MORAY EAST
OFFSHORE WINDFARM

Emergency Response Cooperation Plan (ERCoP)

Construction & Operation Phases

Moray East Offshore Wind Farm and Associated Offshore Transmission Infrastructure

October 2018

Moray Offshore Windfarm (East) Limited

Produced by Anatec Ltd. on behalf of Moray Offshore Windfarm (East) Limited 	
Produced by	Anatec Ltd.
Reviewed by	Moray East
Document Status	Final
File Name	8460001-PCA0010-ANA-REP-003
Date	31/10/2018

Review / Approval

Moray East Ecological Clerk of Works	**Legal Review**
Redacted [Royal Haskoning DHV]	Redacted [Shepherd and Wedderburn]

Review / Approval

Moray East	
Redacted	

Emergency Contact and Quick Reference Information

OFFSHORE RENEWABLE ENERGY INSTALLATIONS ERCoP EMERGENCY CONTACT AND QUICK REFERENCE INFORMATION

***THE OPERATOR*: EMERGENCY CONTACT INFORMATION**

- *24-hour initial telephone number* - <insert>
  - *Alternative contact numbers - a clearly distinguishable between the 24 hour emergency number*
- *If available, a media response number.*

NOTE: further contact details can be found in section 4

HM COASTGUARD: EMERGENCY AND ROUTINE CONTACT NUMBERS:

- Primary emergency and routine telephone: <insert>
- Secondary emergency telephone contact: dial 999/112 and ask for Coastguard.
- VHF/ MF DSC routine contact MMSI: <insert>
- VHF DSC Distress/Urgency alerting: DSC sets will make an 'all stations' call in this mode of operation and this will be received by the relevant CGOC.
- Radio call-sign for HM Coastguard: *'UK Coastguard'*

MCA Notes

TBC by MCA

INSERT SAR LANE FIGURE HERE – THIS WILL BE COMPLETED ONCE FINAL LAYOUT HAS BEEN AGREED

Design Information

WTG Parameter	Height above Lowest Astronomical Tide (LAT) (metres (m))	Height above Mean High Water Springs (MHWS) (m)
Total height (to blade tip) (max)	199	194.9
Hub height (max)	117	112.9
Interface height	23.4 to 26.9	19.3 to 22.8
Spacing between turbines (m)	**Min Spacing**	1,128
	Max Spacing	1,547 (excluding four offset Wind Turbine Generators (WTGs))
	Average Spacing (mean)	1,156

Tidal Heights for Reference

Highest Astronomical Tide (HAT) above LAT (m)	4.7
MHWS above LAT (m)	4.1
Mean Sea Level (MSL) above LAT (m)	2.4
Mean Low Water Springs (MLWS) above LAT (m)	0.7

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List of Abbreviations

AC	Alternating Current
AIS	Automatic Identification System
ALB	All Weather Lifeboat
ARCC	Aeronautical Rescue Coordination Centre
AtoN	Aids to Navigation
BOWL	Beatrice Offshore Windfarm Ltd.
CaP	Cable Plan
CGOC	Coastguard Operations Centre
DIC	Designated Incident Coordinator
DSC	Digital Selective Calling
DSLP	Design Specification and Layout Plan
EOD	Explosives Ordnance Disposal
EPIRB	Emergency Position-Indicating Radio Beacon
ERCoP	Emergency Response Cooperation Plan
ERP	Emergency Response Plan
ES	Environmental Statement
HAT	Highest Astronomical Tide
HDD	Horizontal Directional Drilled
HMCG	HM Coastguard
IALA	International Association of Marine Aids to Navigation and Lighthouse Authorities
IMO	International Maritime Organization
IPS	Intermediate Peripheral Structure
kHz	Kilohertz
LAT	Lowest Astronomical Tide
LMP	Lighting and Marking Plan
m	Metre
MCA	Maritime and Coastguard Agency
Met Mast	Meteorological Mast
MF	Medium Frequency
MGN	Marine Guidance Notice
MHWS	Mean High Water Springs
MHz	Megahertz
MIRG	Maritime Incident Response Group

MLWS	Mean Low Water Springs
MPCP	Marine Pollution Contingency Plan
MSI	Maritime Safety Information
MSL	Mean Sea Level
MW	Megawatt
NLB	Northern Lighthouse Board
nm	Nautical mile
NSP	Navigational Safety Plan
O&M	Operation and Maintenance
OfCom	Office of Communications
OfTI	Offshore Transmission Infrastructure
OREI	Offshore Renewable Energy Installation
OSC	On Scene Coordinator
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PLB	Personal Locator Beacon
Q	Quick
RNLI	Royal National Lifeboat Institute
s	second
SAR	Search and Rescue
SCADA	Supervisory Control and Data Acquisition
SIMS	Systems and Information Management System
SITREPS	Situation Reports
SMC	Search and Rescue Mission Coordinator
SOLAS	International Convention for the Safety of Life at Sea
SPS	Significant Peripheral Structure
SRU	Search and Rescue Unit
TI	Transmission Infrastructure
UK	United Kingdom
UKSRR	UK Search and Rescue Region
UXO	Unexploded Ordnances
V	Very
VHF	Very High Frequency
W	White
WTG	Wind Turbine Generator

Definitions

The following definitions have been used throughout this document with respect to the company, the consented wind farms and how these definitions have changed since submission of the Moray East Environmental Statement (ES) in 2012 and the Moray East Modified Transmission Infrastructure ES in 2014.

- **Moray Offshore Windfarm (East) Limited (formerly known as Moray Offshore Renewables Limited)** – the legal entity submitting this Emergency Response Cooperation Plan (ERCoP);
- **Moray East Offshore Wind Farm** - the wind farm to be developed in the Moray East site (also referred as the Wind Farm);
- **The Moray East site** - the area in which the Moray East Offshore Wind Farm will be located. Section 36 Consents and associated Marine Licences to develop and operate up to three generating stations on the Moray East site were granted in March 2014. At that time the Moray East site was known as the "Eastern Development Area" and was made up of three sites known as the Telford, Stevenson and MacColl offshore wind farm sites; The Section 36 Consents and Marine Licences were subsequently varied in March 2018;
- **Telford, Stevenson and MacColl wind farms** – these names refer to the three consented offshore wind farm sites located within the Moray East site;
- **Transmission Infrastructure (TI)** - includes both offshore and onshore electricity transmission infrastructure for the consented Telford, Stevenson and MacColl wind farms. Includes connection to the national electricity transmission system near New Deer in Aberdeenshire encompassing AC offshore substation platforms (OSPs), AC OSP interconnector cables, AC export cables offshore to landfall point at Inverboyndie continuing onshore to the AC collector station (onshore substation) and the additional regional Transmission Operator substation near New Deer. A Marine Licence for the offshore TI was granted in September 2014 and a further Marine Licence for two additional distributed OSPs was granted in September 2017.The onshore TI was awarded Planning Permission in Principle in September 2014 by Aberdeenshire Council and a Planning Permission in Principle under Section 42 in June 2015;
- **Offshore Transmission Infrastructure (OfTI)** – the offshore elements of the transmission infrastructure, comprising AC OSPs, OSP inter-connector cables and AC export cables offshore to landfall (for the avoidance of doubts some elements of the OfTI will be installed in the Moray East site);
- **Moray East ES 2012** – The ES for the Telford, Stevenson and MacColl wind farms and Associated Transmission Infrastructure, submitted August 2012;
- **Moray East Modified TI ES 2014** – the ES for the TI works in respect to the Telford, Stevenson and MacColl wind farms, submitted June 2014;
- **The Development** – the Moray East Offshore Wind Farm and OfTI;
- **Design Envelope** - the range of design parameters used to inform the assessment of impacts; and
- **OfTI Corridor** – the export cable route corridor, i.e. the OfTI area as assessed in the Moray East Modified TI ES 2014 excluding the Moray East site.
- **the Applications** – (1) the Application letter and ES submitted to the Scottish Ministers on behalf of Telford Offshore Windfarm Limited, on 2nd August 2012 and the Additional Ornithology Information submitted to the Scottish Ministers by Moray Offshore

Renewables Limited on the 17th June 2013; (2) the Section 36 Consents Variation Application Report for Telford, Stevenson and MacColl Offshore Wind Farms dated December 2017 and (3) the Marine Licence Applications and associated documents submitted for the OfTI Licences.

- **Moray East Offshore Wind Farm Consents** – are comprised of the following:

  Section 36 Consents:

  - Section 36 consent for the Telford Offshore Wind Farm (as varied) – consent under section 36 of the Electricity Act 1989 for the construction and operation of the Telford Offshore Wind Farm assigned to Moray East on 19 June 2018
  - Section 36 consent for the Stevenson Offshore Wind Farm (as varied) – consent under section 36 of the Electricity Act 1989 for the construction and operation of the Stevenson Offshore Wind Farm assigned to Moray East on 19 June 2018
  - Section 36 consent for the MacColl Offshore Wind Farm (as varied) – consent under section 36 of the Electricity Act 1989 for the construction and operation of the MacColl Offshore Wind Farm assigned to Moray East on 19 June 2018

  Marine Licences

  - Marine Licence for the Telford Offshore Wind Farm (as varied) – Licence Number: 04629/18/1 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
  - Marine Licence for the Stevenson Offshore Wind Farm (as varied) – Licence Number: 04627/18/1 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.
  - Marine Licence for the MacColl Offshore Wind Farm (as varied) – Licence Number: 04628/18/2 - consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area transferred to Moray East on 19 July 2018.

- **OfTI Licences** – are comprised of the following:
  - Marine Licence for the Offshore Transmission infrastructure – Licence Number 05340/14/0 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction works and deposits of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area (referred to as the "OfTI Marine Licence")
  - Marine Licence for two additional distributed OSPs – Licence Number 06347/17/1 – consent under the Marine (Scotland) Act 2010 & Marine and Coastal Access Act 2009, Part 4 marine licensing for marine renewables construction, operation and maintenance works and the deposit of substances or objects in the Scottish Marine Area and the United Kingdom Marine Licensing Area (referred to as the "OSP Marine Licence")

Executive Summary

This Emergency Response Cooperation Plan (ERCoP) has been prepared to address the specific requirements of the relevant conditions attached to the Section 36 Consents and OfTI Licences issued to Moray Offshore Windfarm (East) Limited (Moray East). The ERCoP is to ensure cooperation with the Maritime and Coastguard Agency (MCA) in any emergency; by detailing the design parameters of the Development, the emergency contact details and the procedure to be following during any incident within or near the Moray East site.

A separate Emergency Response Plan (ERP) has also been produced which presents actions to be followed to mitigate the impact of specified emergency incidents within or near the Moray East site. The ERP's purpose is to ensure that adequate arrangements are in place for the safety of employees and other persons that may be present in the event of an emergency incident.

The ERCoP should be considered in conjunction with the ERP.

Aside from the Section 36 Consents and OfTI Licences conditions, compliance of this ERCoP with the Applications, Moray East ES 2012 and Moray East Modified TI ES 2014 has also been reviewed and discussed.

It should be noted that this ERCoP follows the template set out by the MCA (MCA, 2016b). At the time of writing, various details are awaiting sign-off therefore cannot be confirmed. Therefore, this ERCoP is considered a live document and will be updated throughout the process prior to construction, operation and decommissioning of the Development in liaison with the MCA.

1 Moray East Offshore Wind Farm

In March 2014, the Scottish Ministers granted consents under Section 36 of the Electricity Act 1989 and the associated Marine Licences for the construction and operation of the Moray East Offshore Wind Farm. The Wind Farm consents were varied in March 2018.

A Marine Licence for the Offshore Transmission Infrastructure (OfTI) was granted in September 2014 and a further Marine Licence for two additional distributed offshore substation platforms (OSPs) was granted in September 2017 (together these are referred to as the OfTI Licences).

Moray East is a joint venture partnership between EDP Renewables, Engie and Diamond Generating Europe and has been established to develop, finance, construct, operate, maintain and decommission the Moray East Offshore Wind Farm.

1.1 Objectives of this Document

The Section 36 Consents, Modified OfTI Licence and OSP Licence contain conditions that must be approved by the Scottish Ministers prior to the commencement of offshore construction. One such requirement is the approval of an ERCoP.

The relevant conditions setting out the requirement for an ERCoP for approval, and which are to be discharged by this ERCoP, are set out in full in Table 1.1 below.

This document is intended to satisfy the requirements of the Section 36 Consents and the OfTI Licences conditions by providing an ERCoP prior to any offshore works commencing. It should be noted that the conditions within the Section 36 Consents and Modified OfTI Licence are specific to the Navigational Safety Plan (NSP) however the NSP refers to the ERCoP therefore these conditions have been included as relevant.

Table 1.1: Consent conditions to be discharged by this ERCoP

Consent Document	Condition Reference	Condition Text	Reference in this ERCoP
Section 36 Consents	17	The Company must, no later than 6 months prior to the Commencement of the Development, submit a Navigational Safety Plan ("NSP"), in writing, to the Scottish Ministers for their written approval. Such approval may only be granted following consultation by the Scottish Ministers with MCA, NLB and any other navigational advisors or organisations as may be required at the discretion of the Scottish Ministers. The NSP must include, but not be limited to, the following issues: ..... f. Emergency response and coordination arrangements for the construction, operation and decommissioning phases of the Development. The Company must confirm within the NSP that they have taken into account and adequately addressed all of the recommendations of the MCA in the current Marine Guidance Note 371, and its annexes that may be appropriate to the Development, or any other relevant document which may supersede said guidance. The Development must, at all times, be constructed and operated in accordance with the approved NSP (as updated and amended from time to time	This document sets out the ERCoP for approval by the Scottish Ministers.

