15/6930/001/GLA/ERCoP/001

A3

ORE Catapult

Levenmouth Development Turbine

Emergency Response Co-operation Plan (ERCoP)

29 November 2018

OFFSHORE RENEWABLE ENERGY INSTALLATIONS ERCoP EMERGENCY CONTACT AND QUICK REFERENCE INFORMATION

Emergency Contact and Quick Reference Information

The Operator: emergency contact information

0800 368 8880

HM Coastguard: emergency and routine contact numbers:

Primary renewables emergency and routine telephone: **01224 592334**

Secondary emergency telephone contact: dial **999/112** and ask for Coastguard.

VHF/ MF DSC routine contact MMSI: VHF channel 16

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 Coastguard Operations Centre (CGOC).

Radio call-sign for HM Coastguard: *'UK Coastguard'*

MCA Notes

There is one turbine located in Methil. The turbine is on the shoreline and is accessed by a gangway.

Report Details

Client:	ORE Catapult
Client Contact:	Redacted
Report Distribution:	
ORE Catapult:	Redacted
Wood:	Redacted
Report Classification:	Confidential

Approval Record

	Name	Job Title	Signature
Prepared by:	Redacted		
Reviewed by:	Redacted		
Authorised by:	Redacted		
Date of issue:	29 November 2018		

Amendment Record

Revision Number	Date	Summary of Amendments	Purpose of Revision
A1	04/05/2016	n/a	First draft
A2	29/06/2016	Minor amendments following review	Internal authorisation
A3	27/03/2019	Removed redundant link	For MS-LOT
B1	24/08/2016	Minor amendments following authorisation	Client issue
A3	26/11/2018	Major review	Updated following ERP Roundtable with Methil Fire Rescue and Maritime Coastguard Agency
B2	29/11/2018	Minor amendments	Client issue

NOTICE

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Glossary

Abbreviation or Term	Definition
AT	Authorised Technician
CGOC	Coastguard Operations Centre
Communications Coordinator	Responsible for co-ordinating all communications both within and out-with LDT.
COSHH	Control of Substances Hazardous to Health
ERP	Emergency Response Plan
FES	Forth Electrical Services
H&S	Health and Safety
HSE	Health and Safety Executive
HV	High Voltage
Incident Controller	Responsible for establishing incident control at LDT and directing an appropriate response.
LDT	Levenmouth Development Turbine
LOLER	Lifting Operations Lifting Equipment Regulations
MCA	Maritime and Coastguard Agency
MSDS	Manufacturers/Material Safety Data Sheet
MW	Megawatt
OEM	Original Equipment Manufacturer
Operational Controller	Wood employee responsible for site access control and transfer of control under the WTSR.
ORE	Offshore Renewable Energy
OREI	Offshore Renewable Energy Installation
SOLAS	Safety-of-Life-at-Sea
PPE	Personal Protective Equipment
RUK	Renewable UK
SCADA	Supervisory Control and Data Acquisition

Abbreviation or Term	Definition
WCC	Wood Control Centre
SEPA	Scottish Environmental Protection Agency
SF6	Sulphur Hexafluoride Gas
SHI	Samsung Heavy Industries
SPEN	Scottish Power Energy Networks
WTG	Wind Turbine Generator
WTSR	Wind Turbine Safety Rules

1 Introduction

The operational management of Levenmouth Development Turbine (LDT), consisting of one Samsung Heavy Industries (SHI) 7MW wind turbine generator (WTG) which was handed over to Wood on 11 December 2015 as the operator and maintenance contractor (the Operator), with full operational control handover taking place on 24 December 2015.

The purpose of this site-specific Emergency Response Cooperation Plan (ERCoP) is to ensure that the information required by personnel responding to, or dealing with, an emergency is readily available and is also in a format that is accessible, concise and clear.

A copy of this document is available at the following locations:

- The Wood Control Centre (WCC).
- LDT substation office.
- LDT nacelle.
- HM Coastguard Operations Centre (CGOC)

It should be noted that in all circumstances where the emergency services are required to attend LDT, they should be contacted by dialling **999** or **112**.

2 Project Specific Hazards – Levenmouth Development Turbine

The LDT site has specific hazards and rescue considerations which are identified below:

- 11 kV high voltage (HV) network.
- 3.3 kV HV generation within WTG.
- Ice throw from WTGs.
- Falling objects.
- High winds.
- Lightning.
- Shoreside location with potentially deep, cold, tidal waters.
- Gangway access to offshore WTG platform.
- Evacuation from nacelle above water may be required.
- Hazardous substances.
- Limited mobile phone reception in structures.
- WTG hub height 112m, blade tip height 196m above mean sea level.

