement of licensed activities pursuant to condition 9 and to address the interaction of the licensed activities with fishing activities; and*
- vi. *procedures to be adopted within vessels transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities.*

12. Schedules 11 and 12 Condition 9(1)(d) of the Deemed Marine Licences (DMLs) states that the PEMP will include the following scope:

A project environmental management plan (in accordance with the outline project environmental management plan) covering the period of construction and operation to include details of—

- i. *a marine pollution contingency plan to address the risks, methods and procedures to deal with any spills and collision incidents of the authorised scheme in relation to all activities carried out;*
- ii. *a chemical risk assessment to include information regarding how and when chemicals are to be used, stored and transported in accordance with recognised best practice guidance;*
- iii. *waste management and disposal arrangements;*
- iv. *the appointment and responsibilities of a fisheries liaison officer; and*
- v. *a fisheries liaison and coexistence plan (which accords with the outline fisheries liaison and co-existence plan) to ensure relevant fishing fleets are notified of commencement of licensed activities pursuant to condition 4 and to address the interaction of the licensed activities with fishing activities.*

13. The final PEMP would be produced prior to construction and would set out the controls and processes that are to be adopted to mitigate environmental impacts of Norfolk Vanguard and measures set out to comply with consent conditions in the DMLs and in line with this outline PEMP. The PEMP is considered to be an iterative document that develops throughout the development and refinement of the project detailed design process, its procurement and construction.
14. A series of Engineering, Procurement, Construction and Installation (EPCI) contractors will be responsible for the detailed design, construction and installation of the main infrastructure associated with the project, including turbine foundations, turbine erection, offshore cable laying, offshore electrical platforms, accommodation platforms, met masts and landfall. These may be managed as individual projects or as a framework.
15. As discussed in section 1.2, the PEMP is required under DCO Schedules 9 and 10 condition 14(1)(d) and Schedules 11 and 12 condition 9(1)(d) of the DMLs. Requirements within the PEMP will be communicated to contractors, where relevant, to discharge the relevant licence conditions and to communicate project environmental requirements and standards to facilitate incorporation into their Environmental Management Plans. The PEMP shall be the responsibility of the Project Manager to manage in close working with the Contractors.
16. It should be noted that a CoCP (Requirement 20, Schedule 1 Part 3 of the DCO), which includes environmental management requirements, will also be developed for the onshore elements of Norfolk Vanguard and will be subject to agreement with relevant Local Planning Authorities. Therefore, the onshore components of Norfolk Vanguard are not included within this PEMP.
17. Additional information with regard to environmental management requirements and project specific requirements are set out in the ES, DCO conditions and Vattenfall Wind Power Ltd's Environmental Policy¹.
18. Vattenfall Wind Power Ltd (parent company of Norfolk Vanguard Limited) operates an Environmental Management System (EMS) based on the requirements of ISO 14001:2015, that describes the processes and procedures by which Norfolk Vanguard Limited will identify and manage significant risks associated with its operations. The EMS is a primary mechanism by which environmental policy commitments, such as compliance with relevant legislation and standards, pollution

¹ <https://corporate.vattenfall.com/sustainability/policies-and-management/environmental-policy-and-management/>

prevention and continual improvement in environmental performance are delivered. Norfolk Vanguard Limited will be compliant with the requirements of the EMS.

2.1 Typical content for a PEMP

19. The PEMP will include the following information:
 - Project Description and Environmental Sensitivities;
 - Environmental Management Structure and Responsibilities;
 - Associated Documentation;
 - Management of Key Environmental Issues;
 - Monitoring and Vessel Inspections;
 - Legislative and Regulatory Compliance;
 - Training and Awareness;
 - Communication and Reporting;
 - Subcontractor Management; and
 - Sustainable Construction.
20. Outline content for each section is described in sections 3 to 12.

3 PROJECT DESCRIPTION AND ENVIRONMENTAL SENSITIVITIES

21. Chapter 5 of the ES outlines the project description based on a design envelope. Following final design of the project, this section would set out information with regards to the detailed design and the associated environmental sensitivities. In particular, sensitive ecological, archaeological or human receptors, such as protected habitats, protected wrecks, constraints from other infrastructure, site layout plans, and the scope of works to be undertaken, would be considered.
22. The relevant EPCI contractors for the project will be expected to have their own Aspect and Impacts Register as part of their internal EMS.