Consent Document	Condition Reference	Condition Text	Reference in this ERCoP
		by the Company). Any updates or amendments made to the NSP by the Company must be submitted, in writing, by the Company to the Scottish Ministers for their written approval.	
OfTI Marine Licence	3.2.2.9	The Licensee must, no later than 6 months prior to the Commencement of the Works, submit a NSP, in writing, to the Licensing Authority for their written approval. Such approval may only be granted following consultation by the Licensing Authority with MCA, NLB and any other navigational advisors or organisations as may be required at the discretion of the Licensing Authority. The NSP must include, but not be limited to, the following issues: ….. f) Emergency response and coordination arrangements for the construction, operation and decommissioning phases of the Works. The Licensee must confirm within the NSP that they have taken into account and adequately addressed all of the recommendations of the MCA in the current Marine Guidance Note 371, and its annexes, that may be appropriate to the Works, or any other relevant document which may supersede said guidance.	This document sets out the ERCoP for approval by the Scottish Ministers.
OSP Marine Licence	3.2.2.18	The Licensee must, in discussion with the MCA's Search and Rescue (SAR) Branch, complete an ERCoP for the construction and operation phases. The ERCoP must include full details for the construction and operation phase of the authorised scheme in accordance with MCA recommendations contained within the Marine Guidance Notice ("MGN") 543 (or subsequent updates). A copy of the final plan must be submitted to the Licensing Authority no later than 3 calendar months or at such a time as agreed with the Licensing Authority, prior to the Commencement of the Works.	This ERCoP has been produced based on the ERCoP template provided within MGN 543.

1.2 Site Location

The location of the Development in the Moray Firth is shown in Figure 1.1 below.

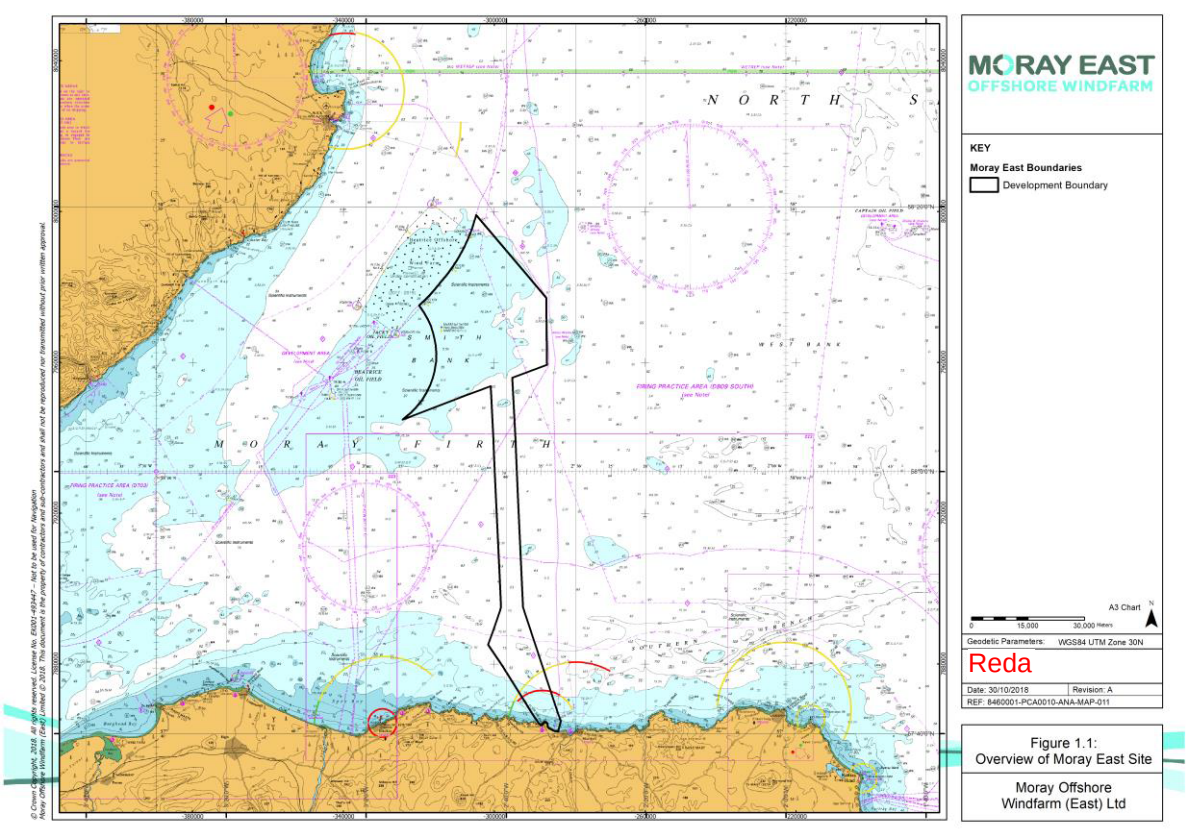

Figure 1.1: Overview of the Development

1.3 Site Layout and Co-ordinate Program

Figure 1.2 below shows the final layout of WTGs and OSPs across the Moray East site, subject to confirmation through final project design and engineering work.

Further information on the layout of the Moray East site, including the specifications of the WTGs and OSPs and the location coordinates of each structure, is provided in the Development Specification and Layout Plan (DSLP) (Moray East, 2018a). Note that Figure 1.2 includes up to 12 spare locations, including three additional potential WTG locations not previously considered within the DSLP. These three locations have been selected following submission of the DSLP however further revisions of the DSLP will reflect any changes to the layout. These spare locations would only be utilised in the event of difficulties being encountered during the foundation installation operations at one of the WTG or OSP locations that could not be otherwise overcome by micro-siting. Moray East is currently (as of October 2018) undertaking detailed analysis of the Moray East site and it is likely that the number of spare locations will be reduced.

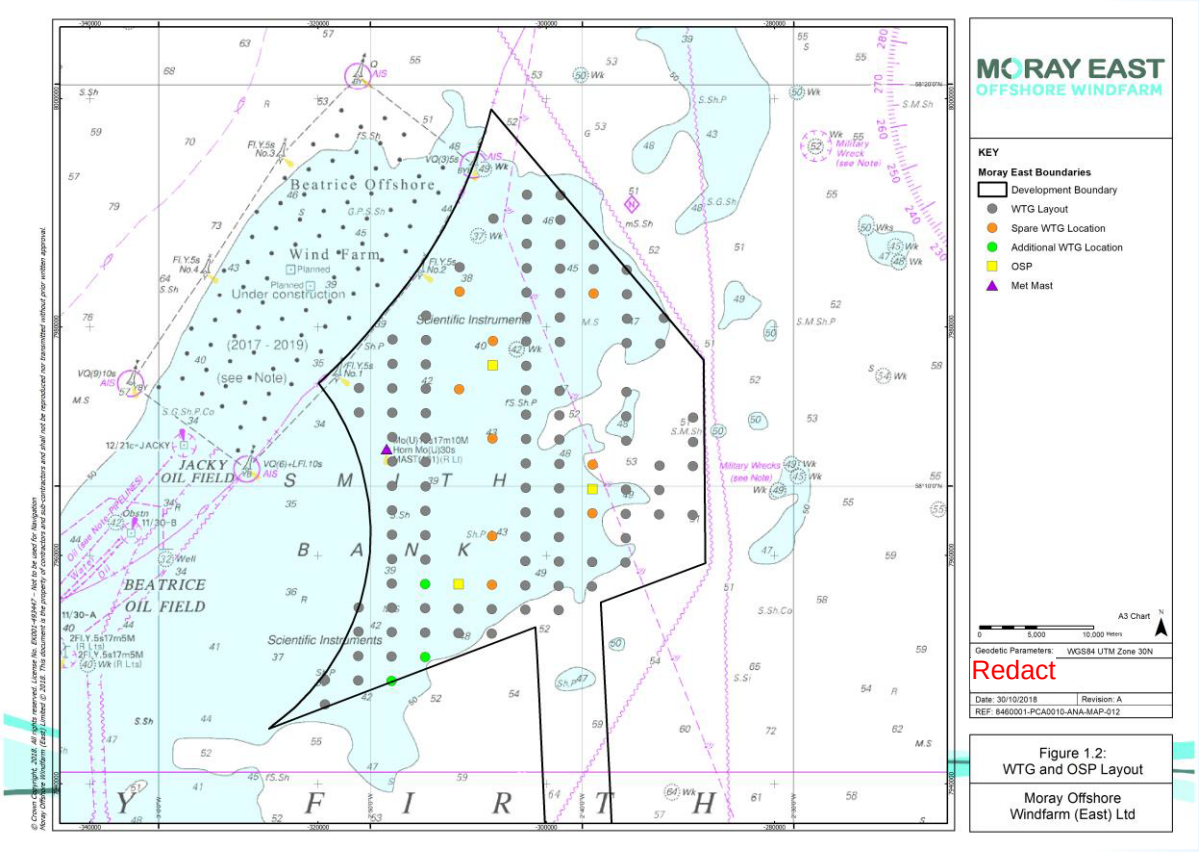

Figure 1.2: WTG and OSP layout

The following table includes the indicative coordinates of the WTG and OSP locations.

Table 1.2: Structure locations

ID	Latitude/ Longitude (WGS 84)
ME-A01	58° 4’ 32.00” N / 002° 52’ 8.80” W
ME-A02	58° 5’ 9.49” N / 002° 52’ 8.66” W
ME-B02	58° 5’ 8.84” N / 002° 50’ 34.19” W
ME-B03	58° 5’ 45.33” N / 002° 50’ 34.03” W
ME-B04	58° 6’ 21.82” N / 002° 50’ 33.87” W
ME-B05-OFF[1]	58° 6’ 58.03” N / 002° 50’ 32.63” W
ME-B13	58° 11’ 50.26” N / 002° 50’ 32.42” W
ME-B14	58° 12’ 26.75” N / 002° 50’ 32.26” W
ME-C02 (Additional WTG Location)	58° 5’ 8.16” N / 002° 48’ 59.72 W
ME-C03	58° 5’ 44.66” N / 002° 48’ 59.53” W
ME-C04	58° 6’ 21.15” N / 002° 48’ 59.34” W
ME-C05	58° 6’ 57.64” N / 002° 48’ 59.16” W
ME-C06	58° 7’ 34.14” N / 002° 48’ 58.97” W

[1] The positions with the suffix “-OFF” represent WTG where spacing is different from the regular geometric pattern between rows of WTGs in any direction. For further details please see DSLP.

ID	Latitude/ Longitude (WGS 84)
ME-C07	58° 8’ 10.63” N / 002° 48’ 58.78” W
ME-C08	58° 8’ 47.12” N / 002° 48’ 58.59” W
ME-C09	58° 9’ 23.61” N / 002° 48’ 58.41” W
ME-C10	58° 10’ 0.11” N / 002° 48’ 58.22” W
ME-C11	58° 10’ 36.60” N / 002° 48’ 58.03” W
ME-C12	58° 11’ 13.09” N / 002° 48’ 57.84” W
ME-C13	58° 11’ 49.58” N / 002° 48’ 57.65” W
ME-C14	58° 12’ 26.08” N / 002° 48’ 57.46” W
ME-C15	58° 13’ 2.57” N / 002° 48’ 57.27” W
ME-C16	58° 13’ 39.06” N / 002° 48’ 57.09” W
ME-D03 (Additional WTG Location)	58° 5’ 43.97 N / 002° 47’ 25.04” W
ME-D04	58° 6’ 20.46” N / 002° 47’ 24.82” W
ME-D05	58° 6’ 56.95” N / 002° 47’ 24.61” W
ME-D06 (Additional WTG Location)	58° 7’ 33.44” N / 002° 47’ 24.39” W
ME-D07	58° 8’ 9.94” N / 002° 47’ 24.18” W
ME-D08	58° 8’ 46.43” N / 002° 47’ 23.96” W
ME-D09	58° 9’ 22.92” N / 002° 47’ 23.75” W
ME-D10	58° 9’ 59.41” N / 002° 47’ 23.53” W
ME-D11	58° 10’ 35.91” N / 002° 47’ 23.32” W
ME-D12	58° 11’ 12.40” N / 002° 47’ 23.10” W
ME-D13	58° 11’ 48.89” N / 002° 47’ 22.89” W
ME-D14	58° 12’ 25.38” N / 002° 47’ 22.67” W
ME-D15	58° 13’ 1.88” N / 002° 47’ 22.46” W
ME-D16	58° 13’ 38.37” N / 002° 47’ 22.24” W
ME-D17	58° 14’ 14.86” N / 002° 47’ 22.02” W
ME-E04	58° 6’ 19.75” N / 002° 45’ 50.30” W
ME-E05	58° 6’ 56.24” N / 002° 45’ 50.06” W
ME-OSP1 (OSP)	58° 7’ 32.73” N / 002° 45’ 49.82” W
ME-E14 (Spare WTG Location)	58° 12’ 24.67” N / 002° 45’ 47.88” W
ME-E18 (Spare WTG Location)	58° 14’ 50.64” N / 002° 45’ 46.91” W
ME-E19	58° 15’ 27.13” N / 002° 45’ 46.67” W
ME-F04	58° 6’ 19.02” N / 002° 44’ 15.78” W
ME-F05	58° 6’ 55.51” N / 002° 44’ 15.51” W
ME-F06 (Spare WTG Location)	58° 7’ 32.00” N / 002° 44’ 15.24” W
ME-F08 (Spare WTG Location)	58° 8’ 44.99” N / 002° 44’ 14.71” W
ME-F12 (Spare WTG Location)	58° 11’ 10.96” N / 002° 44’ 13.63” W