3 Project Location/Information

- LDT was developed by SHI and is now owned by ORE Catapult.
- LDT is located within Fife Energy Park, Methil.
- LDT consists of 1x 7.0 MW SHI WTG.
- Operational management for LDT is provided by Wood.

3.1 Address

Levenmouth Development Turbine

Fife Energy Park

Links Drive

Methil

Fife

KY8 3RA

Grid Reference - NT369986

4 Emergency Contact and Quick Reference Information

Table 4-1 details the Operator emergency contact information.

Table 4-1: The Operator emergency contact information

Name	Contact
Wood Control Centre	0800 368 8880
Redacted	Redacted
Redacted	Redacted
Redacted	Redacted
Redacted	Redacted

Table 4-2 details the HM Coastguard emergency contact information.

Table 4-2: HM Coastguard emergency contact information

Name	Contact
Primary renewables emergency and routine telephone	01224 592334
Secondary emergency telephone contact	999/112 and ask for Coastguard
VHF/ MF DSC routine contact MMSI	VHF channel 16
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'

N.B. LDT site office has no marine VHF capability, VHF information is included for periods where marine operations may be undertaken with vessels with VHF marine channels.

5 Wind Farm Information

Table 5-1 details the WTG information at LDT.

Table 5-1: WTG Information

WTG Parameter	Height above MSL	
Total height (to blade tip)	196 m	643 feet
Hub height	112 m	367 feet
Interface height (foundation to transition piece)	18 m	59 feet

6 Operations Phase ERCoP

6.1 Wood

6.1.1 Role and Responsibilities of Wood in an Emergency

In the event of an emergency on an offshore renewable energy installation (OREI), or at sea involving its personnel and/or vessels, Wood is responsible for providing immediate rescue and first aid medical response, to a level appropriate to the circumstances of the OREI and its location. Wood is also responsible for immediately alerting HM Coastguard of an emergency and for liaising and cooperating with the relevant CGOC to resolve the emergency.

Wood is also obliged, under international maritime agreements and practices e.g. Safety-of-Life-at-Sea (SOLAS) convention, to assist, where it is possible to do so, other vessels or persons in danger at sea nearby or within the OREI field or area and/or when requested to assist by the relevant CGOC.

Wood 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 OREI field.

Further information is contained in "Guidance, Advice and Requirements for Search and Rescue and Emergency Response" available on the MCA website.

6.1.2 Wood Contact Information

6.1.2.1 Full Emergency Response Information

- Wood Control Centre (24/7):
  - 0800 368 8880.
  - Wood.ops@Woodplc.com.

6.1.2.2 National Office and Office responsible for the operations of the installation

- Reception (office hours): 0141 227 1700.
- Address: 319 St. Vincent Plaza, Glasgow, G2 5LP

6.1.2.3 Owner organisation and principle contact(s) at Owner

- Redacted
- Redacted

6.2 Liaison arrangements between Wood Ltd and HM Coastguard

Wood and HM Coastguard are to work together in the event of an emergency. Agreed communications shall be set up between the CGOC and Wood Control Centre.

Details of persons involved, and the nature of the incident shall be transmitted via telephone call with a follow up by email.

In the event of an emergency at LDT, the following personnel shall be contacted to coordinate and undertake the response:

Incident Controller:	Wood Site Manager
Communications Coordinator:	Wood Control Centre
Working at height:	WTG contractor rescue team leader

The Incident Controller shall be responsible for selecting and deploying appropriate, competent personnel and for directing them throughout the incident and for establishing the Incident Control Room at LDT. However, in the case of an emergency involving working at height, the Incident Controller will allow the working at height rescue team leader to direct the rescue operation until the casualty has been removed from WTG.

The Incident Controller shall carry out dynamic risk assessments throughout the rescue operation and ensure all personnel involved in the rescue operation are briefed and updated on requirements.

The Communications Coordinator is responsible for co-ordinating all communications both within and outwith LDT. The communications control room shall be located in the Wood Control Centre. The purpose of this role is to ensure communication channels remain free for use by persons involved in the rescue operation and all relevant personnel and external services are kept up to date with incident details.