4 ENVIRONMENTAL MANAGEMENT STRUCTURE AND RESPONSIBILITIES

23. Environmental Management roles and responsibilities for Norfolk Vanguard are required to be documented. This section of the final PEMP would set out the environmental responsibilities for the project, including identification of key site staff, their environmental management responsibilities and how these link with other members of the Project Team, such as the Project Manager, the Project Health Safety and Environmental Manager(s) and / or Advisors along with environmental specialists such as Environmental Liaison Officer, Fisheries Liaison Officer (FLO), Ornithologists, Marine Mammal Observers or Archaeologists. The contact details for the key individuals listed should also be included in the PEMP.
24. Interactions with stakeholders such as Statutory Nature Conservation Bodies (SNCBs) and the Marine Management Organisation (MMO) would also be covered in this section.
25. It is expected that Norfolk Vanguard Limited will employ a Principal Contractor who will be responsible for environmental management on site, including the preparation of environmental documentation.

5 ASSOCIATED DOCUMENTATION

26. This section would refer to relevant associated EMS and project/site specific documentation that requires to be taken into consideration in developing the final PEMP. Examples include, but are not limited to:
- Contract requirements (such as environmental standards);
 - Contractor's EMS requirements;
 - Project Emergency Response Plan;
 - Project Health and Safety Plan;
 - Project Environmental Statement;
 - DCO requirements;
 - DML conditions;
 - Risk registers; and
 - Legal registers.

6 MANAGEMENT OF KEY ENVIRONMENTAL ISSUES

27. This section provides an overview of the controls and procedures to be adopted to mitigate the environmental impacts associated with the project. Further details would be provided in the final PEMP following the final design.
28. This section covers the following issues.
- Marine ecology;
 - Marine archaeology and cultural heritage;
 - Dropped object in the marine environment;
 - Wastewater discharges;
 - Oils, fuel and chemicals;
 - Waste management;
 - Fisheries liaison;
 - Emissions to air; and
 - Method Statements and Risk Assessments.
29. A brief overview of some of the key issues for each item is provided below. However, it should be noted that the list of issues identified above is not exhaustive and will be specific to the final design of the project.
30. An In Principle Monitoring Plan (IPMP) (document reference 8.12) and a Schedule of Mitigation (document reference 6.5) are provided with the DCO application, outlining the approach to monitoring and mitigation for Norfolk Vanguard based on the outcomes of the offshore impact assessments detailed in chapters 8 to 18 of the ES.
31. The final project PEMP would include the mitigation measures to be adopted. This will enable communication of awareness of any sensitive areas and potential protected features, such as reefs, to the designated members of the Project Team. The procedures to be adopted in the event of an incident in proximity to these features would also be set out in the PEMP.

6.1 Marine ecology

6.1.1 Benthic ecology

32. Pre-construction surveys (as required under DCO Schedules 9 and 10 condition 14(1)(b)(iii) and Schedules 11 and 12 condition 9(1)(b)(iii) of the DMLs) would be undertaken in advance of any cable and foundation installation works. The methodology for the pre-construction surveys would be agreed with the MMO and Natural England.

33. Should seabed features and obstacles (e.g. Annex 1 reef and UXO) be identified in the proposed wind turbine locations and/or on cable routes during the pre-construction surveys, micro-siting would be undertaken where possible, to minimise potential impacts (as required under DCO Schedules 9 and 10 condition 14(1)(a)(vii) and Schedules 11 and 12 condition 9(1)(a)(vii) of the DMLs).
34. Norfolk Vanguard Limited is committed to burying offshore export cables where possible, thereby reducing Electromagnetic Fields (EMF) and the need for surface cable protection. An Outline Scour Protection and Cable Protection Plan (document reference 8.16) is provided with the Norfolk Vanguard DCO Application. A cable burial risk assessment (as required under DCO Schedules 9 and 10 condition 14(1)(g)(ii) and Schedules 11 and 12 condition 9(1)(g)(ii)) will be undertaken post consent, in consultation with stakeholders.
35. All seabed material arising from the Haisborough, Hammond and Winterton SAC during cable installation would be placed back within the SAC (see also Site Characterisation Report (document reference 8.15)) using an approach, to be agreed with SNCBs and the MMO. Sediment would not be disposed of within 50m of known Annex I reef, further detail in Site Characterisation Report.
36. The risk of spreading non-native invasive species would be mitigated through use of best-practice techniques, including appropriate vessel maintenance following guidance from the International Convention for the Prevention of Pollution from Ships (MARPOL).