ID	Latitude/ Longitude (WGS 84)
ME-OSP2 (OSP)	58° 13’ 0.43” N / 002° 44’ 12.82” W
ME-F16 (Spare WTG Location)	58° 13’ 36.93” N / 002° 44’ 12.55” W
ME-F21	58° 16’ 39.39” N / 002° 44’ 11.20” W
ME-G05	58° 6’ 54.76” N / 002° 42’ 40.97” W
ME-G06	58° 7’ 31.25” N / 002° 42’ 40.67” W
ME-G07	58° 8’ 7.74” N / 002° 42’ 40.38” W
ME-G08	58° 8’ 44.24” N / 002° 42’ 40.08” W
ME-G09	58° 9’ 20.73” N / 002° 42’ 39.79” W
ME-G10	58° 9’ 57.22” N / 002° 42’ 39.49” W
ME-G11	58° 10’ 33.71” N / 002° 42’ 39.19” W
ME-G12	58° 11’ 10.21” N / 002° 42’ 38.90” W
ME-G13	58° 11’ 46.70” N / 002° 42’ 38.60” W
ME-G14	58° 12’ 23.19” N / 002° 42’ 38.30” W
ME-G15	58° 12’ 59.68” N / 002° 42’ 38.01” W
ME-G16	58° 13’ 36.17” N / 002° 42’ 37.71” W
ME-G17	58° 14’ 12.67” N / 002° 42’ 37.41” W
ME-G18	58° 14’ 49.16” N / 002° 42’ 37.12” W
ME-G19	58° 15’ 25.65” N / 002° 42’ 36.82” W
ME-G20	58° 16’ 2.14” N / 002° 42’ 36.52” W
ME-G21	58° 16’ 38.64” N / 002° 42’ 36.22” W
ME-G22	58° 17’ 15.13” N / 002° 42’ 35.92” W
ME-H05	58° 6’ 53.99” N / 002° 41’ 6.42” W
ME-H06	58° 7’ 30.48” N / 002° 41’ 6.10” W
ME-H07	58° 8’ 6.97” N / 002° 41’ 5.78” W
ME-H08	58° 8’ 43.47” N / 002° 41’ 5.46” W
ME-H09	58° 9’ 19.96” N / 002° 41’ 5.13” W
ME-H10	58° 9’ 56.45” N / 002° 41’ 4.81” W
ME-H11	58° 10’ 32.94” N / 002° 41’ 4.49” W
ME-H12	58° 11’ 9.44” N / 002° 41’ 4.17” W
ME-H13	58° 11’ 45.93” N / 002° 41’ 3.84” W
ME-H14	58° 12’ 22.42” N / 002° 41’ 3.52” W
ME-H16	58° 13’ 35.40” N / 002° 41’ 2.87” W
ME-H17	58° 14’ 11.90” N / 002° 41’ 2.55” W
ME-H18	58° 14’ 48.39” N / 002° 41’ 2.22” W
ME-H19	58° 15’ 24.88” N / 002° 41’ 1.90” W
ME-H20	58° 16’ 1.37” N / 002° 41’ 1.57” W

ID	Latitude/ Longitude (WGS 84)
ME-H21	58° 16’ 37.86” N / 002° 41’ 1.25” W
ME-H22	58° 17’ 14.36” N / 002° 41’ 0.92” W
ME-I06	58° 7’ 29.69” N / 002° 39’ 31.53” W
ME-I07	58° 8’ 6.19” N / 002° 39’ 31.18” W
ME-I09 (Spare WTG Location)	58° 9’ 19.17” N / 002° 39’ 30.48” W
ME-OSP3 (OSP)	58° 9’ 55.66” N / 002° 39’ 30.13” W
ME-I11 (Spare WTG Location)	58° 10’ 32.15” N / 002° 39’ 29.78” W
ME-I18 (Spare WTG Location)	58° 14’ 47.60” N / 002° 39’ 27.33” W
ME-I19	58° 15’ 24.09” N / 002° 39’ 26.98” W
ME-I20	58° 16’ 0.58” N / 002° 39’ 26.62” W
ME-J07	58° 8’ 5.38” N / 002° 37’ 56.58” W
ME-J08	58° 8’ 41.87” N / 002° 37’ 56.20” W
ME-J09	58° 9’ 18.36” N / 002° 37’ 55.83” W
ME-J10	58° 9’ 54.85” N / 002° 37’ 55.45” W
ME-J12	58° 11’ 7.84” N / 002° 37’ 54.70” W
ME-J13	58° 11’ 44.33” N / 002° 37’ 54.32” W
ME-J14	58° 12’ 20.82” N / 002° 37’ 53.94” W
ME-J16	58° 13’ 33.80” N / 002° 37’ 53.19” W
ME-J17	58° 14’ 10.30” N / 002° 37’ 52.81” W
ME-J18	58° 14’ 46.79” N / 002° 37’ 52.43” W
ME-J19-OFF[1]	58° 15’ 23.00” N / 002° 37’ 53.22” W
ME-K09	58° 9’ 17.53” N / 002° 36’ 21.17” W
ME-K10	58° 9’ 54.02” N / 002° 36’ 20.77” W
ME-K11	58° 10’ 30.52” N / 002° 36’ 20.37” W
ME-K16	58° 13’ 32.97” N / 002° 36’ 18.34” W
ME-K17-OFF[1]	58° 14’ 11.34” N / 002° 36’ 7.97” W
ME-L09	58° 9’ 16.68” N / 002° 34’ 46.52” W
ME-L11	58° 10’ 29.67” N / 002° 34’ 45.66” W
ME-L12	58° 11’ 6.16” N / 002° 34’ 45.23” W
ME-L13	58° 11’ 42.65” N / 002° 34’ 44.80” W
ST-A01 (Met Mast)	58° 10’ 55.69” N / 002° 49’ 13.27” W

1.4 Roles and Responsibilities of Moray East in an Emergency

Under United Kingdom (UK) requirements, in the event of an emergency at the Development or at sea involving its personnel and/or vessels, Moray East is responsible for providing immediate rescue and first aid medical response to a level appropriate to the circumstances of the incident and its location. Moray East is also responsible for immediately alerting HM Coastguard (HMCG) of an emergency and

for liaising and co-operating with the relevant Coastguard Operations Centre (CGOC) to resolve the emergency.

Moray East is also obliged, under international maritime agreements and practices e.g. The International Convention for the Safety of Life at Sea (SOLAS) convention, to provide assistance, where it is possible to do so, to other vessels or persons in danger at sea nearby or within the Development and/or area when requested to assist by the relevant CGOC.

Moray East may also need to provide its own vessel(s) and other assets to respond or react to other maritime emergencies e.g. pollution or a drifting vessel which presents an actual or possible threat to the safety of life or property in the Wind Farm array.

Further information is contained in “Offshore Renewable Energy Installations (OREIs): Guidance on Requirements and Operational Considerations for Search and Rescue and Emergency Response” available on the MCA website.

2 Moray East Contact Details

The following subsections summarise the contact details for Moray East.

2.1 Office Responsible for Moray East

Table 2.1: Contact details of office responsible for Moray East

Registered Address	Telephone
<INSERT>	<INSERT>

2.2 National Office and Licence Address

Table 2.2: Contact details of national office and licensee address

Registered Address	Telephone
<INSERT>	<INSERT>

2.3 OfTI Operator National Office and Address

Table 2.3: Contact details of national office and licensee address

Registered Address	Telephone
<INSERT>	<INSERT>

2.4 24 Hour Contacts

Insert details of 24 hrs contacts.

2.5 Key Personnel Organisation Chart

<INSERT>

2.5.1 Health and Safety Personnel

Table 2.4: Contact details of health and safety personnel

Contact	Role	Phone	Email
<INSERT>			

2.5.2 Marine Operations Coordinator

Further information to be added into this section on the Marine Coordination Centre when available.

Details will be added to this ERCoP at a later date.

Table 2.5: Marine operations coordinator contact details

Function	Name	Daytime	Mobile
<INSERT>			

2.5.3 Key Emergency Response Personnel

Table 2.6: Key emergency response personnel contact details

Function	Name	Daytime	Mobile
<INSERT>			

2.5.4 Other Routine Contacts including Contractors

Details will be updated as required.

Table 2.7: Other routine contact details

Function	Name	Daytime	Mobile
<INSERT>			

2.6 Additional Emergency Communications

Details will be added to this ERCoP at a later date.

Summary of emergency communications to be employed, e.g. VHF radio, sat phone, mobile, PLBs, etc.

2.7 Liaison Agreements between Moray East and CGOC

HMCG commit to providing national SAR resources (lifeboats and rescue helicopters) if:

- The incident exceeds the capability of Moray East resources;
- If in the opinion of the work/safety boat Master, work supervisor or other person, urgent and immediate assistance is required; or
- It is an event which has occurred to persons or vessels not connected with the Development or its operations. In this event, and where safe and feasible to do so, the Development work and safety craft should respond and provide assistance in accordance with International Maritime Organization (IMO) SOLAS regulations, chapter V.

As it is a vital part of the incident response process, the position of any incident shall be reported as part of the initial incident details to HMCG. If the incident occurs on a WTG, the precise co-ordinates (in Latitude and Longitude) shall be passed to the CGOC so that any responding rescue unit may use the position for precision navigation purposes.

The Marine Coordinator has been designated as the liaison officer to assist with emergency response in the event of an incident in the Development area. The liaison officer will provide support to the CGOC including documentation and further details about the company / installation and if required, may be based at the Aberdeen CGOC throughout the duration of the incident. If required a Marine Coordinator or other Moray East representative will attend the CGOC.

The following chain of events shall be followed upon discovery of an incident:

- Operative will raise alarm with either crew vessels or Marine Coordinator;
- Crew vessel or Marine Coordinator will contact emergency services; and
- CGOC will provide next and further instructions.

Table 2.8 below summarises alternative channels which operatives should use to raise the alarm.

Table 2.8: Emergency response channels

Channel	Frequency
Very High Frequency (VHF) Digital Selective Calling (DSC) (Channel 70)	VHF 156.5 Megahertz (MHz)
VHF Channel 16	VHF 156.8 MHz
International Maritime Medium Frequency DSC	MF 2187.5 Kilohertz (kHz)
International Maritime Distress, Calling and Safety	MF 2182 kHz

A continuous communications watch is maintained on VHF, VHF DSC and Medium Frequency (MF) DSC. In addition to radio and satellite communications, CGOCs are contactable via emergency 999 telephone.

2.8 Cooperation with Beatrice Offshore Wind Farm Limited (BOWL) in the Event of an Emergency

To be Agreed with MCA and BOWL

3 Project Design Parameters

Moray East will fully comply with the MCA requirements as detailed in MGN 543 (MCA, 2016) regarding shut-down (partial or complete) of the Wind Farm during SAR operations conducted within or passing through the Wind Farm.

Throughout emergency hoisting operations from a WTG, the WTG blades shall be rotated such that the WTG is in shutdown (as further described in Section 3.1 below; the rotor lock shall be applied with the blades parked in a position requested by the MCA coordinator, and the blades shall be pinned. The nacelle shall be rotated so that the blades are 90 degrees off the wind with the wind blowing on the side of the nacelle. Throughout emergency hoisting operations the nacelle will be held in this position and as such automatic yaw control shall be disabled.

3.1 Wind Turbine Generators

Table 3.1: Summary of WTG type

Manufacturer	MHI Vestas
WTG Type	3-bladed WTG
Rated Capacity (Megawatt (MW))	Up to 9.525
Total number of WTGs to be installed	100

3.1.1 Technical Specification of Wind Turbine Generators

Table 3.2: Technical specification of WTGs

Rated Capacity (MW)	Up to 9.525
Hub Height (m) (LAT)	117 (max)
Maximum Tip Height (m) (LAT)	199
Maximum Tip Height when blade tips in upright 'Y' position (m) (LAT)	158 (max)
Nacelle Dimensions (m) (H x W x L)	9.3 x 8.8 x 20.7
Rotor Diameter (m)	164
Blade Length (m)	80
Blade Width (m)	5.4
Cut-in Wind Speed (m/s)	4
Cut-out Wind Speed (m/s)	25
Operating Speed Range (rpm)	6.5 – 12.8
Swept Area per WTG (m^2)	21,124
Foundation Type	Jacket with pin piles

3.1.1.1 Speed Regulation and Shutdown

The blades are mounted on pitch bearings and can be pitched / rotated in order to regulate WTG speed or shut down of the WTG. Once shut down, the blades can be locked in position as further described in Section 3.1.1.1 below.