The Communications Coordinator is also responsible for maintaining a log of the incident and shall record details of the incident, the rescue arrangements, personnel involved and of emergency services or enforcing authority involvement.

6.3 The Installation

6.3.1 Details of the installation and operations

- Installation consists of one offshore WTG, shoreside office and substation and 110 m meteorological mast.
- Type - Samsung Heavy Industries 7 MW – S7.0-171.
- WTG hub height 112 m, blade tip height 196 m above mean sea level.
- Transition piece 18 m above mean sea level.
- Rotor diameter of 171 m.
- WTG situated 48 m from shore, with bridge for personnel access from shore.
- The rotor can be stopped remotely by feathering the blades, however the brake cannot be applied remotely without personnel in the WTG. Any Authorised Technician (AT) in the nacelle will be able to control the position of the rotor and apply the brake to hold the rotor in place. Rotor locking pins can be inserted.
- Wind turbine locking (pinned) limitations – 15 m/s.
- Power (export) cable is laid between the WTG and shoreside substation. The cable is routed across the access bridge and subsequently below ground to the substation. The cable is not routed through the water at any stage.
- Figure 6-1 to Figure 6-9 depict the key helicopter rescue aspects for the WTG.

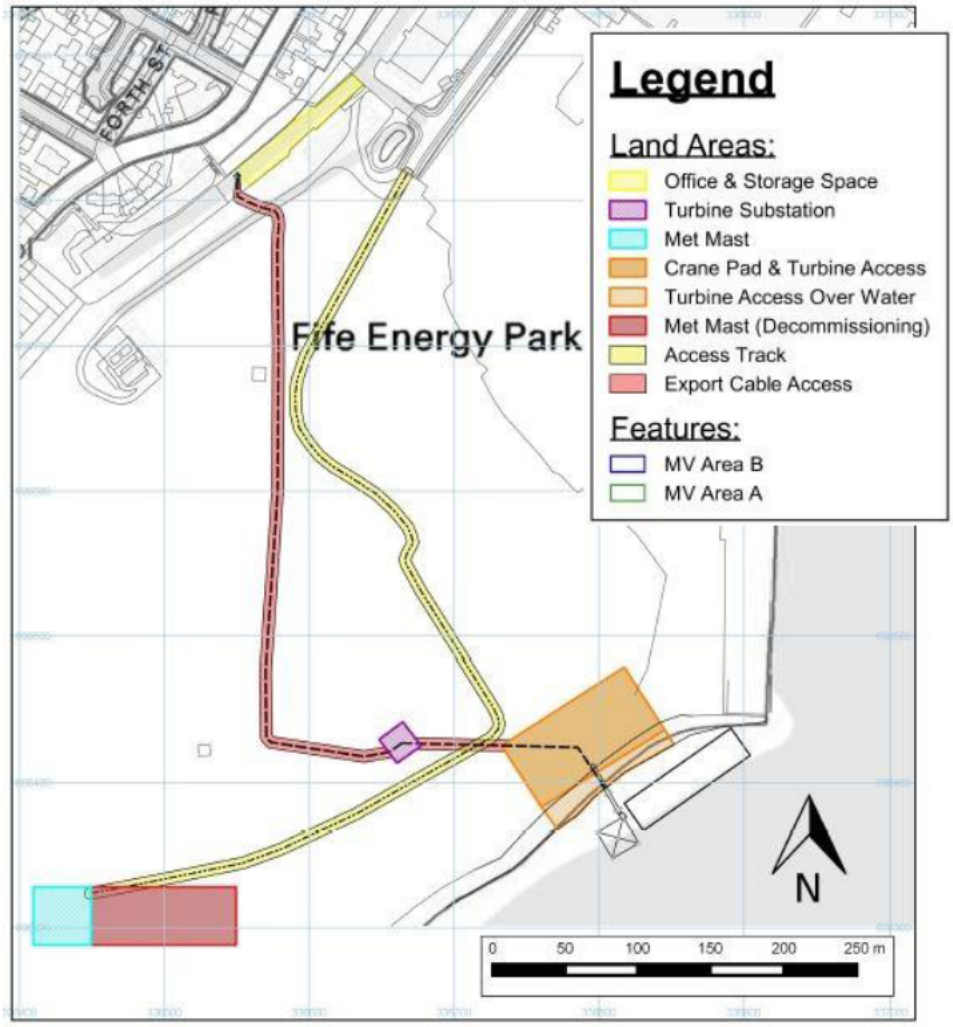
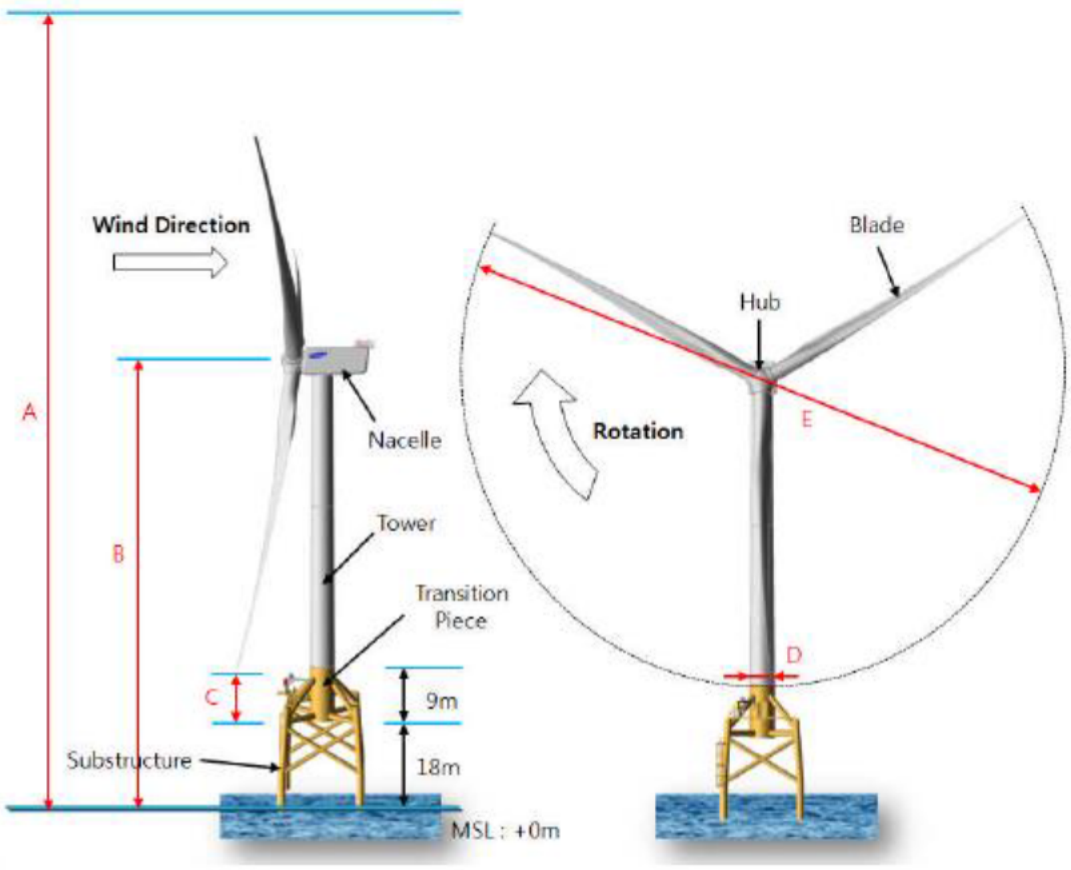