6.1.2 Marine mammals

37. A construction method statement (as required under DCO Schedules 9 and 10 condition 14(1)(c)(ii) and Schedules 11 and 12 condition 9(1)(c)(ii) of the DMLs) would be produced following final design to detail the procedures for soft start and ramp up of piling activity, in accordance with those assessed in Chapter 12 of the ES.
38. A piling Marine Mammal Mitigation Protocol (MMMP) (as required under DCO Schedules 9 and 10 condition 14(1)(f) and Schedules 11 and 12 condition 9(1)(f) of the DMLs) would detail the proposed mitigation measures to reduce the risk of any physical or permanent auditory injury to marine mammals during all piling operations. This would also include details of the embedded mitigation, for the soft-start and ramp-up. A draft MMMP (document reference 8.13) has been submitted as part of the DCO application.
39. It is likely that a risk assessment for European Protected Species (EPS) (cetaceans) will be incorporated into the PEMP and an EPS licence(s) applied for where applicable.

6.1.3 Offshore ornithology

40. The project PEMP would include the final procedures to be adopted within vessels transit corridors to minimise disturbance to red-throated diver during operation and maintenance activities in accordance with Schedules 9 and 10 Condition 14(1)(d) (vi) of the DMLs.
41. Potential impacts on red-throated diver during operation and maintenance works will be mitigated through:
 - Avoiding and minimising maintenance vessel traffic, where possible, during the most sensitive time period in January/ February/ March;
 - Restricting vessel movements where possible to existing navigation routes (to areas where red-throated diver density is likely to be lowest);
 - Maintaining direct transit routes (to minimise transit distances through areas used by red-throated diver);
 - Avoidance of over-revving of engines (to minimise noise disturbance); and
 - Avoiding rafting birds either in-route to array from operational port and/or within the array (dependent on location) and where possible avoid disturbance to areas with consistently high diver density.
42. Norfolk Vanguard Limited will make maintenance vessel operators aware of the importance of the species and the associated mitigation measures through tool box talks.

6.2 Marine archaeology and cultural heritage

43. Chapter 17, Offshore and Intertidal Archaeology and Cultural Heritage, of the ES identifies sites / wrecks etc. of potential archaeological importance and these are identified in the Outline Offshore Written Scheme of Investigation (WSI) (document reference 8.6) with appropriate mitigation measures outlined, such as establishment of archaeological exclusion zones. The project PEMP would include the final measures to be adopted, in accordance with the final offshore WSI (required under DCO Schedules 9 and 10 condition 14(1)(h) and Schedules 11 and 12 condition 9(1)(h) of the DMLs), to communicate awareness of sensitive archaeological sites to the designated members of the Project Team and the procedures to be adopted in the event of an unanticipated find.

6.3 Dropped object in the marine environment

44. Condition 12 of the DMLs states:

All dropped objects must be reported to the MMO using the Dropped Object Procedure Form as soon as reasonably practicable and in any event within 24 hours

of the undertaker becoming aware of an incident. On receipt of the Dropped Object Procedure Form, the MMO may require relevant surveys to be carried out by the undertaker (such as side scan sonar) if reasonable to do so and the MMO may require obstructions to be removed from the seabed at the undertaker's expense if reasonable to do so.

45. The procedure provided in the final PEMP should detail the proposed recovery for both floating and non-floating objects, and the reporting and documenting of the incident to the designated members of the Project Team and the regulator. The procedure requires to be reviewed by the designated members of the Project Team prior to the contractor commencing work.

6.4 Wastewater discharges

46. Controls for any waste water discharges (such as effluent discharges, ballast waters, bilge waters, and deck runoff) would be included in the final PEMP, in accordance with latest legislation, regulatory limits and good practice.
47. Monitoring records in relation with the disposal of foul water, bilge water or ballast water during the construction phase must be retained.

