


Emergency Response Plan (ERP)

EMEC – phase 1 – TFS

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Emergency Contact and Quick Reference Information

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The Operator: Tocardo's emergency contact information 24hrs		
24 HOURS		
Project Coordinator	Before March 31st 2017:	Bart Boosman
		+31-653455532
	After March 31st 2017:	Ronald de Haan
		+31-614681420
Alternative contact number information: Both persons are each other's backup. Hence, prior to 31st March 2017 the back-up is Ronald de Haan, after the 31st March 2017, the back-up is Bart Boosman.		
EMEC emergency	Duty Manager	07624 345411
Electrical emergency	Bryan Rendall Ltd	07624 912782

NOTE: further contact details of EMEC can be found in Appendix 3: Emergency contacts
EMEC. Further contact details of Tocardo can be found in Appendix 4.

The general offshore location of the TFS is as follows:

TFS coordinates: DD:MMMM format: 59°8.5975N, 2°48.3162W
(DD:MM:SS format: 59°8'35.85"N, 2°48'18.97"W)

HM Coastguard: emergency and routine contact numbers: Primary renewables emergency and routine telephone: **+44(0)1224 592 334**.

Secondary emergency telephone contact: dial 999/112 and ask for Coastguard. **VHF Channel 16(156.800MHz) or MF 2182 kHz**

Please note that no DSC system is on board the TFS

VHF/ MF DSC routine contact MMSI: **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'*

*A continuous watch is maintained on channel 16 and 11. The Call Sign is "ORKNEY VTS". The telephone number is **01856 873636***

MCA Notes:

[None]



Figure 1: Location overview

For reference:

TFS Position (UTM 30N)	-	511141E 6556024N
CD	-	36 meters
LAT	-	36 meters
MHWS	-	39.5 meters
MHWN	-	38.8 meters
MLWN	-	37.4 meters
MLWS	-	36.7 meters

Key dimensions TFS

Highest point above water	6.1m
Length	24.4m
Width	2.4m
Mooring spread (4 point taut)	380m x 66m

Definitions and abbreviations

CGOC	The Coastguard Operations Centre
EMEC	European Marine Energy Centre
ERP	Emergency Response Plan
HIRA	Hazard Identification Risk Assessment
HSE Plan	Health Safety and Environment Plan
Incident	An unexpected event that leads to a loss of status quo or increased risk regarding human wellbeing, energy yield, environmental safety, device integrity.
Major Injury	<p>Any fracture, amputation</p> <p>Dislocation of the shoulder, hip, knee or spine.</p> <p>Loss of sight (whether temporary or permanent).</p> <p>A chemical or hot metal burn to the eye or penetrating injury to the eye.</p> <p>Any injury resulting from an electric shock or electrical burn (including any electrical burn caused by arcing or arcing products) leading to unconsciousness or requiring resuscitation or admittance to hospital for more than 24 hours.</p> <p>Any burns bigger than 3% of total body coverage due to flames or chemicals</p> <p>Any other injury:</p> <ul style="list-style-type: none"> ▪ leading to hypothermia, heat-induced illness or to unconsciousness, ▪ requiring resuscitation, or ▪ requiring admittance to hospital for more than 24 hours. <p>Loss of consciousness caused by asphyxia or by exposure to a harmful substance or biological agent.</p> <p>Either of the following conditions which result from the absorption of any substance by inhalation, ingestion or through the skin:</p> <ul style="list-style-type: none"> ▪ acute illness requiring medical treatment; or ▪ loss of consciousness. <p>Acute illness which requires medical treatment where there is reason to believe that this resulted from exposure to a biological agent or its toxins or infected material.</p>
Minor Injury	Injury not listed as major injury (see above)
OREI	Offshore Renewable Energy Installation
SAR	Search and Rescue
SOLAS	Safety of Lives at Sea
TFS	Temporary Foundation Structure

Contents

EMERGENCY CONTACT AND QUICK REFERENCE INFORMATION	2
DEFINITIONS AND ABBREVIATIONS.....	5
1. INTRODUCTION	8
2. DEVELOPMENT INFORMATION.....	9
2.1 Tocardo.....	9
2.1.1 Role and responsibilities of Tocardo in an Emergency.....	9
2.1.2 Project Coordinator	9
2.1.3 EMEC Duty Manager	10
2.1.4 Managements.....	10
2.2 Liasion between Tocardo and HM Coastguard	10
2.3 Device installed	10
2.4 Planning	12
2.5 Emergency shutdown procedure	12
2.6 Vessels	12
3. THE COASTGUARD OPERATIONS CENTRE (CGOC)	13
3.1.1 Role and Responsibility of the CGOC:.....	13
3.1.2 Communicating with HM Coastguard:	13
3.1.3 Radio Communications.....	13
3.1.4 CGOC Contact Information.....	13
3.1.5 Reporting Incident Position/Location.....	13
4. INCIDENTS	14
4.1 Risk levels	14
4.2 Overall response flow diagram	15
4.3 Communication equipment	16
4.3.1 Vessel traffic services	17
4.4 Local Maritime Resources	17
5. EMERGENCY PROCEDURES	17
5.1 Fire / explosion	17
5.2 Abandon vessel	18
5.3 Personnel Overboard	18
5.4 Collision or structural damage to vessel	18
5.5 Severe Storm Conditions	19
5.6 Loss of communication with the TFS.....	19
5.7 Mooring failure.....	20
5.8 Uncontrolled drift/loss of power.....	20
5.9 Pollution	20
5.10 Minor injury.....	21
5.11 Serious injury.....	21
5.12 Criminal acts or threats	22
5.13 General Emergency Reporting	22
6. INTERNAL PROCEDURE.....	23
6.1 Reporting	23
6.2 Investigation	23

6.3	Lessons Learned	24
6.4	Reportable Incidents	24
6.5	Dangerous Occurrences	24
APPENDIX 1:	REFERENCED DOCUMENTS.....	25
APPENDIX 2:	EMERGENCY CONTACT FORM	26
APPENDIX 3:	EMERGENCY CONTACTS EMEC	27
APPENDIX 4:	CONTACT DETAILS TOCARD.....	28
APPENDIX 5.....		29
APPENDIX 6.....		31
Figure 1:	Location overview	3
Figure 2:	Isometric view TFS model.....	11
Figure 3:	Overall Emergency response Organization	15
Figure 4:	Vessel Emergency response Organization	16

1. Introduction

This document describes the general and specific procedures used to limit and control Emergencies in a marine environment during installation, operation, maintenance and decommissioning of Tocardo's TFS floating tidal energy unit. Responsibilities and organizational communication lines are also defined.