Figure 6-1: Project Map



Item	A	B	C	D	E
-	196.0 m (MSL)	110.6 m (MSL)	7.0 m	7.0 m	171.2 m

A is the blade tip height, B is the hub height, C is the tip clearance, D is the diameter of the tower bottom, and E is the rotor diameter. MSL stands for the Mean Sea Level.

Figure 6-2: WTG Dimensions

Figure 6-3: WTG Overview looking North East

Figure 6-4 - WTG Access Gangway

Figure 6-5: Site Layout Photograph from WTG Roof

Figure 6-6: WTG Roof Enclosure with Aviation Light

Figure 6-7: WTG Roof Enclosure Access Down to Nacelle

Figure 6-8: WTG Foundations at LAT

Figure 6-9: WTG Transition Piece and Access

6.3.2 Emergency Shutdown Procedures and Processes

An emergency shutdown carried out by the control centre operator. The CGOC should request a shutdown via our control centre on 0800 368 8880 and may take five minutes before the rotor comes to rest.

6.3.3 Radio Communications and Emergency Communications

LDT uses VHF digital radios for shore to WTG routine communications. However, these are not marine band VHF radios. In emergency situations the same radios will be used, along with mobile phones carried as a back-up.

No AIS or radar systems are in use.

6.3.4 Electronic Surveillance and Monitoring Systems

Surveillance cameras are sited on the cabin to provide 24 hour monitoring of the site via the Wood Control Centre. Login details can be provided if required.

6.3.5 Work and Safety Boats

Due to the access route being via the fixed bridge from shore, there is no requirement for a work or safety boat during normal operations. However, on the south east side of the transition piece there is a steel fixed ladder for boat access if required. When rope access is required, a safety boat shall be stationed nearby.

6.3.6 Locating Aids Used by Personnel or Vessels Working at the Site

Personal Locator Beacons are not in use by personnel on LDT. In the event of the WTG team having to evacuate into the water, a third person permanently stationed on shore will be utilised to track the person's location of the and throw out life buoys as required.

7 The Coastguard Operations Centre (CGOC)

7.1 Role and Responsibility of the CGOC

As the UK maritime emergency service, HM Coastguard's CGOCs are responsible for the coordination of all civil maritime emergency response and search and rescue 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, or pollution or maritime security incidents or concerns.

7.1.1 Communicating with HM Coastguard

HM Coastguard uses a network of remote aerials to ensure VHF coverage from the coast to nominally up to 30 nautical miles offshore. HM Coastguard 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.

7.1.2 Radio Communications

All CGOCs can operate on channels 6, 10, 16, 23, 67, 70 DSC, 62, 63, 64 and on two private SAR coordination 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. HM Coastguard is not formally licensed to use other VHF Marine Band channels but may use them in extremis.

Medium Frequency (MF) frequencies used by HM Coastguard include 2187.5 kHz (DSC), 2182 kHz (MF distress, urgency and safety working frequency) and 2596 kHz (HM Coastguard'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 windfarm 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.

7.2 CGOC Contact Information

The following contact information 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.

CGOC Aberdeen

Marine House, Blaikies Quay
Aberdeen

AB11 5PB

T: 01224 592 334 E: zone4@hmcg.gov.uk

7.2.1 Reporting Incident Position/Location

It should be noted that the position of any incident is a vital part of the incident response process and should be reported as part of initial incident details. If the incident is on a WTG, the precise coordinates (in latitude and Longitude) should be passed to HM Coastguard so that any responding rescue unit may use the position for precision navigation purposes.

7.3 SAR Facilities and their Response Capability

7.3.1 Note on Availability of National SAR Resources

National Search and Rescue resources (lifeboats and rescue helicopters) are available if:

- The incident exceeds the capability of the operator 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 OREI or its operations. In this event, and where safe and feasible to do so, wind farm work and safety craft should respond and assist in accordance with IMO SOLAS regulations, chapter V.

7.3.2 Details of Surface Craft Rescue Resources Available:

Table 7-1: Details of surface craft rescue resources available

RNLI Station	Approximate Distance to field & Maximum Speed	Response type / class
Kinghorn Lifeboat	10nm – 35kts – (time)	Atlantic 85
Anstruther Lifeboat	13nm – 17kts – (time)	Mersey Class Lifeboat

Note: Royal National Lifeboat Institution and other volunteer lifeboat and rescue boat services provide craft to rescue persons in danger at sea. Their personnel are not trained to climb WTGs or enter OREIs and should not be requested to do so. Their role in the OREI context is limited to rescuing or assisting persons from the landing stages or decks of such installations.

7.3.3 Airborne Rescue Resources

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 HM Coastguard.

There are ten UK SAR helicopter bases, of which Prestwick and Inverness are most relevant to Wood.

These aircraft must not be factored in to the operator's own provisions for Emergency Response and are to be looked at as a resource of last resort.

The following information generalises the capabilities of each aircraft type:

Sikorsky S-92

Air Speed: 145 knots
Operational range: in excess of 250 nautical miles' radius of action
Normal flight crew: 4
Capacity: 21 persons as required – 3 stretchers, 10 seated persons, additional standing persons
Endurance: over 4 hours
De-icing equipment
Twin hoist
Comprehensive medical suite

AgustaWestland AW189

Air Speed: 145 knots

Operational range: in excess of 200 nautical miles' 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
De-icing equipment
Twin hoist
Medical suite

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 as detailed above, may not be the one mobilised during an emergency.

7.4 Helicopter Rescue Plan

- Blade Position
    - Retreating blade horizontal position,
    - yaw 90
    - Rotor Lock (if possible)

- Stretcher Rescue

- Communications
- Lighting
    - Dewalt 18V floodlight to be kept in nacelle at all times with charged batteries.