3.1.1.2 Locking / Pinning Limitations

The blades can be locked into a fixed position using a locking mechanism which will be available at all times during construction and operation. There are no wind speed limitations for the locking system.

3.1.2 Spacing between WTGs and OSPs

The spacing between the WTGs and OSPs varies depending on the specific WTG or OSP however the maximum spacing will be 3,851 m between ME-OSP 2 and ME-D17 and the minimum spacing 1,129 m between ME-OSP 1 and ME-E05

4 Lighting and Marking of Moray East Site

This section details the temporary marine aids to navigation (AtoN), including lighting and marking during the construction and operation of the Development. It should be noted that this lighting and marking has been based on the DSLP and that recent changes to the layout (three additional WTGs) were not previously considered within the DSLP therefore are not reflected within the lighting and marking of the Development. Following submission of the DSLP, further revisions will reflect any changes to the layout and any subsequent changes to the lighting and marking.

4.1 Construction Buoyage

The Moray East site will be marked as a construction area during the construction phase. The proposed construction buoyage has been developed in discussion with Northern Lighthouse Board (NLB) and is based on the International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) Maritime Buoyage System (IALA, 2013) as shown in Figure 4.1 below.

Table 4.1 below details the construction buoyage which will be established to mark the Moray East site throughout the construction phase. It is noted that construction buoyage is not required on the boundary of the Moray East site which borders the BOWL project. All buoyage will be a minimum of 1000 metres (m) from the peripheral WTGs.

No structures will carry sound signals during the construction phase.

Automatic Identification System (AIS) transceivers will be fitted on the North Cardinal, East Cardinal and the South Cardinal buoy around Moray East site boundary as requested by NLB.

Construction buoyage will be deployed at least four weeks prior to construction commencing and will remain in place until the operational marking requirements have been inspected and approved by NLB.

Figure 4.1 below presents the proposed layout of the construction buoyage. Buoys have been placed so as to avoid existing cables and the Moray East export cable route located to the south of the Moray East site.

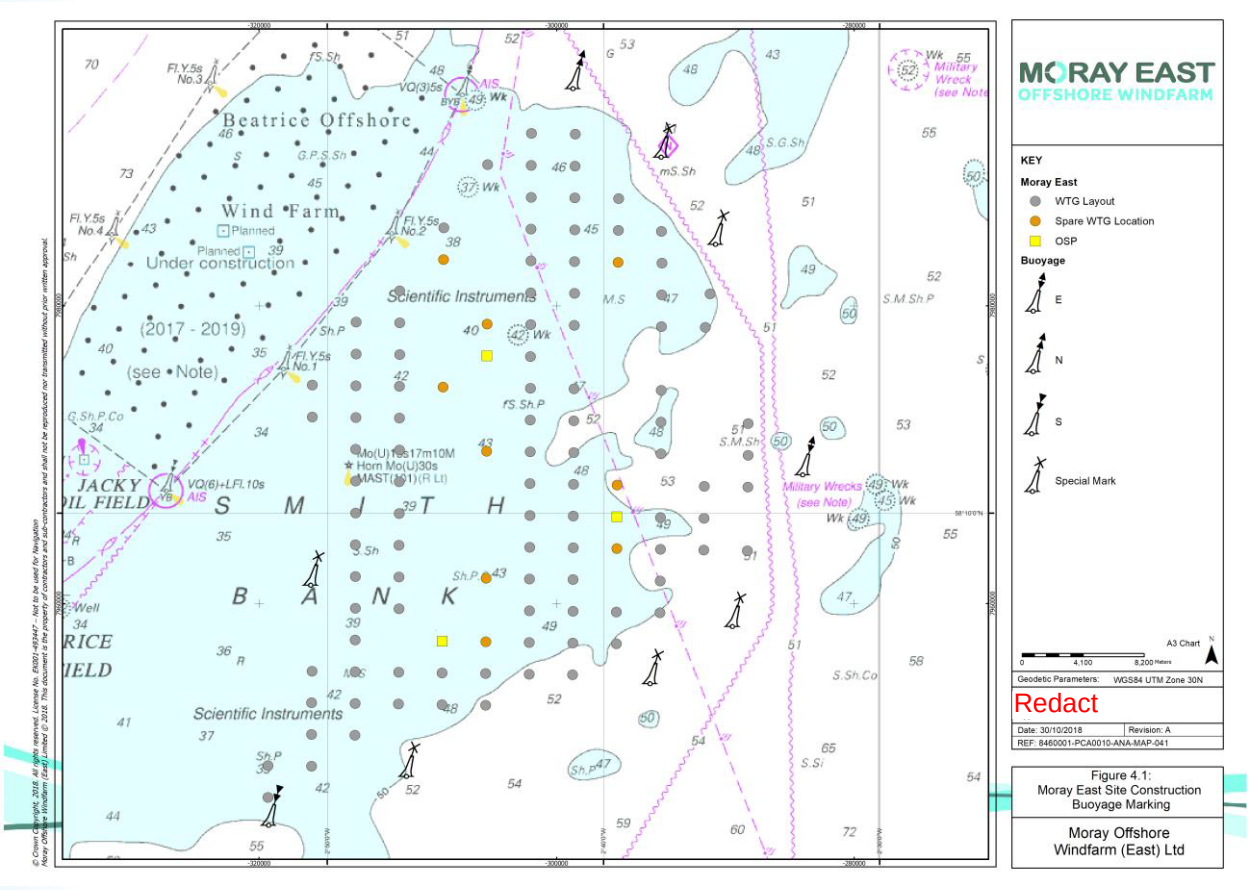

Figure 4.1: Moray East site construction buoyage marking

Table 4.1: Construction buoyage coordinates and specification

Structure	Specification	Latitude (UTM30 N (WGS 84))	Longitude (UTM30 N (WGS 84))
North Cardinal	• With a focal plane of at least 3m and range of 5 nautical miles (nm). • Minimum of 3m in diameter at waterline. • Pillar shaped with a north cardinal shaped top mark, exhibiting a Quick (Q) White (W) light character. • Category 1 Availability - 99.8% (IALA 2011). • Radar Reflector • AIS AtoN transmitter (Category 3 Availability - 97.0%).	58° 18’ 6.57” N	2° 41’ 4.80” W
East Cardinal	• With a focal plane of at least 3m and range of 5nm. • Minimum of 3m in diameter at waterline. • Pillar shaped with an east cardinal shaped top mark, exhibiting a Very (V) Q (3) 5 second (s) W light character. • Category 1 Availability - 99.8% (IALA 2011).	58° 10’ 44.10” N	2° 32’ 45.85” W

Structure	Specification	Latitude (UTM30 N (WGS 84))	Longitude (UTM30 N (WGS 84))
	• Radar Reflector. • AIS AtoN transmitter (Category 3 Availability - 97.0%)		
South Cardinal	• With a focal plane of at least 3m and range of 5nm. • Minimum of 3m in diameter at waterline. • Pillar shaped with a south cardinal shaped top mark, exhibiting a V Q (6) + L Fl 10s W light character. • Category 1 Availability - 99.8% (IALA 2011). • Radar Reflector • AIS AtoN transmitter (Category 3 Availability - 97.0%)	58° 4’ 1.11” N	2° 52’ 6.68 W
Six Special Marks	• With a focal plane of at least 3m and range of 5nm. • Minimum of 3m in diameter at waterline. • Pillar shaped with a yellow ‘x’ shaped top mark, exhibiting a Fl Y 5s light character. • Category 2 Availability – 99% • Radar Reflector	58° 16’ 48.28” N	2° 37’ 55.40” W
		58° 15’ 8.48” N	2° 35’ 57.28” W
		58° 7’ 49.70” N	2° 35’ 20.63” W
		58° 6’ 43.97” N	2° 38’ 19.84” W
		58° 4’ 57.22” N	2° 47’ 9.35” W
		58° 8’ 37.09” N	2° 50’ 37.07” W

4.2 Construction Marine Aids to Navigation

The NLB have confirmed that there is no lighting or marking requirement for each installed foundation, WTG, or OSP prior to commissioning however through consultation with NLB, it was recommended that the temporary structures have low range temporary lighting as per Table 4.2 below. Lighting will be agreed as construction progresses and in advance of any extended period of time where partially installed structures may be left during the construction schedule. Jacket foundation structures will therefore have temporary lighting as per Table 4.2 below.

It is noted the OSPs will be installed and left in-situ prior to WTG installation. Lighting and marking of construction works remains the same for both the installation of OSPs and WTGs and temporary marking may need to be deployed.

The proposed construction marking and lighting set out in Table 4.2 therefore sets out the principles of temporary lighting and marking, which may be refined during construction in agreement with NLB.

Table 4.2: Temporary marking specification during construction

Structure	Specification
All WTG or OSP structures – To be confirmed with NLB	• All fixed structures marked with a flashing yellow 2.5s (Fl. Y. 2.5s) light (visible through 360°) with a 2 nm range. • NLB also noted that synchronisation of these lights will not be required.

4.3 Operational Marine Aids to Navigation

Table 4.3 below details the navigation lights and sound signals which will be established throughout the operation phase.

Table 4.3: Navigation lighting and sound signal specification during operation

Structure	WTG	Specification
Significant Peripheral Structure (SPS)	ME-A01 ME-F04 ME-H05 ME-L09 ME-L13 ME-K17 ME-H22 ME-B13 ME-C09 ME-B05	• Located on a corner or other significant point • Each SPS will have 360° visibility, with flashing IALA special mark characteristics (yellow (Y) 5 second flash(FL) – Fl.Y.5second(s)) and with a range of not less than 5nm • IALA Category 1 (> 99.0% availability) • All SPS lights shall be synchronized • Lights shall be located not less than 6m and not more than 30m above HAT
Intermediate Peripheral Structure (IPS)	ME-C03 ME-J07 ME-L11 ME-J19 ME-E19 ME-C16 ME-C07 ST-A01 (Meteorological Mast (Met Mast))	• Structures on the periphery of the layout other than SPS considered to require additional lighting • 360° visibility with a flashing yellow light different to • the SPS (2.5 second – Fl.Y.2.5s) and with a range of not less than 2nm • IALA Category 2 (> 99.0% availability) • All IPS lights shall be synchronized • Lights shall be located not less than 6 m and not more than 30m above HAT
Sound (Fog) Signals	ME-A01 ME-H05 ME-L09 ME-L13 ME-K17 ME-H22 ME-B13 ME-B05	• Foghorns on transition piece must face outward into open sea and sound signals must be unimpeded by the tower; • IALA Category 3 (at least 97% availability) over a rolling three year period; • Each WTG fitted with a sound signal will also have a visibility meter. Sound signals will turn on when visibility is detected to be less than 2nm.

AIS transmitters will be located on locations ME- A01, ME-L09 and ME-H22. Naming of the transmitters shall be agreed with NLB and appropriate licences will be sourced from Office of Communications (OfCom). The AIS may use a virtual system.

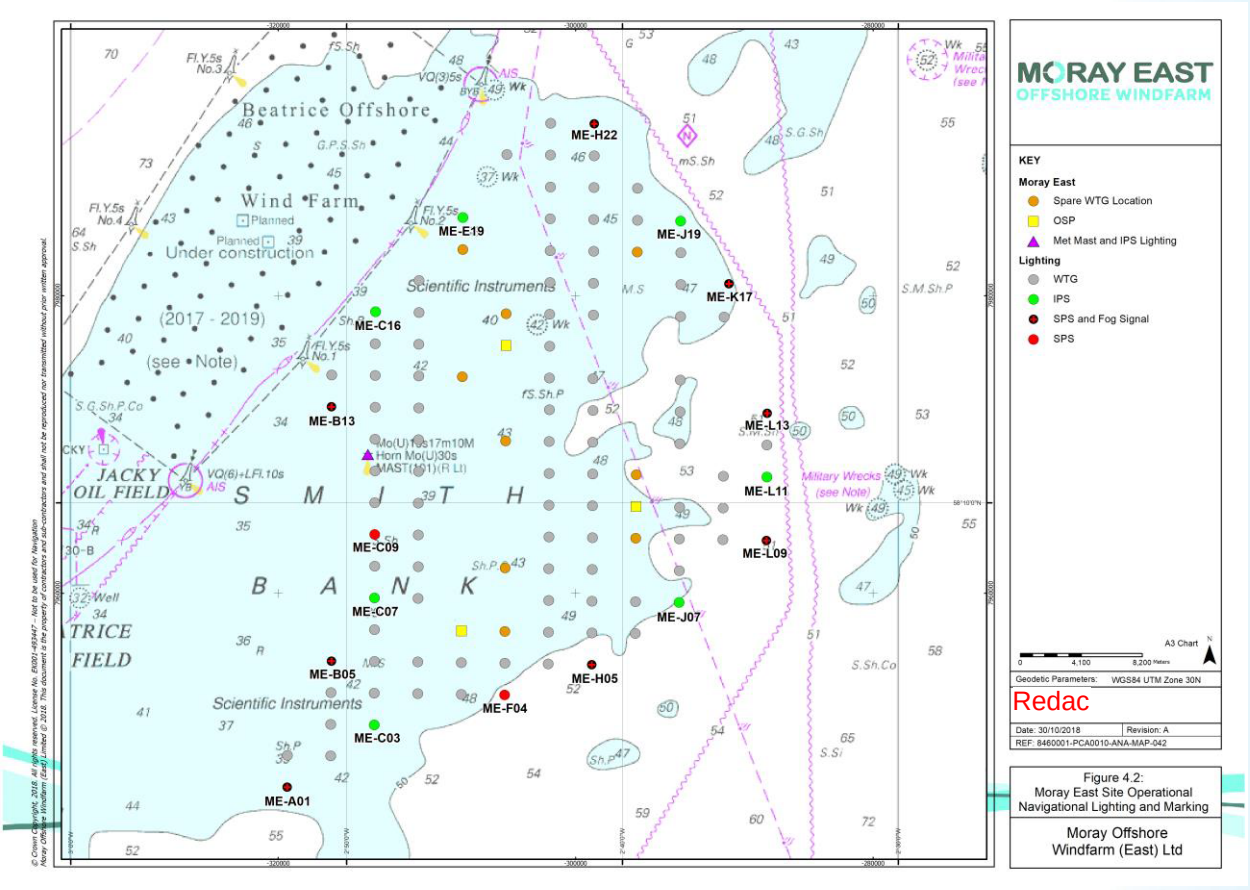

Figure 4.2: Moray East site operational navigational lighting and marking

No marine navigation lighting is required for the OSPs as they are located within the Wind Farm array therefore considered a composite part of the Wind Farm. The Met Mast will be downgraded to an IPS.