This ERP is a procedure that applies during the life of the phase 1 project. A HSE plan, Permit to Work procedures, and HIRA are to be provided prior to commencing of the works to minimize the risk of evoking this ERP.

Reference should also be made to Marine Guidance Notice [\(MGN\) 543](#) and [372](#) plus "*Offshore Renewable Energy Installations: Guidance on Requirements and Operational Considerations for Search and Rescue and Emergency Response*".

A reported incident will be investigated and reported back upon by the appointed reporting party.

This plan is subject to change in light of experience and feedback.

2. Development information

The entire Fall of Warness tidal test site is operated by EMEC. Phase 1 is located at berth 8 at Fall of Warness. This cable is leased by ScotRenewables Tidal Power Limited. Tocardo is responsible for the TFS device. This defines the top three stakeholders that need to be informed; EMEC, Tocardo, ScotRenewables.

Contractors are third party stakeholders within the project.

Emergency services such as Maritime and Coastguard Agency, Search and Rescue and Navigation Safety Branches, Police, Fire department, etc, form the group of stakeholders outside the project. Notifications are needed to update them on the plans, which can enable them to stand by.

It is appropriate for a Developer to consider communicating with these wider communities with regard to their marine operations. If this is done early in the project the developer is likely to benefit from the input of local knowledge and the support of the local infrastructure. These organisations may include Orkney Island Council, Local Community Councils, Orkney Ferries, Northlink Ferries, Orkney Fisheries Association and Orkney Fishermen's Society.

2.1 Tocardo

Tocado Tidal Energy Ltd.

Email: info@tocardo.com

Address:

Clava House House, Cradlehall Business Park, Inverness IV2 5GH

Telephone:

[+31 227 726 200](tel:+31227726200)

2.1.1 Role and responsibilities of Tocardo in an Emergency

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

Tocado is also obliged, under international maritime agreements and practices e.g. 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 OREI field or area and/or when requested to assist by the relevant CGOC.

Tocado, through its chosen subcontractors, may also need to provide 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 at the Fall of Warness.

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

2.1.2 Project Coordinator

Within the project there is one central person that is responsible in the first line. The project coordinator is to be informed as soon as possible in case of an incident.

The project coordinator for Phase 1 is appointed by Tocardo who will be made known to all parties. The project coordinator is the project manager during installation, commissioning and decommissioning phase. Parallel to the project manager is the service manager who acts as the back-up for the project manager.

During normal operation, the service manager is the normal project coordinator, backed-up by the project manager.

2.1.3 EMEC Duty Manager

From the Marine Operating Guide drafted by EMEC:

The responsible manager for the site operation is required to report in to the EMEC Duty Manager at least once a day to update on the progress of operations. A daily detailed log is also required to be completed and emailed to the EMEC Duty Manager within 12 hours of completion of work for the day. The EMEC Duty Manager is to be informed of vessel movements on and off site including the number of personnel on board.

The responsible manager for the site operation is required to report immediately to the EMEC Duty Manager if there is an accident, a serious incident or a near miss. This is in addition to any statutory requirements to report to the relevant authority, either the MAIB (Marine Accident Investigation Branch), HSE (Health and Safety Executive) or both.

2.1.4 Managements

The management of Tocardo, EMEC and ScotRenewables need to be informed in case of a serious incident. See chapter 4.1 on split in incident levels.

The management teams will act accordingly inside their own organisation, but will not act within the project without consulting the project coordinator first. Public Relations (PR) related issues are best handled through the management teams.

2.2 Liaison between Tocardo and HM Coastguard

In case of emergency and a call to HM Coastguard, Tocardo is to make sure UK Coastguard gets all information required.

2.3 Device installed

The TFS and associated mooring system will be installed during the period from the end of February 2017 to the end of March 2017. The TFS will be operational for 12 months and forms the first step of a phased approach in installing 5 tidal turbines at EMEC. The unit and associated mooring system will be decommissioned within 18 months of its installation.

The TFS has only one tidal turbine, see figure below:

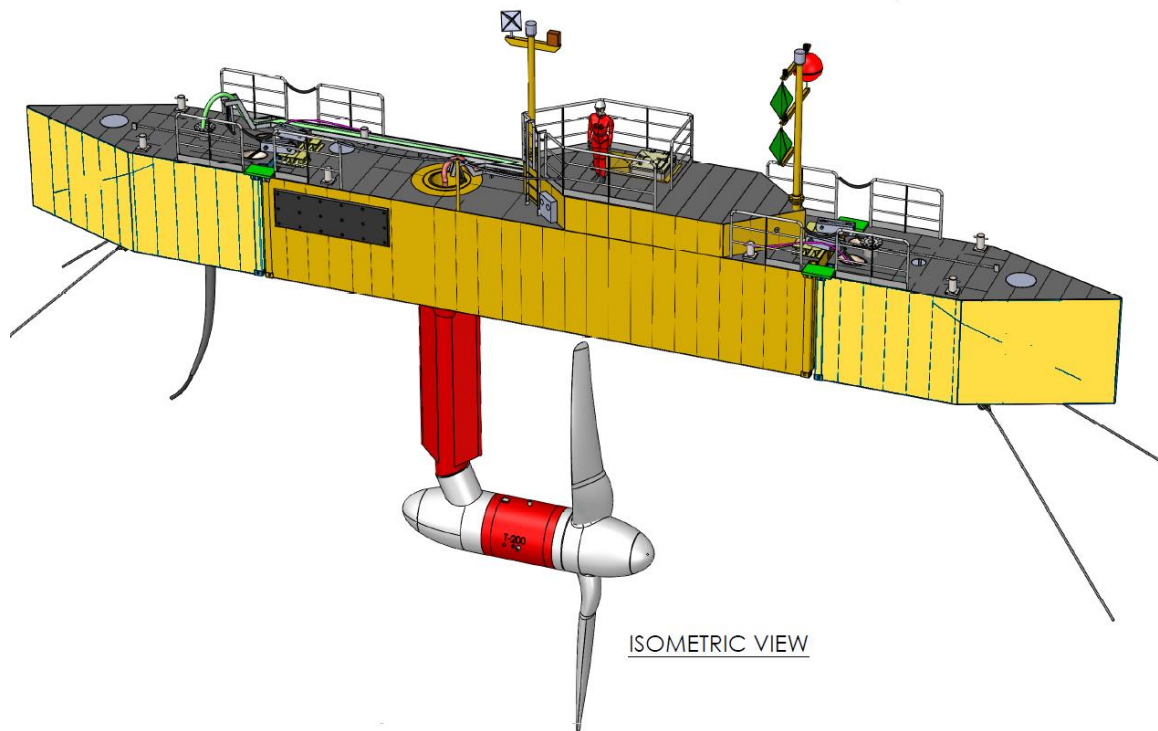


Figure 2: Isometric view TFS model

The TFS will be equipped with:

- Radar reflector
- Yellow flashing light, flashing every 5 seconds (FI Y 5s) with a nominal range of 2 nautical miles and mounted > 1,5m above the waterline. This is to be confirmed by the Northern Lighthouse Board by means of an “Application for Statutory Sanction to Alter/Exhibit”.
- Mast for navigational markings
- AIS transponder
- GPS tracker
- Turbine controller
- Boat landing pads and bollards on side
- Railing
- Yellow paint
- Life buoy

The TFS is **not** equipped with:

- medical equipment
- survival suits
- rescue crafts

The TFS is designed for waves rolling over it. Access is through a watertight hatch on top. It will be marked on Admiralty Charts by Hydrographic Office after installation succeeded and as-installed coordinates are known. Tocardo is to notify, prior to commencement of installation works, the UK Hydrographic Office of the proposed works to facilitate the promulgation of maritime safety information and updating of nautical charts and publications through the national Notice to Mariners system.

Automatic Identification Systems (AIS) is a system of VHF radio beacons and receivers. The TFS will have a class B AIS transponder.

When the AIS indicates the TFS is outside its expected area, an alarm will be triggered and send to the project coordinator. See chapter 5.6 on the response actions.

The TFS is connected to the Eday Substation by 2 twisted signal pairs in the export cable, radio ('wifi') and 3G cellular network. See the TFS – One line diagram – Data communication in Appendix 6.

2.4 Planning

At a high-level, the offshore related activities planned for installation of the TFS are as follows:

Transport chain and boxes to Hatston pier	2 days	1/2/17	3/2/17
Install anchors	5 days	28/2/17	6/3/17
Transport subsea cable material	2 days	14/2/17	16/2/17
Install subsea cable components	2 days	7/3/17	8/3/17
Install TFS at site	2 days	14/3/17	15/3/17
Transport components on-shore station	4 days	14/4/17	17/4/17
Install on-shore components	20 days	5/1/17	30/1/17
Commissioning	5 days	16/3/17	22/3/17

Over time, the planning can change. Please enquire at Tocardo about the latest planning.

2.5 Emergency shutdown procedure

The TFS will be continuously monitored through the internet. Any loss of communication, or returning values outside the design limits will trigger a turbine shutdown.

The turbine has hydraulic brakes that are applied. After receiving a command through the HMI, it takes 2 seconds before the blades are completely stopped. The position of the blades can't be controlled.

2.6 Vessels

Reference is made to the Vessel Management Plan for which vessels and their specifications are used. The Vessel Management Plan can be found in the Project Environmental Monitoring Programme (PEMP).

3. The Coastguard Operations Centre (CGOC)

3.1.1 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.

3.1.2 Communicating with HM Coastguard:

HM Coastguard uses a network of remote aeriels 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.

3.1.3 Radio Communications

All CGOCs can operate on channels 6, 10, 16, 23, 67, 70 DSC, 23, 84, 86, 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 2187.5kHz (DSC), 2182kHz (MF distress, urgency and safety working frequency) and 2596kHz (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 offshore 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.

3.1.4 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.

- Location and address : MRCC Shetland, H.M. Coastguard, The Knab, Knab Road, Lerwick, Shetland, ZE1 0AX
- The CGOC can always be contacted by telephoning 999
- Operations room: 01595 692976
- Orkney sector manager: 01856 873704

3.1.5 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 initial incident details. If the incident is on the TFS, 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.

4. Incidents

4.1 Risk levels

There are 2 levels of emergency to be used per guidance listed below.

- Level 1 Potential for:
 - Damage Costs up to € 10,000, or
 - minor injurie(s), or
 - Fluid leak of up to one liter, or
 - incorrect disposal of special waste, or
 - hazardous situation foresight
- Level 2 Potential for:
 - Damage above € 10,000
 - Serious injury
 - Multiple injuries or health risk
 - Fluid leak above one liter
 - Incorrect disposal of special waste likely to cause a significant risk to health or environment.

All incidents are reported to the Project Coordinator who reports / logs it and decides if it a level 1 or level 2 incident together with the reporting party.

4.2 Overall response flow diagram

The overall organization diagram for both onshore and offshore is shown in Figure 1. This shows the different phases of response in case of emergency. Offshore emergency response activities will be coordinated from the on-shore command center located at Tocardo's office in Kirkwall.