7.5 Medical advice / assistance

If medical advice or assistance is required then the Wood ERP will be enacted, utilising first aid trained members of staff and shore-based emergency services if required.

7.6 Firefighting, Chemical hazards, Trapped Persons

Firefighting equipment is provided within the WTG to assist with personnel evacuation. Equipment and locations are listed in the ERP, along with procedures to be followed by the incident controller.

NOTE: It is understood that general instructions to OREI personnel are that should a fire break out, the OREI is to be evacuated and no direct firefighting response is to be attempted. This will be the normal response to such situations.

7.7 Survivors Shore Reception Arrangements

The numbers of personnel working on the WTG and proximity to shore negate the requirements of Shore Reception Arrangements. Wood have arrangements in place on site to receive casualties in the site office.

7.8 Suspension / Termination of SAR action

In deciding when to terminate attempts to rescue and/or search operations for incidents, the advice of the GCOC and police will be followed.

7.9 Criminal Actions and Accidents to Persons

Procedures and contact arrangements for reporting criminal activity on, within or around the WTG are covered within the Wood ERP. The police and HMCG shall be notified of all incidents.

7.10 Media relations

Wood marketing manager Debbi Limond must be contacted in the event of a media response being required. Further information regarding media relations and the NDA in place on the WTG is contained within the ERP and Induction.

7.11 Exercises

Wood shall facilitate exercises on either a table-top or full personnel basis. Any learning points taken from the exercises shall be distributed to all parties including the Client. This serves as a 'get to know you' and educational process for all the operators staff and the emergency services who might be expected to respond to any emergency in or around the installation.

7.12 Unexploded Ordnance and Wreck Materials Located on or Near to OREIs

During construction or other seabed operations it is possible that unexploded ordnance or materials from uncharted wrecks could be located, exposed, disturbed or inadvertently lifted from the seabed. For the duration of the operational phase of the LDT Project, this is not seen as a likely event, however, if this does occur the following procedures should be followed:

7.12.1 Unexploded Ordnance (UXO)

The object should not be moved (or removed if it is lodged in dredging buckets, pipes or conveyor systems, etc). The situation should be immediately reported to the HM Coastguard who will alert the relevant military ordnance disposal organisation. All personnel should be evacuated as far as practicable away from the UXO.

- Further information and advice to mariners on the handling of UXO can be found in UK MGN 323 (M+F)
- A military Explosive Ordnance Disposal (EOD) team may be sent and they 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 either via mobile phone or by radio to telephone link-call via the Coastguard CGOC.

7.12.2 Wreck or Wreck Materials

Uncharted wrecks, (aircraft or vessels) or materials from wrecks may be located, disturbed or inadvertently lifted from the seabed during subsea operations. All such finds MUST be reported by law to the UK Receiver of Wreck. This should be done by telephoning the receiver of Wreck on 020 381 72420 or 020 381 72421, or contact the HM Coastguard who will then inform the Receiver of Wreck Officers.

Information on reporting wreck or wreck materials can be found at:
https://www.gov.uk/government/groups/receiver-of-wreck

7.13 Counter Pollution

Wood will operate LDT in accordance with LDT specific Environmental Plan which is contained within the LDT Asset Management Plan – document number – 15/6930/001/GLA/AMP/001

The Bonn Agreement contains useful information on responding to pollution events in and around offshore renewable energy installations. Generic 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 OREIs.

7.14 The SAR mission coordination (SMC)

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

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.

7.15 The On-Scene Coordinator - (OSC)

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 the other SAR facilities.
- Monitor the performance of other units participating in the search. Coordinate and divert surface units or helicopters to evaluate sightings.
- Develop and implement the rescue plan (when needed).
- Coordinate safety of flight issues for SAR a/c (where no Aircraft Coordinator is appointed).
- 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 each facility departs the scene.

7.16 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, search and rescue 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, life boat, drifting vessel, person in the water, etcetera. Any information that the OREI has or records on tide and wind speed and direction could be helpful in the accurate calculation of search areas. Such useful information could be:

- Information about tides and water currents.
- Availability of any wind data from OREI resources e.g. anemometer information and how the CGOC can obtain this.
- Explanation of the procedures to be carried out by the CGOC, and any information or actions required from the operator, in the event of search planning action being required.