4.4 Operational Buoyage

There will be no navigational buoyage associated with the Development during the operational phase.

4.5 Construction Aviation Lighting

There will be no fixed aviation lighting during the construction phase.

4.6 Operational Aviation Lighting

Aviation lighting will be remotely controlled by the Supervisory Control and Data Acquisition (SCADA) system and will be visible day and night. Lights will be equipped with 8 hour uninterrupted power supplies which will provide backup in the event of power failure.

Table 4.4: Aviation lighting during normal operations

Category	Aviation Warning Light	
Colour	Red	
Coverage	360 Degrees	
Intensity	2000 Candela (when visibility is <=5km) 200 Candela (when visibility is >5km)	
Character	Flashing Morse Code "W" and Synchronised	
IR Functionality	Yes	
Structure Identification	ME-A01 ME-B02 ME-C03 ME-D04 ME-E04 ME-F04 ME-G05 ME-H05 ME-I06 ME-J07 ME-J08 ME-J09 ME-K09 ME-L09 ME-L11 ME-L12 ME-L13 ME-J14 ME-K16 ME-K17 ME-J18 ME-J19	ME-I20 ME-H21 ME-H22 ME-G22 ME-F21 ME-E19 ME-D17 ME-C16 ME-B14 ME-B13 ME-C13 ME-C12 ME-C11 ME-C10 ME-C09 ME-C08 ME-C07 ME-C06 ME-C05 ME-B05 ME-B04 ME-B03 ME-A02

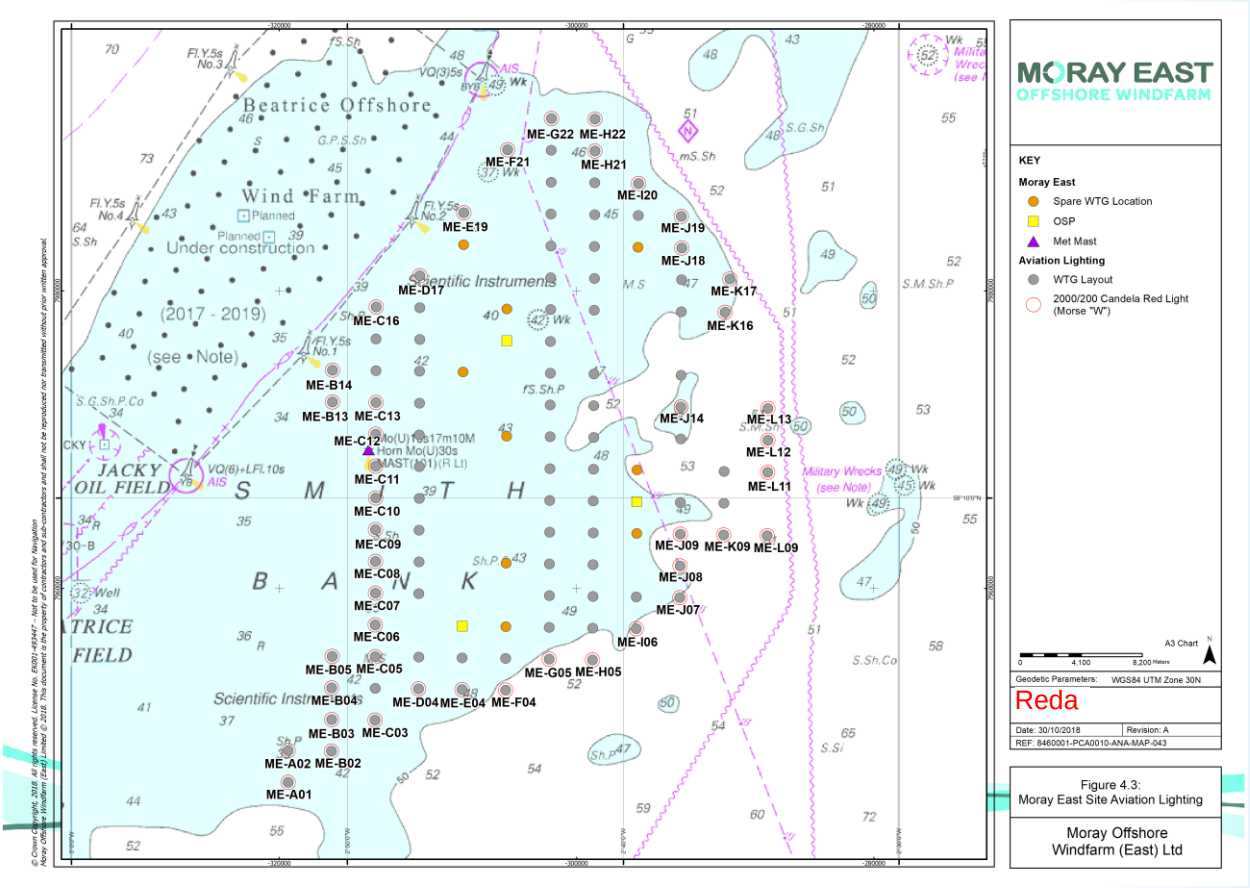

Figure 4.3: Moray East site aviation lighting

5 Subsea Cable Layout

This section details the subsea cable layout of the Development, including the export cables, inter-array cables and OSP inter-connector cables.

5.1 Export Cables

The Wind Farm and OSPs are connected to the onshore transmission works by three alternating current (AC) 220 kV subsea cable circuits, referred to as 'export cables' since they export electricity from the Wind Farm to the onshore transmission infrastructure. The three export cables will be located within the Development boundary presented in Figure 1.1 above. The arrangement of the export cables between the OSPs and within the export cable corridor is shown in greater detail in Figure 5.1 and Figure 5.2 below.

The three subsea export cables will run from the OSPs within the Moray East site to a landfall location at Inverboyndie Bay on the Aberdeenshire coast. The export cables will be buried where possible within the seabed sediments along their length, or mechanically protected where burial is not possible. At the Inverboyndie landfall, the cables will be installed via three horizontal directional drilled (HDD) ducts so as to avoid disturbance to the seabed in the nearshore area.

It should be noted that following submission of the DSLP, the export cables have since been revised within the nearshore area of the export cable route as described within the OfTI Cable Plan (CaP) (Moray East, 2018b). Further revisions of the DSLP will reflect any changes to the offshore export cables layout. The final location of the export cables remains subject to possible further micro-siting during installation as set out in the OfTI CaP.

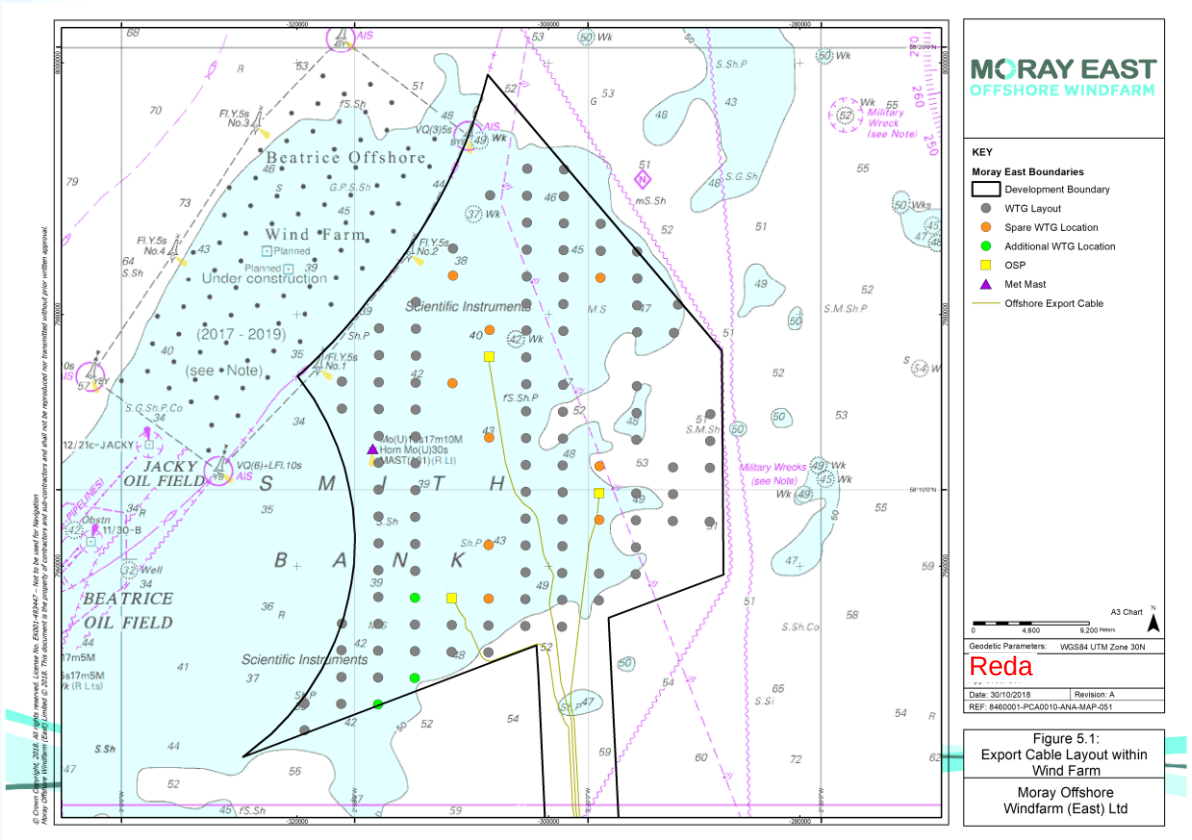

Figure 5.1: Export Cable Layout within the Wind Farm

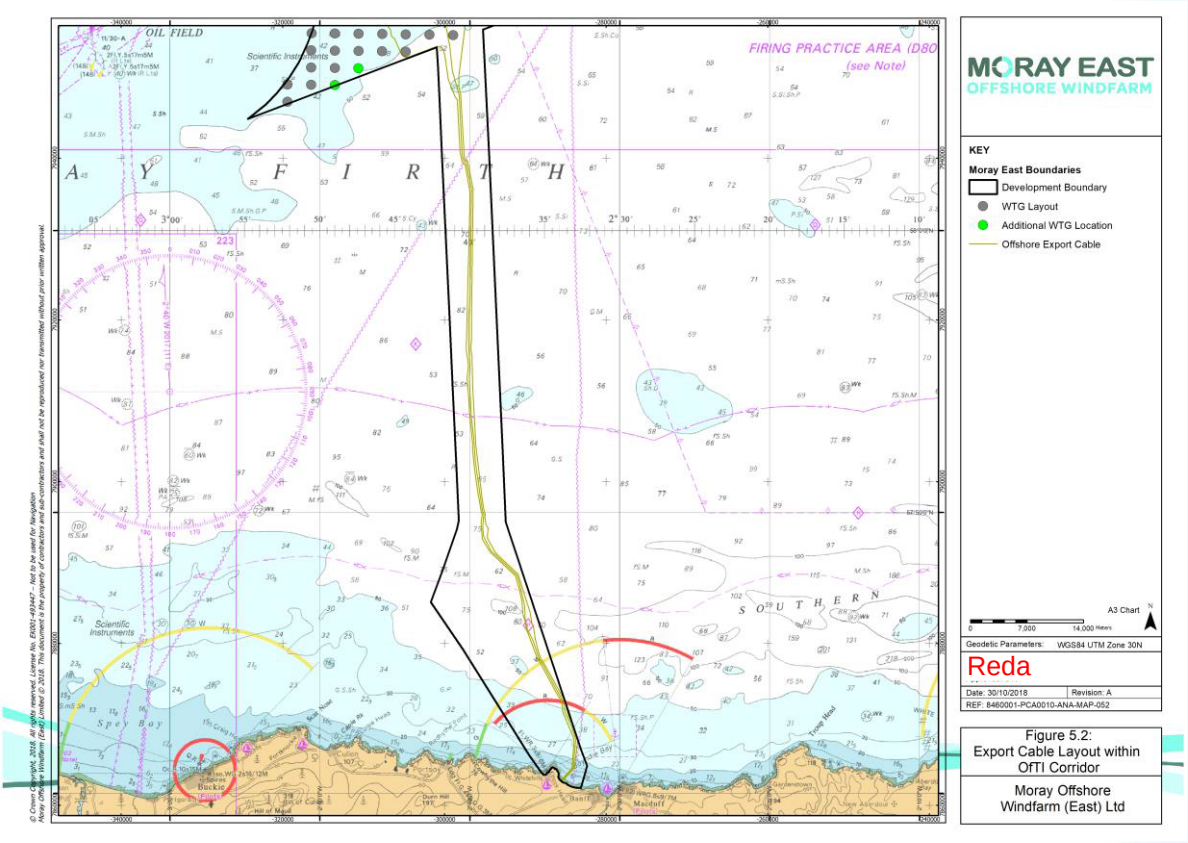

Figure 5.2: Export Cable Layout within OfTI Corridor

5.2 Inter-Array Cable Arrangement

The WTGs are connected to the OSPs at a voltage of 66 kV by an inter-array cabling network arranged in 'strings' or 'circuits'. There are fifteen strings and up to 8 WTGs per string[2]. The inter-array cable network follows a radial design.