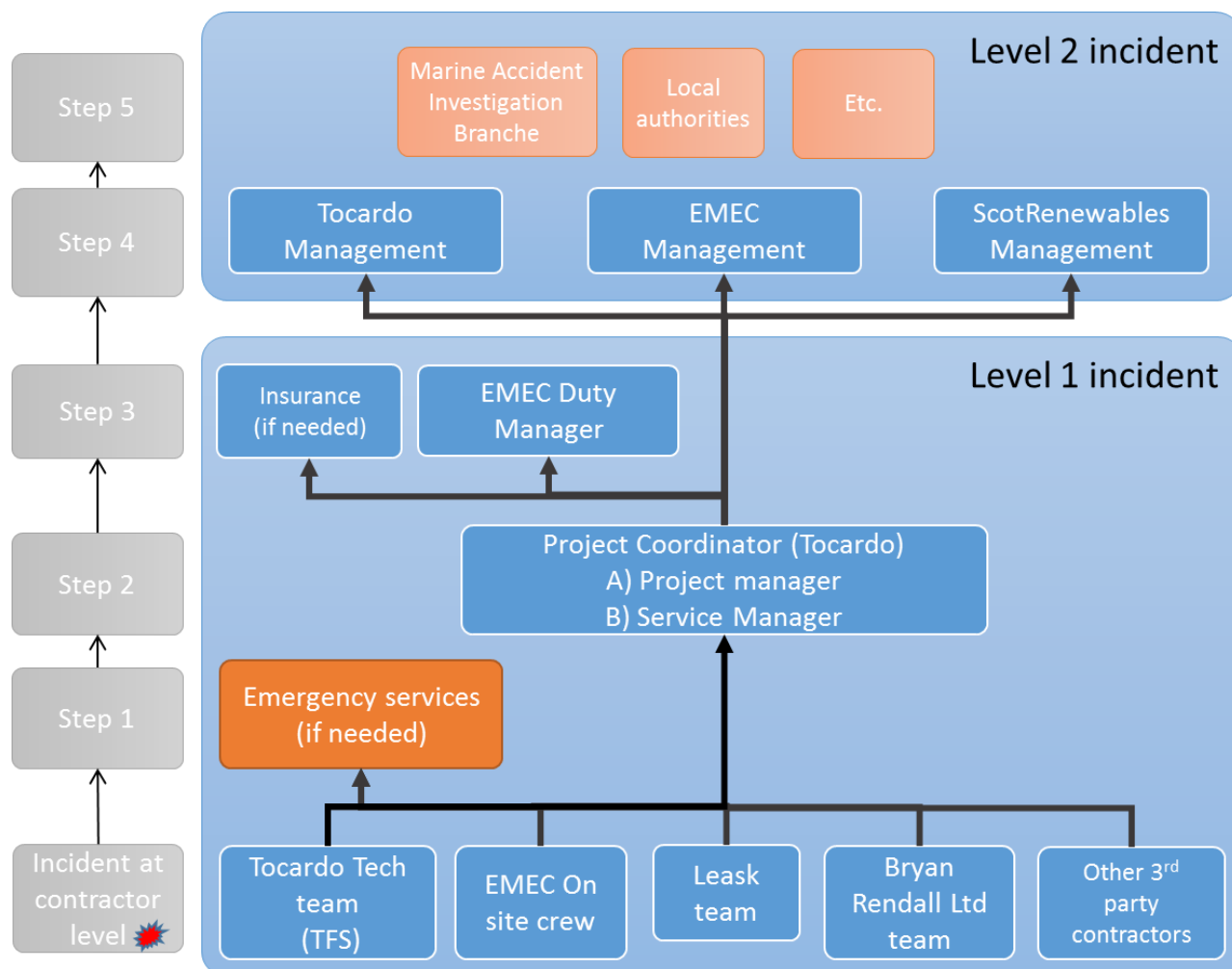


Figure 3: Overall Emergency response Organization

Vessel emergency flow diagram

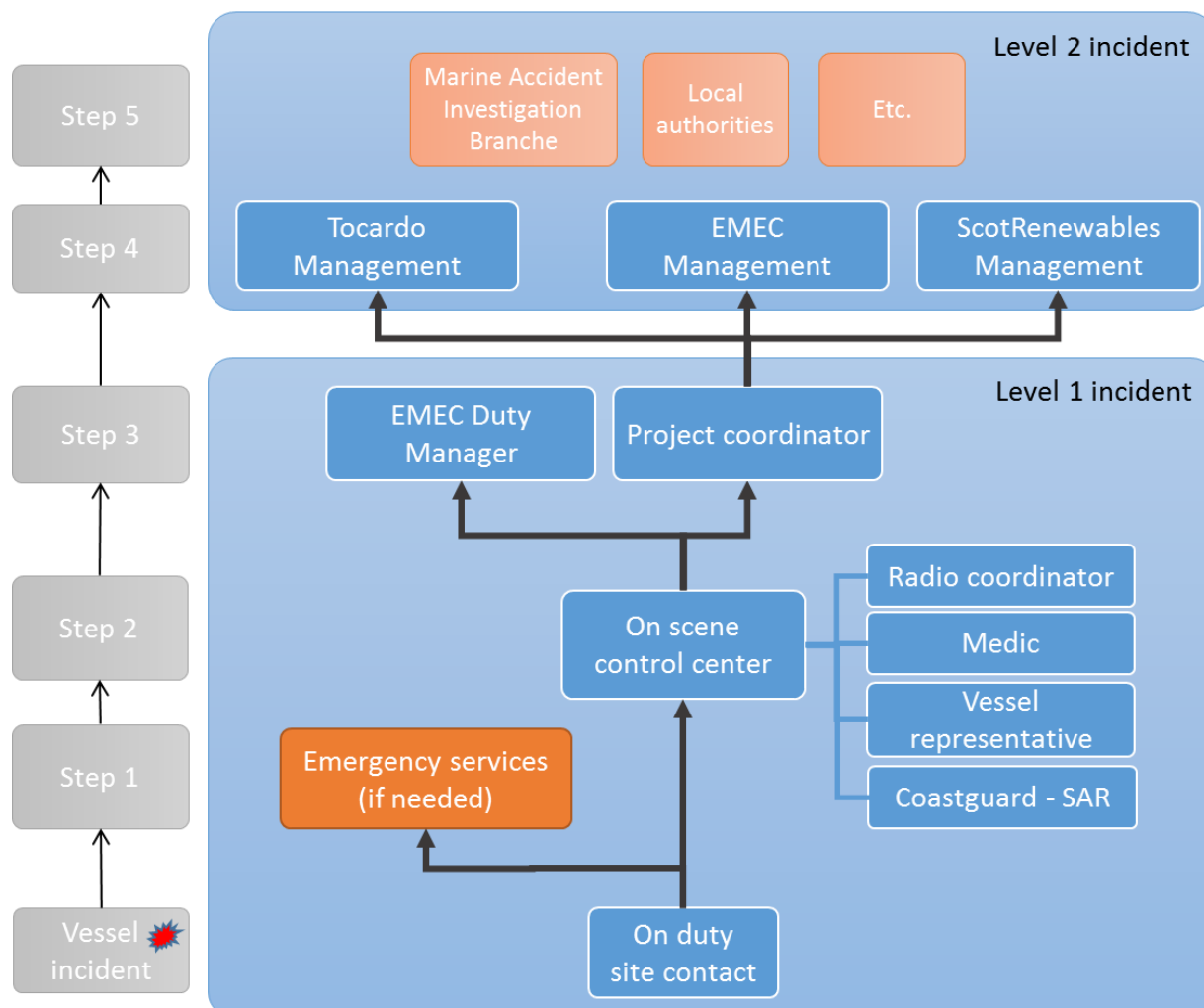


Figure 4: Vessel Emergency response Organization

4.3 Communication equipment

From the Marine Operating Guide drafted by EMEC:

“EMEC has VHF radio facilities at the shore bases at each main test site. These only operate on the EMEC private channel (162.4 MHZ) and Channels 18 and 16. These circuits are not continuously manned but are used during evolutions such as electrical testing where communications are required between onshore and offshore facilities.”