6.5 Oils, fuel and chemicals

48. It is the responsibility of each contractor to have in place adequate controls for the delivery, storage and use of fuels, oils and chemicals on vessels and other materials as required. This includes checks that chemicals to be used offshore comply with relevant regulations. The following control measures would be applied where possible:
- Oils and lubricants used in the wind turbines would be biodegradable where possible and all chemicals would be certified to the relevant standard.
 - Where grout is required, careful use would be ensured at all times to avoid excess grout being discharged to the environment.
 - All wind turbines would incorporate appropriate provisions to retain spilled fluids within the nacelle and tower. In addition, offshore electrical platforms would be designed with a self-contained bund to contain any spills and prevent discharges to the environment.
 - Best practice procedures would be put in place when transferring oil or fuel between offshore electrical platforms and service vessels.
 - Appropriate spill plan procedures would also be implemented in order to appropriately manage any unexpected discharge into the marine environment, these would be included in a Marine Pollution Contingency Plan to be agreed post-consent. To avoid discharge or spillage of oils it is anticipated that the

transformers would be filled for their operational life and would not need interim oil changes.

49. Within their environmental management plan, each contractor must consider the delivery, storage and handling of hazardous materials and in particular oils and fuels taking into account the legal requirements and good practice guidelines.
50. Oils and chemicals must be clearly labelled and each contractor should retain an up-to-date hazardous substance register. Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, should have detailed method statements in place and be undertaken by designated and trained personnel.
51. Oil and fuel storage tanks must be robust and provide adequate secondary containment and be located in designated areas taking into account security, the location of sensitive receptors and pathways, and safe access and egress for plant and manual handling.
52. Spill response materials should be provided nearby and be readily accessible, with local project personnel trained in spill response.
53. Vessels of more than 400 gross tonnage should maintain an oil record book and the sulphur content of fuels must comply with MARPOL (International Convention for the Prevention of Pollution from Ships) Annex VI requirements in relation to Sulphur Emission Control Areas (SECAs) and hold a valid International Oil Pollution Prevention Certificate (IOPP).

6.6 Waste management

54. Where waste is produced, reuse, recycle or recovery should be considered where practical and economically feasible prior to considering disposal.
55. Each contractor is responsible for the collection, storage and disposal of any waste produced as part of the project. Vessel operators are required to liaise with port operators to facilitate appropriate storage, transfer, segregation and disposal of waste.

6.7 Fisheries liaison

56. A Fisheries Liaison and Coexistence Plan (as required under DCO Schedules 9 and 10 condition 14(1)(d)(v) and Schedules 11 and 12 condition 9(1)(d)(v) of the DMLs) which aligns with the Outline Fisheries Liaison and Coexistence Plan must be produced to ensure relevant fishing fleets are notified of commencement of licensed activities and to address the interaction of the licensed activities with fishing activities.

57. This would include the following:
- Timely and efficient Notice to Mariners (NtMs), Kingfisher notifications and other navigational warnings (of the position and nature of works including offshore cable corridor crossings) would be issued to the fishing community;
 - Appropriate liaison would be undertaken with all relevant fishing interests to ensure that they are informed of development planning, construction and maintenance activities and any items which may accentuate risk such as UXOs, unburied cables, cut and weighted cables, etc;
 - A Fisheries Liaison Officer (FLO) (as required under DCO Schedules 9 and 10 [condition 14(1)(d)(iv)] and Schedules 11 and 12 [condition 9(1)(d)(iv)]) will be appointed over the construction and operational phase of the project and FLOWW Guidance (2014; 2015) adhered to; and
 - Information on the location of areas of cable protection would be communicated to the fishing industry.

6.8 Emission to air

58. Vessel emissions associated with Norfolk Vanguard would comply with MARPOL Annex VI requirements in relation to ozone depleting substances regulations, nitrogen oxide, sulphur oxide and particulate and volatile organic compounds. Where relevant, vessels shall have a valid International Air Pollution Prevention (IAPP) certificate.