There will be a total of 100 inter-array cables, of two different sizes (two sizes of cable are used to allow for tapering of cable capacity away from the OSPs), installed across the Wind Farm as follows:

- Cables of 630 mm^2 conductor cross-sectional area, with a total cable outer diameter of 156 mm;
- Cables of 240 mm^2 conductor cross-sectional area, with a total cable outer diameter of 128 mm.

The arrangement of the cables between the WTGs and the connections to the OSPs is set out in Figure 5.3 below. The total length of the inter-array cabling to be installed on the seabed is approximately 173 km. This does not account for cable route micro-siting.

Details on cable burial and protection, and the results of the cable burial risk assessment are presented in the Wind Farm CaP (Moray East, 2018c).

[2] The number of WTGS per string may vary slightly depending on the need to use spare positions (up to 8 WTG, 76.2 MW).

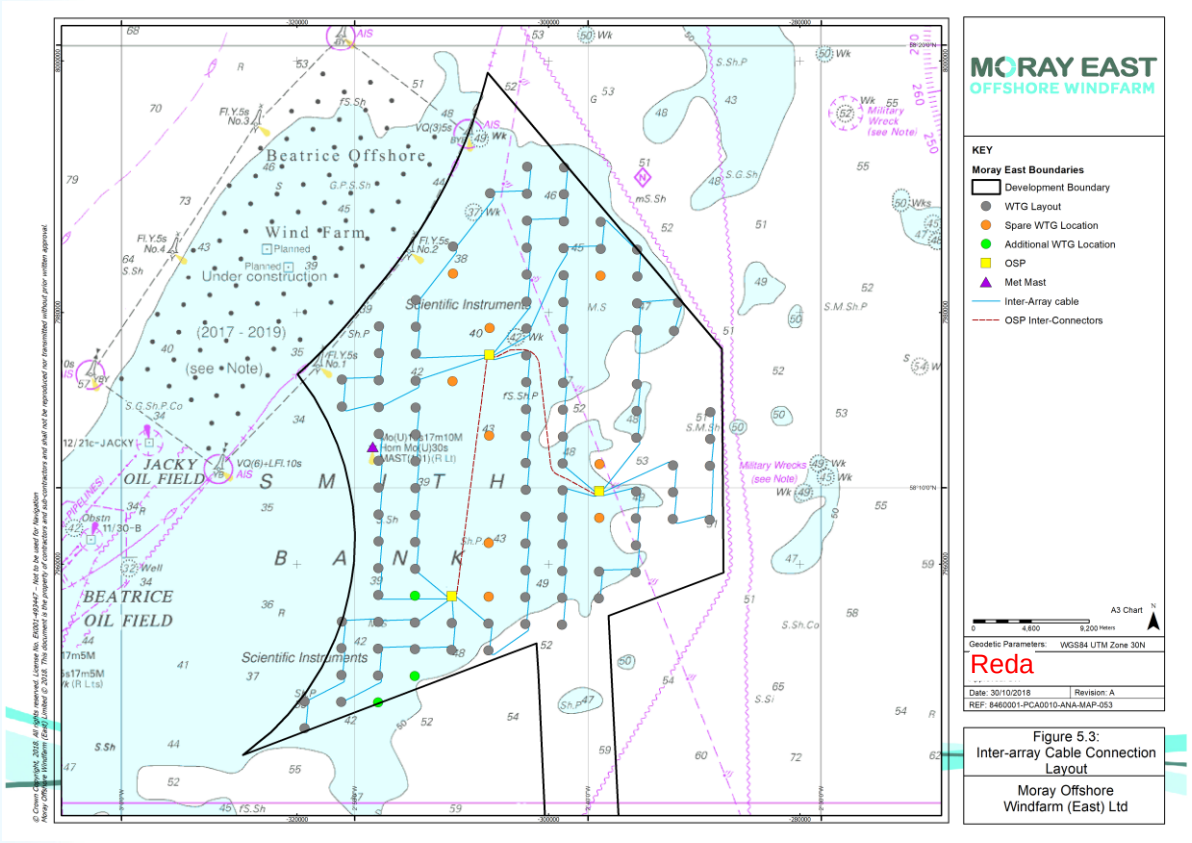

Figure 5.3: Inter-array cable connection layout, showing inter-array and interconnector cable connectivity between WTGs and OSPs

5.3 OSP Interconnector Cables

The three OSPs will be connected via two 66 kV inter-connector cables to allow a lower level of power to be redirected between the OSPs in the event of an export cable or OSP failure. They will also allow for back feed power to retain functionality on any affected OSPs.

The total length of the OSP inter-connector cables will be approximately 21 km.

A preliminary arrangement for the OSP inter-connector cables in shown in Figure 5.3 above. The final location of the OSP inter-connector cables remains subject to possible further micro-siting as set out in the OfTI CaP.

6 Work Activities

6.1 Agreed Procedure for Notification of Works

As information regarding work activities is dynamic and subject to change, it shall be updated continuously and sent weekly to HMCG via email. Appendix 1 (Notification of Works) shall constitute the method for informing HMCG of work activities on this weekly basis. The weekly Notification of Works shall be sent by the Marine Coordinator and shall consist of:

- Status of works activity;
- All planned operations for the upcoming week;
- Vessels currently on site; and
- Additional vessels anticipated to arrive on site (if applicable).

HMCG will be notified of all heavy lift operations via the weekly Notification of Works.

All works vessels will be fitted with AIS which will assist HMCG in monitoring vessel activity associated with the Development.

6.1.1 If personnel are marooned on a WTG

<INSERT>.

6.2 Planned Activities

HMCG shall be informed of planned works activities via the weekly Notification of Works (Appendix 1). This summary shall include details of the SAR capability of each vessel on site and the use of any safety zones.

6.3 Vessels on Site

On site vessels will be the primary means of dealing with local emergencies such as a man overboard. Emergency services will engage where Moray East capability is not adequate to sufficiently resolve the incident.

HMCG shall be informed of vessels on site via the weekly Notification of Works (Appendix 1).

National SAR resources are available if:

- The incident exceeds the capability of Moray East ’s resources;
- If in the opinion of the commanding skipper or work supervisor, urgent and immediate assistance is required; or
- The incident is an external event, which has occurred to person or vessels not connected with the Development.

Throughout an external event, where safe to do so, the Development work and safety craft should respond and provide assistance in accordance with IMO SOLAS regulations, chapter V.

6.4 Locating Aids

If Personal Locator Beacons or other types of satellite or radio locating devices are used by personnel working on the site and/or on vessels at work on the site, the types, locating frequencies and procedures for locating/homing to the devices, should be included here:

- Type(s) of beacon/devices used (list all types if there are several different ones in use)
- Frequencies/channels that devices operate on
- Procedures for homing to/locating the devices when transmitting
- Outline procedures briefed to personnel for use of the devices

6.5 Surveillance Systems in Use during Works

If AIS is to be used to monitor activity around the site the following details should be provided:

- The system(s) being used;
- Their location(s)
- The time period(s) of monitoring
- The contact numbers of the surveillance centre and/or radio frequencies monitored by the vessel responsible for this activity

6.6 Radio Communication Aerials

If the site is fitted with radio communications aerials to enable relay and retransmission of radio communications from the shore control centre the following details should be provided:

- Locations of the installations fitted with radio aerials;
- The type of radio communications system(s) being used;
- The frequencies available to those systems;
- The contact number(s) for the control room/vessel using these systems; and
- The time period(s) when the system is monitored and/or staffed.

7 Coastguard Operations Centre

As the UK maritime emergency service, HMCG's CGOCs are responsible for the co-ordination of all civil maritime and aeronautical emergency response and SAR operations within the UK Search and Rescue Region (UKSRR). This includes the mobilisation and tasking of adequate resources to respond to persons at risk of death or injury at sea or on the cliffs or shoreline of the UK. The CGOC is also the first point of contact for any reports of vessels in difficulties e.g. engine failures, pollution, maritime security incidents or concerns.

7.1 Communicating with HM Coastguard:

HMCG uses a network of remote aerials to ensure VHF coverage from the coast to nominally up to 30nm offshore. HMCG maintains a radio distress watch on VHF and MF DSC. The primary means of distress alerting on VHF is by DSC channel 70 but a listening watch is also kept on VHF channel 16.

7.2 Radio Communications

All CGOCs can operate on channels 6, 10, 16, 23, 67, 70 DSC, 23, 84, 86, and on two private SAR co-ordination channels, 0 and 99. Channels 23, 84 and 86 are duplex and are mainly used for medical link calls and Maritime Safety Information (MSI) broadcasts, but can also be used for SAR. HMCG is not formally licensed to use other VHF Marine Band channels, but may use them in extremis.

MF frequencies used by HMCG include 2187.5kHz (DSC), 2182kHz (MF distress, urgency and safety working frequency) and 2596kHz (HMCG's primary MF working frequency although a range of other frequencies are used by individual CGOCs for SAR and general communications). In the event that HMCG requires any of the Development work or service craft to use MF radio (where that is required or fitted), the relevant frequency will be informed to the craft at the time.

7.3 CGOC Contact Information

The contact information provided in Table 7.1 below is for the most appropriate CGOC for routine purposes. In an emergency, the CGOC responsible for the area containing the development will respond and this may not be the nearest CGOC or the one detailed below.

Table 7.1: Contact details of most appropriate CGOC

Address	CGOC Aberdeen (Coastguard) HM Coastguard 4th Floor Marine House Blaikies Quay Aberdeen AB11 5Pb
Phone	+44 (0) 1224 592 334
Email	Zone<insert>@hmcg.gov.uk

7.4 Reporting Incident Position/Location

It should be noted that the position of any incident (the OREI or other location) is a vital part of the incident response process and should be reported as part of the initial incident details. If the incident is on a WTG or OSP, the precise co-ordinates (in Latitude and Longitude) and the ID marking of the WTG or OSP (e.g. ME-A01 or OSP-1) should be passed to HMCG so that any responding rescue unit may use the position for precision navigation purposes.

8 SAR Facilities and Response Capability

Details will be added to this ERCoP at a later date.

8.1 Moray East Self-Help Facilities

In the event of an emergency at sea involving personnel and / or vessels, Moray East shall provide immediate rescue and first aid medical response to a level appropriate to the circumstances and location of the Development.

HMCG commit to providing national SAR resources (lifeboats and rescue helicopters) if:

- The incident exceeds the capability of Moray East resources; or
- If in the opinion of the work / safety boat skipper or work supervisor or other person, urgent and immediate assistance is required; or
- It is an event which has occurred to persons or vessels not connected with the Development or its operations. In this event, and where safe and feasible to do so, the Development work and safety craft should respond and provide assistance in accordance with IMO SOLAS regulations, chapter V.

The following subsections summarise the self-help facilities contained within the Development and training undertaken by offshore operatives.

Details will be added to this ERCoP at a later date.

- *Detail asset capabilities and facilities available*
- *Note any restrictions (e.g. civil aviation transport helicopters can't transport stretchered / incapacitated persons over water)*

8.1.1 Self Help Facility

Details will be added to this ERCoP at a later date.

8.1.2 Training

Details will be added to this ERCoP at a later date.

8.2 Royal National Lifeboat Institute Lifeboat Stations

The Royal National Lifeboat Institute (RNLI) 24-hour SAR service operates from 238 lifeboat stations around the UK and Republic of Ireland. Table 8.1 below illustrates the RNLI lifeboat stations in proximity to the Moray East site.