Assume mobile phones to have poor coverage at the Eday site.

Before work commences, a tool-box meeting should verify the communication equipment in use and its capabilities in case of emergencies.

4.3.1 Vessel traffic services

Orkney Harbour Authority operates a 24hr port VTS Information Service from its operations room at Scapa for vessels navigating in Scapa Flow and Kirkwall Bay / Shapinsay Sound areas. A continuous watch is maintained on VHF channel 16 and 11. The call sign is "ORKNEY VTS". The normal working channel is 11. The operations room can also be contacted as follows:

- Tel: +44 (0)1856 873636
- Fax: +44 (0)1856 873012
- Email: marine.ops@orkney.gov.uk

The service provides information on all aspects of port operations including pilotage, traffic movements, navigation warnings, weather forecasts and berth availability. Orkney VTS broadcasts regular local weather forecasts and navigational warnings at 0915 and 1715 (with updates as required) on VHF channel 20. The working VHF channels for individual piers and harbours within the harbour authority area are:

- Kirkwall Harbour Radio VHF channel 14.
- Stromness Harbour Radio VHF channel 14.

4.4 Local Maritime Resources

HM coastguard maintains Maritime Rescue Coordination Centres (MRCC) at Shetland and Aberdeen. Coastguard SAR (Search and Rescue) helicopters are based at Shetland and at Stornoway, both approximately 45 minutes response time to Orkney, depending on wind direction and day or night flying. There are three RNLI stations on Orkney at Kirkwall, Stromness and Long Hope. Three seagoing tugs of approximately 53 tonne bollard pull operated by Orkney Marine Services are based at Scapa, Orkney and if available can be on the Eday site within 6 hours.

Orkney Marine Services maintain a VTS and are commonly listening on working VHF channels 11, 12, 14 and emergency channel 16. Orkney Marine Services maintains a pilot boat with a towing capability of approximately 8 tonnes bollard pull at Kirkwall Pier and two fast pilot launches at Scapa.

5. Emergency procedures

5.1 Fire / explosion

In the case of a fire and or explosion:

- The emergency services are to be informed as soon as possible
- The designated fire/Emergency Wardens shall ensure that all personnel have evacuated the substation buildings and or site
- All personnel will report to the site muster point and will remain there until they are told to either go back to work or leave the site
- The designated Fire / Emergency Marshall shall take the names of all personnel and check the names against the daily log in sheet
- The Fire / Emergency Marshall will stay on site and report to the emergency services when they arrive any persons missing and if there are any potential associated risks such as gas bottles, explosives, petrol or diesel etc.

5.2 Abandon vessel

Emergency Evacuation can be in order in circumstances such as:

- Bomb threat
- Fire
- Gas leak
- Chemical spillage or leakage
- Floods
- Extreme weather conditions
- Sinking/grounding

If an emergency evacuation is to take place then the following should be observed:

- The emergency services are to be informed as soon as possible, as can be seen in chapter 0
- The designated Fire/Emergency Wardens shall ensure that all personnel have evacuated the buildings, vessel, and or site.
- All personnel will report to the site muster point or a point that has been identified as not at risk and will remain there until they are told to either go back to work or leave the site.
- The designated Fire / Emergency Marshall shall take the names of all personnel and check the names against the daily 'muster' check in or log in sheet.
- The Fire / Emergency Marshall will stay on site and report to the emergency services when they arrive; any persons missing and if there are any injuries he will report any first aid treatment they have received.

5.3 Personnel Overboard

In the event that persons (but also 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, etc. 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 EMEC.
-

5.4 Collision or structural damage to vessel

In case of a collision:

- Sound general emergency alarm
- Manoeuvre vessel to minimise effects of collision
- Close watertight doors and fire doors
- Switch on deck lighting at night
- VHF to Ch16
- Muster passengers if carried
- Check passengers on injuries. If a crew member has a minor injury, revise planning accordingly. If a crew member has a major injury, start informing emergency contacts.

- Sound bilges and tanks after collision
- Check for fire / damage. Start assessing damage to vessel on outside, before checking from inside.
- Check for pollution and initiate pollution procedure if required
- Offer assistance to other vessel
- Broadcast MAYDAY if vessel is in imminent danger and immediate assistance is required otherwise broadcast PAN-PAN (urgency)

Four stages of damage can be distinguished:

- 1) Damage, but no loss of required function of vessel
This is mainly an insurance issue. Take pictures if possible and report event.
- 2) Damage, loss of required function
Revise planning, inform project manager.
- 3) Damage, uncontrollable vessel
Check procedure “Uncontrolled drift or loss of power”
- 4) Damage, sinking
Call emergency response

5.5 Severe Storm Conditions

On shore works are limited when lifting cranes expect to experience wind gusts more than specified for the hoisting job. In case a sudden wind gust appears:

- Lower load directly down onto land close to the crane (inward movement, not over heads)
- Secure the crane area, no persons allowed until crane operator determines otherwise.
- Inform all persons present at side of new secured area and situation
- Revise planning

Off-shore works are to be stopped. It is the captain’s responsibility to get the crew to safety. The means to do that are numerous.

- Lower loads on seabed or deck. If on deck secure the load
- Hoist anchors or detach mooring lines if time is limited.
- Move to sheltered area (Backland pier at Eday is preferred)

Equipment needed for safe evacuation should be identified during the HSE planning and toolbox meeting at the start of the works.