6.9 Method Statements and Risk Assessments

59. It is the responsibility of the contractors to have in place approved method statements and risk assessments for works being carried out on-site. Where relevant, the method statement should cross reference applicable environmental risk assessments.
60. The risk assessments should identify environmental hazards and outline subsequent control measures. Control measures should be developed, implemented and monitored to ensure that any impact on the environment is avoided or minimised. Approval for these method statements with the relevant authorities may be required.
61. Key personnel involved in the work activities should be given a method statement briefing by the Contractor, in the form of a tool box talk. The tool box talk should outline the risks involved and the control measures that personnel are expected to comply with. It is expected that individuals sign a method statement attendance briefing record sheet, acknowledging receipt of the information; these records

should be maintained by the Contractor. Tool box talks should also be used to inform contractors of other environmental sensitivities as appropriate (see section 10.2).

7 ENVIRONMENTAL INCIDENT RESPONSE AND CONTINGENCY

62. It is essential that any environmental incidents (including dropped objects into the marine environment) are reported and managed correctly to allow their impact to be reduced to a minimum and to decrease the risk of the incident re-occurring.

7.1 Emergency Response Plan

63. Contractors will be required to have an Emergency Response Co-operation Plan (ERCoP) in accordance with DCO Schedules 9 and 10 condition 15(6) and Schedules 11 and 12 condition 10(5) of the DMLs.
64. The plan should include a response flow chart and detail how to report and respond to an environmental incident, including the measures available to contain/clean up an incident, manage dropped objects in the marine environment and offsite emergency response resources.
65. For the offshore activities, a Marine Pollution Contingency Plan (MPCP) (required under DCO Schedules 9 and 10 condition 14(1)(d)(i) and Schedules 11 and 12 condition 9(1)(d)(i) of the DMLs), will also be developed for the Project.
66. Vessels working on behalf of the project will require to have a Shipboard Oil Pollution Emergency Response Plan (SOPEP) in accordance with International Maritime Organisation (IMO) and Maritime and Coastguard Agency (MCA) guidelines or an Oil Pollution Plan if under 400GT.

7.2 Reporting

67. All environmental incidents (including dropped objects into the marine environment) and near misses must be reported, investigated and recorded to the designated members of the Project Team.
68. Contractors are required to produce monthly reports for the designated members of the Project Team to record health, safety and environmental performance.

7.3 Lessons learned / Incident follow-up

69. If an environmental incident should occur, it shall be thoroughly investigated by the relevant contractor to establish the root cause and prevent any recurrence. Dependent on the severity of the incident, the Project Team may wish to manage or assist with the investigation process.

8 MONITORING AND VESSEL INSPECTIONS

70. A programme of performance and compliance monitoring shall require to be established for the site, this should be documented in the final PEMP and include, but not necessarily be restricted to, the following items, where relevant.

8.1 Environmental audits

71. Environmental audits should comprise both internal audit and external audits.
72. The Vattenfall Wind Power Ltd (parent company of Norfolk Vanguard Limited) audit programme includes a requirement to audit construction sites on a periodic basis. An audit checklist will be used by Norfolk Vanguard Limited to ensure that a standard approach is applied consistently. Environmental audits would be carried out by experienced auditors, either from within the Vattenfall Wind Power Ltd Environmental Team, or via delegated specialists.

8.2 Vessel inspections and audits

73. Environmental vessel inspections should be based on the International Marine Contractors Association (IMCA) standards, IMCA M 189/S 004 (Marine Inspection Check List for Small Boats) or IMCA M 149 (Common Marine Inspection Document). A log of all vessel audits and associated close out actions should be maintained. This is the approach adopted by Vattenfall.

8.3 Environmental monitoring

74. An In Principle Monitoring Plan (document reference 8.12) is submitted with the DCO application. It is recognised that monitoring is an important element in the management of the actual project impacts for certain receptors. The requirement for appropriate design and scope of monitoring will be agreed with the appropriate Regulators and stakeholders prior to construction works commencing.

9 LEGISLATIVE AND REGULATORY COMPLIANCE

9.1 Development Consent Order conditions

75. UK Offshore sites are granted permission to be constructed under specific consents and licenses issued by Government bodies such as the Planning Inspectorate.
76. Specific limits for emissions to air, discharges to land and water and working practices (such as seasonal exclusions) are contained within these consents/licenses and may not be breached at any time. The DCO and DMLs will be the key permissions to be adhered to for offshore construction and operation of the project.
77. The Principal Contractor must ensure that all relevant planning conditions for the project are complied with.
78. Planning conditions will be reviewed by the designated members of the project team on a periodic basis, to ensure that the conditions are being complied with.