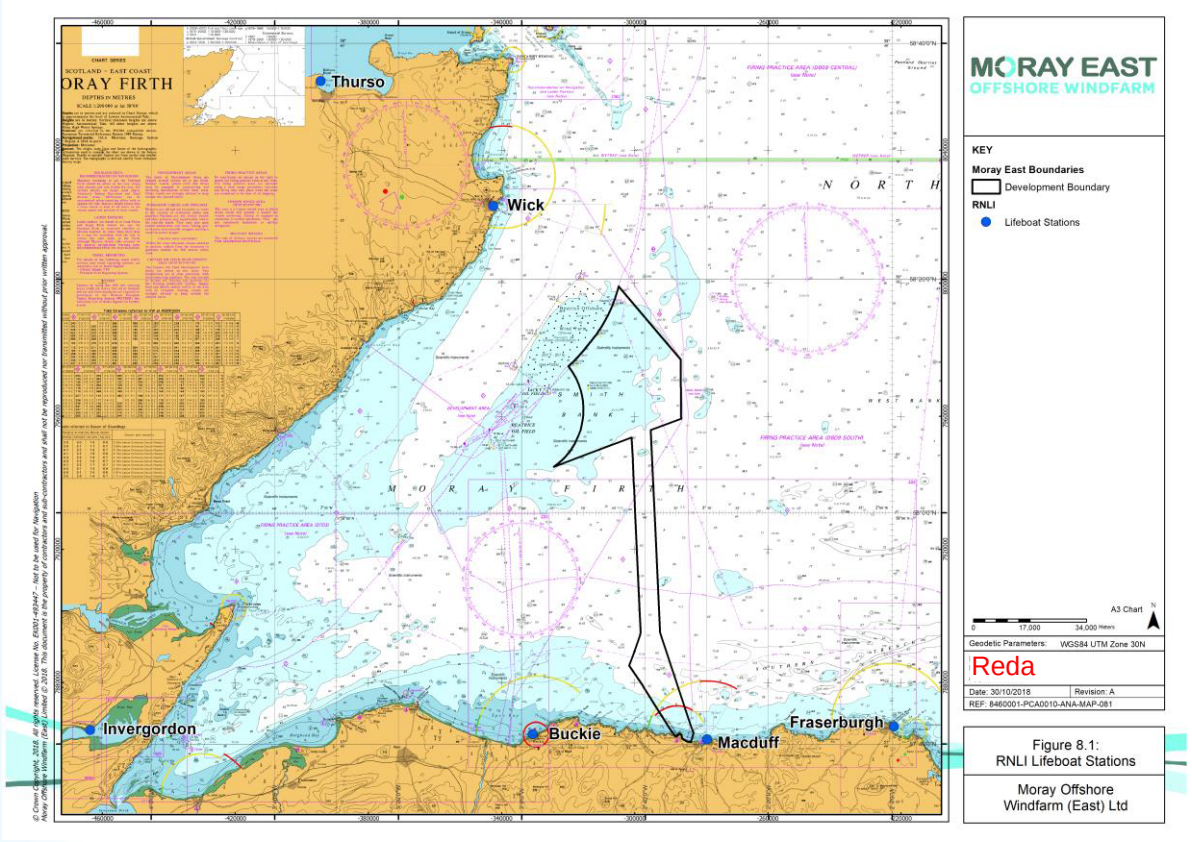

Figure 8.1: RNLI lifeboat stations

Due to the distance offshore and from analysis of historical incidents, it is most likely that the All-Weather Lifeboat (ALB) located at Buckie would respond to an incident in the vicinity of the Moray East site.

It should be noted that RNLI personnel are not trained, nor will they normally be trained, to access WTGs. Their role is limited to rescuing or assisting persons from the landing stages or decks of such installations.

8.2.1 Summary of RNLI All-Weather Lifeboats

The SAR capability, first aid provisions and communications equipment of the RNLI ALBs, which are most likely to respond to an incident at the Moray East site, are summarised in Table 8.1 below. Following this, Figure 8.2 to Figure 8.4 below present photographs of the ALBs and summarises key characteristics of each class.

Table 8.1: RNLI ALB SAR capability

	Class		
	Tamar	**Severn**	**Mersey**
Date Introduced	2005	1995	1988
Crew	7	7	6
Length (m)	16.3	17.3	11.62
Beam (m)	5.3	5.9	4.0
Draught (m)	1.4	1.78	1.02

		Class		
		Tamar	**Severn**	**Mersey**
Maximum Speed (knots)		25	25	17
Fuel Capacity (litres)		4,600	5,600	1,110
Endurance (nm)		250	250	240
Survivor Capacity	**Self-Righting**	44	28	21
	Non Self-Righting	118	124	43
All-Weather Capability		✓	✓	✓
Systems and Information Management System		✓		
MF / MF DSC		✓	✓	✓
VHF / VHF DSC		✓	✓	✓
VHF Direction Finding		✓	✓	✓
DGPS		✓	✓	✓
Radar		✓	✓	✓
Life Raft		✓	✓	✓
Salvage Pump		✓	✓	✓
Secondary Daughter Craft		✓*	✓*	✓**
Comprehensive First Aid Equipment (including stretchers, oxygen and Entonox).		✓	✓	✓

(* Y-Boat, ** X-Boat)

The Tamar class lifeboat, introduced in 2005, also operates Systems and Information Management System (SIMS). SIMS allows the crew to monitor and operate the lifeboat's navigation, communication, machinery and systems from the safety of their seats. The propellers and rudders lie in partial tunnels set into the hull that, along with the steel-lined main and bilge keels provide excellent protection from damage in shallow water. The lifeboat is fitted with a hydraulic-powered bow thruster which affords greater manoeuvrability. A small Y-Boat, an inflatable daughter craft with 15hp outboard engine is housed under the aft deck and can be used to access areas where the lifeboat cannot. The Tamar class lifeboats will gradually replace the Tyne class.

Figure 8.2: Tamar class ALB

The Severn class lifeboat, introduced in 1995, has a sheerline that sweeps down for ease of survivor recovery and is inherently self-righting. The propellers and rudders lie in partial tunnels set into the hull that, along with the bilge keels, provide excellent protection from damage in shallow water. The lifeboat is fitted with a hydraulic-powered bow thruster which affords greater manoeuvrability. A small Y-Boat, an inflatable daughter craft with 15hp outboard engine, can be launched with a crane and used in moderate conditions to access areas where the lifeboat cannot.

Figure 8.3: Severn class ALB

The Mersey class lifeboat, introduced in 1988, is designed to primarily operate from a carriage on a beach. The wheelhouse is set well aft and the sheerline is flattened towards the bow. The mast and aerials can be collapsed when working with helicopters. The propellers and rudders lie in partial tunnels set into the hull that, along with the bilge keels, provide excellent protection from damage in shallow water. A small X-Boat, an inflatable (un-powered) daughter craft can be manually launched to access areas where the lifeboat cannot. The Mersey will gradually be replaced by the Shannon.

Figure 8.4: Mersey class ALB

8.3 Airborne SAR Capability

Figure 8.5 illustrates the location of the closest SAR helicopter bases in proximity to the Development.

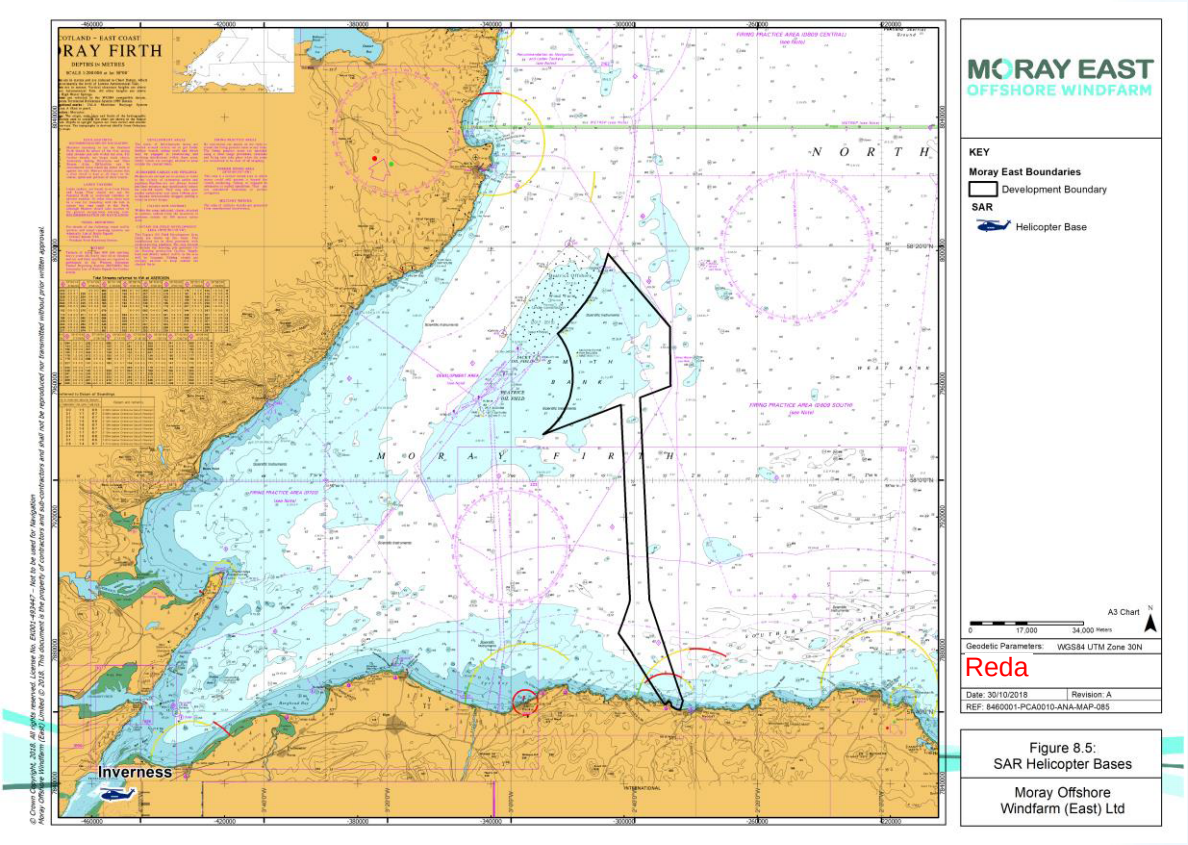

Figure 8.5: SAR helicopter bases

Provision of SAR helicopters is undertaken by Bristow Helicopters which has been awarded the contract to operate civilian SAR helicopter service for the UK on behalf of HMCG.

Bristow Helicopters currently employs two models of SAR helicopters: the Sikorsky S-92 and the Agusta Westland AW189[3]. Figure 8.6 and Figure 8.7 below present photographs of the SAR helicopters and summarises the capabilities of each aircraft type:

Air Speed: 145 knots

Operational range: in excess of 250 nm radius of action

Normal flight crew: 4

Capacity: 21 persons as required – 3 stretchers, 10 seated persons, additional standing persons

Endurance: over 4 hours

Features:

- Twin hoist
- Comprehensive medical suite
- Icing protection

Figure 8.6: Sikorsky S-92 SAR helicopter

[3] The AW189 is not yet in service at Inverness, as of September 2018.

Air Speed: 145 knots

Operational range: in excess of 200 nm radius of action

Normal flight crew: 4

Capacity: 16 persons or as required – 2 stretchers, 6 seated persons, additional standing persons

Endurance: over 4 hours

Features:

- Twin hoist
- Comprehensive medical suite
- Icing protection

Figure 8.7: Agusta Westland AW189 SAR helicopter

All SAR aeronautical resources are tasked by the Aeronautical Rescue Coordination Centre (ARCC) based on a number of factors including greatest need, weather, availability, etc. Therefore, the nearest aircraft base detailed above may not be the one mobilised during an emergency.

8.4 Cospas-Sarsat

The Cospas-Sarsat system detects and locates distress beacons operating at 406.0 – 406.1MHz. Those relevant to the Development are:

- EPIRBs (Emergency Position-Indicating Radio Beacons), which signal maritime distress; and
- PLBs (Personal Locator Beacons) are for personal use and are intended to indicate a person in distress who is away from normal emergency services.

Cospas-Sarsat maritime distress alerts are forwarded to HMCG by the Mission Control Centre, situated at the National Maritime Operations Centre in Fareham.

9 Shut-Down Procedure

Upon receiving a distress call, the CGOC will establish the position of the vessel and the identification numbers of any WTGs which are visible to the vessel. This information will be passed immediately to the Duty Marine Coordinator by HMCG. The Marine Coordinator shall immediately initiate the shut-down procedure for identified WTGs and maintain the WTG in the appropriate shut-down position, as requested by the CGOC, until receiving notification that it is safe to restart the WTG.

In the case of a Moray East works vessel incident resulting in the need to shut-down a WTG, the vessel shall relay the information directly to the Marine Coordinator, who shall immediately initiate the aforementioned shut-down procedure. Where the works vessel is unable to make direct contact with the Marine Coordinator, efforts shall be made to contact the HMCG secondarily.

Communication procedures shall be tested at least twice a year to ensure they are satisfactory. Shut-down and other emergency procedures shall be tested as and when mutually agreed with the MCA.

10 On Site Medical Facilities

Details will be added to this ERCoP at a later date; when information is agreed.

11 Medical Assistance and Advice

Medical advice by radio or telephone link call is available via HMCG.

On site medical facilities shall be used in the first instance unless the situation is considered urgent.

Evacuation of injured or ill persons can be arranged with HMCG if Moray East's own resources are considered inappropriate or if speed is of the essence. If in doubt, HMCG should be contacted.

12 On Site Firefighting Facilities

The WTGs and OSPs will be equipped with smoke and heat sensors in different locations near machinery and technical equipment. In case of smoke or heat being detected, the system will automatically shut down the WTG/OSP and the events will be registered in the operation and maintenance (O&M) control room. The turbines do not have automatic fire fighting systems.