5.6 Loss of communication with the TFS

Loss of communication can happen through multiple reasons and does not directly mean an emergency. However, due to the various reasons thinkable, it can form a dangerous situation or indicate an unseen incident. The project coordinators (project manager and service manager) get an alarm of loss of communication on their cell phones, as well as an automatic generated email.

The following procedure is to be started:

- Contact Recovery Team. This is preferable the same team as the maintenance team that carries the O&M contract of the TFS
- Contact Coastal Radio Station
- Contact EMEC Duty manager
 - Ask for contact details on Eday (assuming Eday is closest to latest TFS location)
- Verify if people are expected on board
 - Contact O&M party if not already done at start
 - Check logs of possible visits

- Review latest video footage
- If there is a possibility of people present, contact RNLI (Royal National Lifeboat Institution) / SAR
- Set up control room (see Figure 4: Vessel Emergency response Organization)

5.7 Mooring failure

If the TFS were to lose its designed and initial installed mooring line location, an alarm is triggered. The service manager gets this alarm on his cell phone, as well as an automatic generated email. The procedure as described in “*Loss of communication with the TFS*” is to be started.

5.8 Uncontrolled drift/loss of power

In case of threat of safety of personnel; call emergency response teams
 In case of no threat of safety, call project manager and Duty manager.

5.9 Pollution

In case of pollution, the following is to be done:

- Alert crew members
- Confirm type of discharge
- Confirm quantity of discharge
- Identify and monitor spill source
- Personnel protection
- Spill assessment
- Vapor monitoring
- Evacuation

Reporting:

When to report

All probable and actual spills

How to report

- By quickest means to coastal radio station
- Designated ship movement reporting station or
- Rescue Co-ordination Centre (at sea)
- By quickest available means to local authorities

What to report

- Characteristics of oil spilled
- Cargo/ ballast/ bunker dispositions
- Weather and sea conditions
- Slick movement
- Assistance required for
 - Salvage
 - Mechanical equipment

- Chemical dispersant/ degreasant

Seamanship measures

- Safety assessment and precaution
- Alter course/ position and/ or speed
- Anchoring
- Slick monitoring
- Advice on priority countermeasures/ preventive measures
- Damage stability and stress consideration
- Ballasting/ deballasting
- Internal cargo transfer operations
- Emergency ship-to-ship transfers of cargo and/ or bunker
- Set up shipboard response for:
 - Leak sealing
 - Fire fighting
 - Handling of shipboard response equipment (if available)
 - Etc.

5.10 Minor injury

In the case of a minor injury occurring on the site then the following procedures should be undertaken:

- The emergency services are to be informed as soon as possible if applicable
- First Aid personnel are to remain with the injured person until the emergency services arrive.
- The injured person is to be moved only if there is a real risk to his (and others attending him) safety.
- Report the incident to the project coordinator as soon as is reasonably possible.
- Report at the insurance company if applicable.
- Project coordinator to make an entry into the incident book

5.11 Serious injury

In the case of a serious injury occurring on the site then the following procedures should be undertaken:

- The emergency services are to be informed as soon as possible
- First Aid personnel are to remain with the injured person until the emergency services arrive.
- The local Health and Safety enforcement agency is to be informed
- The Police are to be informed
- The area where the incident occurred is to be isolated and to be kept as near as possible the same as when the incident occurred. If anything is to be moved then photographs are to be taken of the original condition.

- The injured person is to be moved only if there is a real risk to his (and others attending him) safety.
- Report to project coordinator.
- The project coordinator should
 - Report the incident to Management teams as soon as is reasonably possible.
 - Report to the EMEC duty officer
 - make an entry into the incident book
- Take witness statements while the incident is fresh in minds.

5.12 Criminal acts or threats

In the unlikely event that a criminal would start threatening, obstructing, robbing, damaging, etc:

- Call the police.
- Move all people to safe location
- Comply as much as possible, without causing further damage, with the demands of the criminal until the police arrive and take over
- Try to remember as much information about the criminal as possible (license plates, clothing, etc)

5.13 General Emergency Reporting

The accident reporting requirement detailed in The Merchant Shipping (Accident Reporting and Investigation) Regulations 2005 are to be fully complied with. The act requires that dangerous or potentially dangerous occurrences, in addition to loss of life, injury or man overboard are reported via the standard MAIB reporting process. Reportable 'accidents' are clarified within the Act and can include material damage to vessels, grounding, collision, harm to the environment, valve or pressure vessel burst, lifting gear failure, cargo movement causing instability, snagging causing heeling or any occurrence which might have caused injury or damage to health. Accident reporting is the responsibility of the vessel master or owner. Where aware, the MCA or Harbour Authority will also report the Accident. The MAIB also strongly encourage the voluntary reporting of 'near misses'.

If the incident occurs in the Harbour Authority area then it must be reported to Orkney VTS on VHF Channel 11.

In addition to the above the responsible manager for the site operation is required to report immediately to the EMEC Duty Manager if there is an accident, a serious incident or a near miss. EMEC has an obligation to investigate an accident or near miss that occurs on its sites.

An accident and incident reporting system which shall record and report any accidents/incidents or near misses to personnel, environment, plant or equipment involved with the work shall be established and maintained.

6. Internal procedure

6.1 Reporting

All incidents/incidents or near misses involving personnel or subcontract personnel must be initially reported to the respective Manager, Appointed Person or Supervisor, who shall (where appropriate) make the site safe and conduct a minor investigation into the causal factors. Where the severity or potential is low, the client shall be notified and no additional investigation activities shall be necessary, other than completing the company standard reporting form and sending copies to the client and the relevant HSE responsible manager.

The completed incident/incident reporting form and supporting documentation shall be submitted to the HSE responsible manager for review and approval, and to bring to the attention of all management members.

Where the severity or potential of the occurrence warrants, the client shall be kept informed of all occurrences. The HSE responsible manager shall be informed of all reportable cases within 24 hours and will communicate the relevant details to senior management. The department head/project manager shall review all completed reporting forms and endorse, reject or add new recommendations/corrective actions to prevent recurrence. A department/project specific investigation shall be carried out and documented within seven days of occurrence and presented to the HSE responsible manager within ten days.

Where the incident/incident is defined as reportable under local regulations or client requirements, the senior site representative shall ensure that the appropriate forms are completed and forwarded to the HSE responsible manager.