9.2 Legal Register

79. It is Vattenfall Wind Power Ltd 's (as the parent company of Norfolk Vanguard Limited) policy to minimise the impact of its construction and O&M activities on the environment by complying with all relevant environmental legislation and good practice. In order to ensure that Norfolk Vanguard Limited is aware of the requirements of current environmental legislation and good practice, an Environmental and Planning Legal Register will be maintained by the Vattenfall Wind Power Ltd Environment Team.
80. The Legal Register details relevant environmental legislation requirements for the business and also includes details of associated control measures.
81. The Contractor will be required to ensure that all relevant environmental legislation and Good practice are complied with on site. Adequate records of environmental information and audits to demonstrate compliance with both legal and project environmental requirements will require to be maintained by the Contractor.

9.3 Regulatory reference material

82. Key reference material in this section of the final PEMP should include the following.
 - Register of relevant DCO /DML conditions;
 - Project Legal Register; and
 - Good Practice Guidance/Industry Standards.

10 TRAINING AND AWARENESS

83. A range of mechanisms would be used for training and raising awareness of project environmental issues; these include environmental inductions, tool box talks, environmental notice boards, and environmental bulletins and alerts.

10.1 Project / vessel inductions

84. All vessel personnel will require to have a vessel induction that includes an environmental component. Designated personnel from the Contractor's project team should be responsible for preparing and delivering the site induction and maintaining documented attendee records.
85. It is expected that the environmental management contents of vessel inductions will include reference to compliance with relevant planning/license conditions, environmental management contacts, site specific environmental sensitivities, waste management arrangements, hazardous material management, fuel, oil and chemical management; environmental emergency response, reporting of incidents and complaints.

10.2 Tool Box Talks

86. Tool box talks are considered to be an effective method for the dissemination of information relating to work activities. Environmental tool box talks require to be delivered by the Contractor to on-site personnel on an as required basis. Tool box talks attendance sheets are likely to be inspected as part of environmental audits.

10.3 Emergency response

87. The Contractor must ensure that all staff including any subcontractors are trained in the project environmental emergency response procedures, so that they are able and prepared to respond to an incident promptly and effectively. Where appropriate, Norfolk Vanguard Limited encourages environmental emergency response plans to be tested by the Principal Contractor.

11 COMMUNICATION AND REPORTING

11.1 Meetings

88. Environmental meetings and debriefs will require to be held local to the site. Periodic health, safety and environment (HSE) meetings are required to be held on all construction and maintenance vessels and are likely to comprise representatives from the Project Team, the Principal Contractor, and key sub-contractors. Minutes of meetings will be recorded and standard agenda items will include status of outstanding items, reports of environmental incidents or complaints, stakeholder engagement, tool box talks issued / delivered, and key findings of environmental inspections and audits.
89. The Principal Contractor is expected to convene regular project team meetings to convey environmental information to the designated members of the Project Team, including sub-contractors and to raise awareness of environmental issues.

11.2 Community Complaints

90. Norfolk Vanguard Limited values its relationship with the communities that surround our sites. All work shall be carefully planned to minimise disturbance to our neighbours.
91. Contractors must ensure that any complaints are reported to the designated members of the Project Team and investigated promptly.
92. The final PEMP should detail the procedure in place to report public complaints in relation to offshore works.

11.3 Fisheries Liaison

93. As discussed in section 6.8, an FLO will be appointed for the duration of the construction works.

11.4 Stakeholders

94. Reference should also be made to any reporting requirements set out under the DCO and / or DMLs.

12 SUB- CONTRACTOR MANAGEMENT

95. The final PEMP should set out how the Principal Contractor manages their subcontractors. This may range from the selection and assessment processes through to the assessment of performance on the vessel.
96. For example, expectations of Contractors working on behalf of Norfolk Vanguard Limited are primarily detailed in this and the following documents:
- Contract Schedules including specific environmental requirements;
 - Environmental Policy; and
 - Environmental Statement.