In the event of a fire, the WTG/OSP will be evacuated and no direct fire-fighting response is to be attempted. The procedure will be described in the Moray East ERP.

13 Firefighting and Chemical Hazards Advice and Assistance

Vessels at sea in UK waters can receive firefighting, chemical incident or trapped person rescue assistance from the Fire Services Maritime Incident Response Group (MIRG). The MIRG consists of strategically located teams of Category 1 responders with declared assets available to the MCA. These teams are deployed by CGOCs using SAR assets (both airborne and seaborne) to assist with incidents of fire and chemical release.

Structures at sea, e.g. oil and gas platforms and offshore wind energy developments are not currently within MIRG remit. Therefore all personnel shall be effectively trained in firefighting techniques to allow evacuation from WTGs.

The firefighting procedure is detailed within the Moray East ERP.

14 Survivors Shore Reception Arrangements

Procedures (as agreed between the local Police Service, the CGOC, local council and the operators) are to be followed for the reception of personnel to shore who may require post-incident processing, medical care or social support following an incident within or on the OREI - whether or not the personnel involved are working for the operator or third parties involved in an external incident.

Survivors may need to be delivered to a location other than the normal embarkation/disembarkation point, depending on the SAR plan developed by the CGOC. The CGOC will liaise with and advise the Marine Coordinator of the destination or landing point for survivors and/or evacuees.

15 Informing Next of Kin

In the event of an incident, the informing of next of kin process should be as per the Moray East ERP.

If required following a death, the police will be notified to assist with the next of kin contact.

16 Suspension / Termination of SAR Action

Suspension or termination will only be given by the Search and Rescue Mission Coordinator (SMC) at the relevant CGOC for all SAR operations, following discussion with all parties.

17 Criminal Activities and Accidents to Persons

Any party, who receives reports or information of criminal actions taking place, should inform the Police and the CGOC as soon as possible.

In emergencies the police must be contacted on 999.

Non emergencies should use 101.

The Police must always be informed of any deaths on offshore installations. The location of a death will be treated as a crime scene and all practical steps should be taken to preserve the scene and protect all evidence until the police confirm otherwise.

18 Media Relations

In the event of an incident, media response should be as per the Moray ERP under the responsibility of the Moray East Media Adviser. The MCA duty press officer shall be contacted as soon as possible to co-ordinate a joint response using the contact details for the MCA Public Relations Department provided in Table 18.1 below.

Table 18.1: MCA PR contact details

Address	MCA Public Relations Department Spring Place 105 Commercial Road Southampton S015 1EG
Phone	Redacted

*not 24 hours, contact HMCG directly during out of office hours.

19 Unexploded Ordnance and Wreck Materials

It is possible that unexploded ordnances (UXOs) or materials from wrecks could be located, exposed, disturbed or inadvertently lifted from the seabed. The following subsections detail the procedure that should be followed if this were to occur.

19.1 Unexploded Ordnance

UXO remain dangerous even if they have been in the water many years. Suspected explosives should not be deliberately landed on deck.

If UXO are accidentally taken on board, the object should not be moved (or removed if it is lodged in dredging buckets, pipes or conveyor systems, etc.).

HMCG shall be informed on the situation by radio immediately (CGOC to insert preferred method) who will alert the relevant military ordnance disposal organisation.

All personnel should be evacuated as far as practicable away from the UXO.

It is probable that an Explosives Ordnance Disposal (EOD) team will be sent and will take the lead in advising the contractors on response to the UXO. If necessary, telephone advice can be given directly from the EOD team via sat phone or radio to telephone link via HMCG.

19.2 Wreck or Wreck Materials

Uncharted wrecks (aircraft or vessels) or materials from wrecks which have been located, disturbed or inadvertently lifted from the seabed during operations must be reported by law to the UK Receiver of Wreck. This should be done by contacting the Receiver of Wreck on:

- 020 381 72420; or
- 020 381 72421; or
- row@mcga.gov.uk; or
- Contact HMCG who will then inform the Receiver of Wreck Officers.

20 Counter Pollution

As per the Bonn Agreement, Moray East shall take appropriate measures to avoid leakage of hazardous and noxious substances, including oil, from all structures within the Wind Farm and from Wind Farm work vessels. In the event of leakage from a structure within the Wind Farm / a Wind Farm affiliated vessel, Moray East shall provide the necessary response to counter the pollution incident. Appropriate measures will also be taken to avoid leakage of hazardous and noxious substances, including oil from vessels associated with the OfTI.

If pollution enters the Wind Farm which has not originated from Wind Farm structures / Wind Farm affiliated vessels, Moray East may hold the owner of the external source of pollution liable, thus requiring the external owner to initiate the appropriate response. If this is not carried out, Moray East may seek reimbursement of costs associated with pollution response.

Assuming pollution from an unidentifiable source is drifting towards the Wind Farm, Moray East shall comply fully in order to facilitate appropriate pollution response. This may include shut-down of the Wind Farm to allow mechanical recovery of the pollution or dispersant application. If it is deemed that shut-down of the Wind Farm is required, the liaison agreement between HMCG and Moray East (as per Section 2.7 above) shall be followed. Details of Moray East's Marine Pollution Contingency Plan (MPCP) are provided in a separate document (Moray East, 2018d).

21 Development Emergency Checklist

Emergency Response Checklist & Log		
Responsibilities	• Report incident and receive information. • Assessment of situation. • Notify relevant external organisations. • Maintain lines of communication. The MCA are the lead responder for maritime activities therefore any Wind Farm personnel involved should ensure that a priority is to inform HMCG so that emergency assistance can be dispatched.	
Step	**Actions**	**Additional Information**
Alert	**Time and date of initial alert**	
	• HMCG • Personnel • Workboat • Other vessels in vicinity • Wind farm control room	
Initial Actions	• Commence emergency procedures as per SOLAS • Establish lines of communication. Attempt to contact vessels involved. • Confirm vessels involved and persons on board. • Confirm persons on board on structures and evacuate if required. • Identify coordinates and structure number. • Make initial assessment of incident for responders. • Monitor emergency channel. • Advise HMCG of resources available on site i.e. vessels. • Standby for instructions from lead responder. • Notify relevant external responders such as police, ambulance. • Start emergency shut-down procedures if applicable.	
Further Actions	• Brief relevant management personnel.	
	• Commence emergency shut-down procedures	
	• Media.	
	• Notification of next of kin.	
	• Possible sources of pollution.	
Final Actions	• Await termination of SAR / emergency response by lead responder.	
	• Identify counter pollution or salvage that may be required.	

22 Additional Information

The information contained in this section describes the duties and functions of various participants in SAR and explains any areas or information requirements of particular importance to SAR and other emergency response within the Development.

22.1 SAR Mission Co-ordination

22.1.1 Definition

Each SAR operation is carried out under the direction of a SMC at the CGOC. This function exists only for the duration of a specific SAR incident.

22.1.2 Roles and Responsibilities

The responsibility of the SMC will vary depending on the nature and severity of the incident. The SMC is essentially in overall charge of coordinating and directing the response to an incident until it is successfully concluded or a decision has been agreed to terminate operations.

23 On-Scene Coordinator

23.1 Consideration in Selecting the On-Scene Coordinator

The CGOC may, according to the severity of an incident, wish to appoint a Wind Farm work/safety boat as On Scene Coordinator (OSC). The information below is for the guidance of persons in charge of such boats:

- When two or more SAR facilities are working together on the same mission, it is sometimes advantageous if one person or vessel is assigned to co-ordinate the activities of all the participating units.
- The SMC (at the CGOC) designates the OSC, who may be in charge of a Search and Rescue Unit (SRU), vessel or aircraft participating in a search, or someone at another nearby facility able to handle OSC duties.

The OSC should be the most capable person or vessel available, and the following considerations should be taken into account when selecting:

- The amount of SAR training and experience the person may have had;
- Communications and capabilities;
- The length of time that the facility on which the OSC is aboard can stay in the search area.

Duties which the SMC may assign to the OSC, depending on needs and qualification include any of the following:

- Assume operational co-ordination of all SAR facilities on scene;
- Receive and implement the search action plan from the SMC;
- Modify the search action plan based on prevailing environmental conditions, SRUs / SAR facilities availability and capability, new target information and new developments on scene, keeping the SMC advised of any changes to the plan;
- Establish and maintain communications with all SRUs using the designated on scene channels;
- Provide relevant information to other SAR facilities;
- Monitor the performance of other units participating in the search. Co-ordinate and divert surface units or helicopters to evaluate sightings;
- Develop and implement the rescue plan (when needed);
- Make consolidated situation reports (SITREPS) back to the SMC.

Information that the SMC needs from the OSC includes:

- On scene weather, wind and sea conditions when significant changes occur, and at least every four hours if the SMC has not stipulated a shorter time interval;
- SRU on scene arrival and departure information, including actual and estimated time;
- Pertinent new developments or sightings;
- Major modifications made to the SMC's SAR action plans, either already taken or recommended;
- Requests for additional assistance;

- Summary of search areas completed with an assessment of the search effectiveness;
- Obtain results of search as facility departs the scene.

23.2 OSC Support

In order to enable the OSC to maximise SAR capability during an incident, a shore based Designated Incident Coordinator (DIC) may be employed, depending on the severity of the incident. The role of the DIC would be to offer strategic assistance, including the relay of relevant information to the SMC to enable efficient planning of SAR assets whilst the OSC implements and conducts the offshore response (e.g. active recovery of person in the water). Furthermore, this provides a level of contingency to ensure that the SMC receives all relevant information required to effectively plan the SAR response.

The following should be considered throughout the selection of the DIC:

- Knowledge of available Moray East assets, including SAR capability, on-site;
- Communications and capabilities.

23.3 Search Planning

In the event that persons or craft are in danger and drifting on or in sea, and they are unable to provide locating signals or a precise position, SAR units will have to be deployed to physically look for them. This requires that search area calculations are made based on the movements of the tide, local currents and wind (leeway) as they might act on the object drifting e.g. life raft, lifeboat, drifting vessel, person in the water, etc.

If required, Moray East shall provide any records of tide and wind speed and direction recorded from the Wind Farm as requested by the CGOC.

23.4 Liaison

As a matter of good practice, periodic visits to both Moray East's Marine Coordination and Aberdeen CGOC's operations room, control centre, etc. will be carried out in order to maintain close liaison and understanding between all parties.

24 Appendix 1: Notification of Works

Details will be added to this ERCoP at a later date.

24.1 Planned Activities

- *Insert a description/chart/program of what activities are planned to take place, including vessel specific activities and availability of vessel for SAR.*
- *Insert a table indicating day to day operations taking place on the site during a period of time e.g. weekly updates as operations change. This must be sent to the relevant CGOC each week*
- *Insert details on how the site is to be guarded and monitored (e.g. guard vessel(s) on site, AIS/Radar surveillance), including operational limitations and periods of operation of such measures*
- *Insert details of safety zones*

24.2 Diving Operations

- *Insert description of scheduled dive operations*
- *HM Coastguard must be informed of hyperbaric recompression chamber availability and details*

24.3 Work Vessels on Site

This table will be used within the weekly notice of operations, and will not be completed within the ERCoP.

Table 24.1: Details of Work Vessels within the Development

Vessel Details						Summary of Vessel Communications			Summary of Anticipated Work Schedule		
Vessel Name	**Call Sign**	**MMSI**	**MCA Coding**	**Operational Limits**	**Crew Capacity (persons onboard)**	**Contact Number**	**Communications Equipment**	**Communications Channels / Frequencies Monitored**	**Anticipated Arrival Date**	**Arrival Date**	**Anticipated Leave Date**

24.4 Work Vessel SAR Capability

Details will be added to this ERCoP at a later date.

Insert SAR capability of works vessels on site, relevant details (not provided in Section 25.3) include:

- *Economical cruise speed.*
- *Maximum sprint speed.*
- *Maximum endurance.*
- *Fuel oil capacity.*
- *Freshwater capacity.*
- *Emergency first aid provision*
- *SAR equipment (e.g. Jason's Cradle).*
- *Number of life rafts and capacity*
- *Number of lifejackets*
- *Firefighting equipment*

25 References

MCA (2016) MGN 543 Offshore Renewable Energy Installations – Guidance on UK Navigational Practice, Safety and Emergency Response.

Moray East (2018a) Development Specification and Layout Plan (DSLP), Moray East Offshore Wind Farm and Associated Offshore Transmission Infrastructure. Document submitted for approval to Marine Scotland, on behalf of the Scottish Ministers, in August 2018. Document Reference: 8460001-PCA0010-MWE-REP-003.

Moray East (2018b) Offshore Transmission Infrastructure Cable Plan (OfTI CaP), Moray East Offshore Transmission Infrastructure. Document Reference: 846001-PCA0030-MWE-REP-001.

Moray East (2018c) Wind Farm Cable Plan (Wind Farm CaP), Moray East Offshore Wind Farm. Document Reference: 8460001-PCA0010-MWE-REP-006.

Moray East (2018d) Marine Pollution Contingency Plan (MPCP), Moray East Offshore Wind Farm and Associated Offshore Transmission Infrastructure. Document submitted for approval to Marine Scotland, on behalf of the Scottish Ministers, in September 2018. Document Reference: 8460001-PCA0010-MWE-RHD-002.

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