Occupational illnesses or dangerous diseases which are defined under local regulations or client requirements shall be reported by the HSE responsible manager following confirmation by a medical practitioner. Where necessary, assistance and information shall be provided by HS&E and the Human Resources Department. All reports shall be forwarded to the HSE responsible manager. All incident/incident forms shall be reviewed by the HSE responsible manager prior to input to the Incident/Incident database. The relevant department/project manager shall be responsible for ensuring implementation of any actions identified during the investigation and reporting progress to the HSE responsible manager.

6.2 Investigation

All incidents, incidents and near misses must be investigated. In general, those which have a high actual or potential severity should have a greater in-depth investigation than those which are not.

The potential Factor is also used to determine a suitable level of investigation for incidents and incidents. Priority Levels of investigation are indicated in the ranges of level 1 - level 2;

Investigation Team Approval:

- Level 1 = Appointed Person / Project Director/ Contractor
- Level 2 = Management teams of stakeholders

The HS&E advisor will provide training on incident investigations to relevant personnel and will produce guidance on the methods of investigations and adequate completion of incident /incident reports.

6.3 Lessons Learned

Lessons learned may be urgent and the Project coordinator will be responsible for circulating relevant information to appropriate locations using existing methods, i.e. Safety Bulletins, Circulars, e-mail etc.

6.4 Reportable Incidents

It is important to note that in the categories listed below it may well be necessary to report the incident to the local Occupational Health, Safety or Environmental authority / agency, it is also important to note that to interfere with the scene of an incident, other than to make the area safe is considered an offence. The local authorities should be given a 3 day period in which they can decide whether they wish to visit the site of a serious incident, and they will expect to find it untouched, other than for security and / or safety concerns. Reportable diseases also have to be reported, if they have been diagnosed by a medical practitioner, these are listed below.

6.5 Dangerous Occurrences

Lifting machinery, etc.

The collapse of, the overturning of, or the failure of any load-bearing part of any:

- (a) Lift or hoist
- (b) Crane or derrick
- (c) Mobile powered access platform
- (d) Access cradle or window cleaning cradle
- (e) Fork lift truck

Appendix 1: Referenced documents

The following documents are to be consulted in the according event:

HSE documents				
Category	Title	Issuing company	Date	Filename
Template	Offshore Renewable Energy Installations, Emergency Response Co-operation Plans (ERCoP)	Maritime & Coastguard Agency	aug-16	Emergency Response Co-operation Plan
General	Marine Operating Guidelines	EMEC	mrt-12	GUIDE010-01-02 20120322
General	Tidal Site Awareness	EMEC	jul-12	GOV018-04-0220120912
Electrical	Health and Safety rules	Bryan Rendall Ltd.	dec-14	EMECMAN023-07-1120141219
Project specific	Emergency procedures	Tocado Tidal Energy Ltd		2016R0134 - P0044 - Emergency Response Plan
General - internal procedure developer	Internal HSE policy	Tocado Tidal Energy Ltd		TOC HSE policy
General - internal procedure developer	Lifting Operations and Lifting Equipment	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 9
General - internal procedure developer	Lifting method statement plan	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 9-1
General - internal procedure developer	Working at height procedure	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 10
General - internal procedure developer	Risk Assessment - Method Statement	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 11
General - internal procedure developer	Induction training	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 13
General - internal procedure developer	Permits to work	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 14
General - internal procedure developer	Use of chemicals and spillage	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 15
General - internal procedure developer	Waste disposal	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 16
General - internal procedure developer	Manual handling	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 17
General - internal procedure developer	Safety audits	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 18
General - internal procedure developer	Non-Conformance Reports	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 19
General - internal procedure developer	Security alert	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 20
General - internal procedure developer	Site evaluation	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 21
General - internal procedure developer	Site security	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 22
General - internal procedure developer	Collision of vessels and devices	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 23
General - internal procedure developer	Diving incidents	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 24
General - internal procedure developer	Bomb threats	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 25
General - internal procedure developer	Un-Exploded Ordnance	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 26
General - internal procedure developer	Portable Electrical Equipment	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 27
General - internal procedure developer	Control of Substances Hazardous to Health	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 28
General - internal procedure developer	Use of Vibration Emitting Tools	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 29
General - internal procedure developer	Control noise	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 30
General - internal procedure developer	Ladders, Stepladders and Trestles	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 31
General - internal procedure developer	Working from platforms	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 32
General - internal procedure developer	Procedures for the Transfer of Personnel by basket	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 33
General - internal procedure developer	Welfare Facilities	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 34
General - internal procedure developer	Personnel Protective Equipment	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 35
General - internal procedure developer	Site rules	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 36
General - internal procedure developer	First Aid	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 37
General - internal procedure developer	Electricity at work	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 38
General - internal procedure developer	Working near water	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 39
General - internal procedure developer	Plant and Equipment	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 40
General - internal procedure developer	Working in Confined Spaces	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 41
General - internal procedure developer	Self-Assessment for Display Screen Equipment Users	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 42
General - internal procedure developer	Inspections and Housekeeping	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 43
General - internal procedure developer	Training	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 44
General - internal procedure developer	Focus Groups	Tocado Tidal Energy Ltd		TOC HSE policy, Appendix 45
General - Emergency procedure facilitator	Device lost	EMEC		ERP001-06-0220150304
General - Emergency procedure facilitator	Bomb threat	EMEC		ERP012-06-0220150304
General - Emergency procedure facilitator	Device Mooring failure	EMEC		ERP002-06-0220150304
General - Emergency procedure facilitator	Device vessel collision	EMEC		ERP007-06-0220150304
General - Emergency procedure facilitator	Diving incident	EMEC		ERP008-06-0220150304
General - Emergency procedure facilitator	Fire and serious injury onshore	EMEC		ERP010-06-0220150304
General - Emergency procedure facilitator	Navigation Buoy Failure or Loss	EMEC		ERP004-05-0220150304
General - Emergency procedure facilitator	Security Alert	EMEC		ERP011-06-0220150304
General - Emergency procedure facilitator	Serious Injury Illness or MoB Offshore	EMEC		ERP006-06-0220150304
General - Emergency procedure facilitator	Unexploded Ordnance	EMEC		ERP009-07-0220150304
Standard operating procedures	Risk Management	EMEC		001
Standard operating procedures	Risk & Issue Tracking	EMEC		002
Standard operating procedures	Control of Work	EMEC		003
Standard operating procedures	Task Risk Assessment	EMEC		004
Standard operating procedures	Lone Working	EMEC		005
Standard operating procedures	Workplace & Equipment Safety	EMEC		006
Standard operating procedures	Hazard Identification Reporting	EMEC		007
Standard operating procedures	Accident/Incident Reporting Onshore	EMEC		008
Standard operating procedures	Accident/Incident Investigation	EMEC		009
Standard operating procedures	Contractor Management	EMEC		010
Standard operating procedures	Client Lifecycle	EMEC		011
Standard operating procedures	Developer Circuit Breaker Opening Actions	EMEC		057
Standard operating procedures	Maritime Safety Information	EMEC		063
Standard operating procedures	Marine Mammal Recording	EMEC		074
Standard operating procedures	Electrical Safety Rules	EMEC		080
Standard operating procedures	Electrical Safety Rules - Implementation	EMEC		081
Standard operating procedures	Electrical - HV Switching	EMEC		082
Standard operating procedures	Electrical Systems - Work, Testing & Fault Finding	EMEC		083
Standard operating procedures	Electrical Infrastructure - SSE	EMEC		084
Standard operating procedures	Electrical Infrastructure - Developers	EMEC		085
Standard operating procedures	Damage or Break to Subsea Cable	EMEC		091
Standard operating procedures	Control of Simultaneous Operations	EMEC		093

Appendix 2: Emergency Contact Form

The following form:

- Needs to be filled in by everybody working on the phase 1 project
- The complete contacts list resulting will be circulated back
- Is mainly for contact structure purposes. Medical details should be known with your company.

Phase 1 TFS - Emergency Contact Information Form			
<i>This contact form contains important information in case of an emergency</i>			
Name:			
Company:			
Function:			
Member of management team within that company?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	
Qualified emergency response officer?	Yes: <input type="checkbox"/>	No: <input type="checkbox"/>	
Contact details:			
	Telephone :		
	Cell :		
	Address :		
	E-mail :		
Backup contact			
	Name :		
	Function :		
	Cell :		
	E-mail :		
<i>This contact form needs to be circulated around contractors and attached to the ERP A hard-copy is to be held in the control room at Eday station and in the office at Kirkwall</i>			

Appendix 3: Emergency contacts EMEC

The following contact details are from the EMEC emergency contacts – Eday document, but copy-pasted into the appendix for ease of finding in case of an emergency.

EMERGENCY CONTACTS


EMEC CALDALE SUBSTATION, EDAY

EMEC	Office: Test Engineer (internal) Duty Manager (internal) 24 Hours: Maintenance Tech (Eday) Duty Manager Senior Test Engineer Operations Director	667 662 07972 033137 07624 345411 07917 416367 07775 440116
Bryan J. Rendall Electrical (Senior Authorised Electrical Persons)	Office Bryan Rendall Callum Rendall Jim Henderson 24 Hour Contact	01856 879086 07712 133243 07808 762288 07590 281134 07624 912782
Scottish & Southern Energy	Emergency Line No Supply	01738 455722 01738 457899
MCA Shetland Coastguard		01595 692976
Orkney VTS		01856 873636
S.E.P.A	Kirkwall	01856 871080
S.N.H	Kirkwall	01856 875302
H.S.E	Longman House 28 Longman Road Inverness IV1 1SF	01463 723260
Hospital (A&E)	Balfour Hospital Kirkwall	01856 888000
Eday Nurse Practitioner		01857 622243
Fire, Police, Ambulance, Coastguard		999

Appendix 4: Contact details Tocardo

Contact details Tocardo – phase 1 TFS			
Project members	Bart Boosman	Pr. Manager	+31(0)6 53455532
	Ronald de Haan	Service manager	+31(0)6 14681420
	Thijs Mandersloot	Technical manager	+31(0)6 23378864
	Nikki Meek	Consenting manager	+44(0)7966 191643
Office	Main number		+31(0)227-726-200
	Pieter de Haas	CTO	+31(0)6 44448248
Address Tocardo International B.V.	Tocardo International Sluiskolkade 2 1779GP Den Oever The Netherlands		

Appendix 5

Document Title	Emergency Contact List	
Document Reference	8.01.2	
Version	1.0.0.0	
Issue Date	30 th December 2015	
Document Author	John F Macleod	
Document Approval	Douglas Leask	
Applicability	All areas of operations within the business	
Pages	2	

EMERGENCY CONTACT LIST

OFFICE

Leask Marine Office	01856 874 725
Douglas Leask	07889 651 680/01856 874 425
Oliver Bethwaite	07966 228 830
John F Macleod	07891 766 520/01856 831 746

EMERGENCY SERVICES

Kirkwall Police Station	01856 872 241
Balfour Hospital	01856 888 000
Stromness Surgery	01856 850 205
Stromness Hyperbaric Chamber/ Medical Centre	01856 850 205
National Hyperbaric Centre	01224 698 895
Orkney Coastguard	08452 626 247
Shetland Coastguard	01595 692 976

HARBOUR AUTHORITIES

Orkney Marine Services	01856 87 3636
Orkney VTS	01856 87 3636
Kirkwall Harbour	01856 87 2292
Stromness Harbour	01856 850 744

VESSELS

C-Odyssey	07718 424 491
C-Salvor	07718 424 490
C-Chariot	07925502 436/Sat phone +8700773 141 226

DIVING

Andrew Stewart	07710 427 335
Nick Stones	07720 612 477

EMEC

EMEC	01856 852 060
EMEC duty Manager 24hrs	07624 345 411

EXTERNAL CONTACTS

RM Computing - Rob Gray	01856 872 358/07525 592 888
RM Computing - Duncan Hopkins	01856 872 358/07900 433 191
The Royal Bank of Scotland – Margaret Keenan	01856 872 800/07771 977 812
Clark Thomson Insurance Brokers	
- Adam Stanger	01856 889 003/01856 876 722
Orkney Island Council Asset Management	
- Liz Dennison	01856 873 535 Ext 2731
N Power	0845 166 3360
BT	0800 777 666
PR Consultants – Shaw Marketing – Isabel Johnson	0131 557 5663
Orcadia Design – Johanna Werb-Pieterman	01856 771 512/07917 696 225

Appendix 6

