Decommissioning Phase

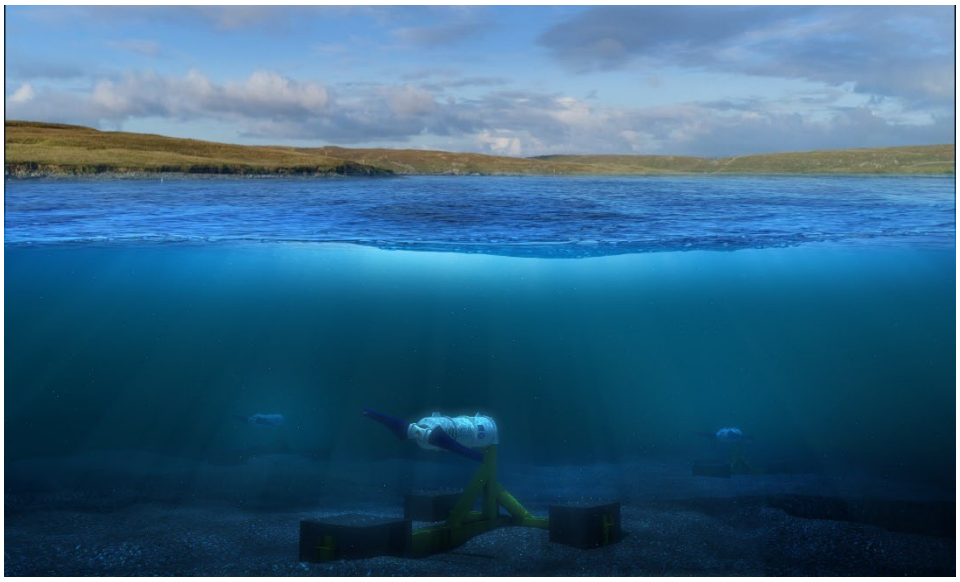
Emergency Response Cooperation Plan (ERCoP)

and

Emergency Action Card

between Nova Innovation Ltd and HM Coastguard MRCC (Shetland)

for the Shetland Tidal Array in Bluemull Sound



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Document control

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Approved by:	Gary Connor, Engineering Director
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Version	Release date	Purpose/summary of amendments
1.0	08/02/2023	First version, produced to support application for a Marine Licence.

Notice

1 Organisational information

1.1 Nova Innovation Ltd

1.1.1 Role and Responsibilities of Nova Innovation Ltd in an Emergency:

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

Nova 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 MRCC.

Nova 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 "Offshore Renewable Energy Installations: Guidance on Requirements and Operational Considerations for Search and Rescue and Emergency Response" available on the MCA website.

1.1.2 Nova Contact information:

Nova's emergency response would be run by the on-site Offshore Manager Tom Wills in the first instance, or if that was not practicable for whatever reason, then the response would be run remotely by Nova's Engineering Director Gary Connor (or a substitute member of the company's senior management team) from Nova's Edinburgh office.

Nova Innovation Ltd: EMERGENCY CONTACT INFORMATION

24-hour Primary Contact:

Tom Wills, Offshore Manager: [Redacted]

tom.wills@novainnovation.com - *owner/author of this ERCOP*

Alternative Nova contacts:

Gary Connor, Eng. Director: [Redacted], **gary.connor@novainnovation.com**

*- lead contact for **HR arrangements***

Simon Forrest, CEO: [Redacted], **simon.forrest@novainnovation.com**

*- lead contact for **Media relations***

Patrick Ross-Smith, Onshore Manager: [Redacted]

Paul Connor, Senior Engineer: [Redacted]

Main office: Nova Innovation Ltd. 45 Timber Bush, Edinburgh, EH6 6QH Tel:

+44 (0)131 241 2000 www.novainnovation.com

Key contractors:

Leask Marine Ltd, 6 Crowness Rd, Kirkwall KW15 1RG, Phone: 01856 874 725 (Operations Director: Oliver Bethwaite)

Delta Marine Ltd, 2 Mounthooly St, Lerwick, Shetland ZE1 0BL, Phone: 01595 694799 (Operations Manager:

HM Coastguard: emergency and routine contact numbers

Primary emergency and routine telephone (UK Renewables): 0344 382 0721

Secondary numbers: dial 999/112 and ask for Coastguard, or dial 01595 692976 (Shetland)

VHF/MF DSC routine contact MMSI: 002320001

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 MRCC

Radio call sign: 'Shetland Coastguard'

1.2 Liaison arrangements between Nova and HM Coastguard

1.2.1 Coordination

In the event of an emergency, the Nova Primary Contact or duty substitute will be available by mobile phone or Marine VHF to provide MRCC with any pertinent information.

Nova will have 24/7 access to the tidal array control and monitoring system and will be able to provide full detail of the situation, personnel and construction work as required.

Nova can also provide a liaison officer at the site or to MRCC at Lerwick as appropriate should it be required.

In normal non-emergency situations, the Primary Contact will act as the single point of contact between the Company and MRCC during the construction phase.

1.2.2 Information exchange and reporting

During construction the Primary Contact will have access to all information regarding engaged personal, operations and equipment deployed or deployable. This is available as a paper copy on site, or electronically by email.

The local SAR capabilities will be those of the deployment vessel plus those outlined in 2.2.

Initial communication would be by Marine VHF on the appropriate channel and subsequently that deemed suitable by MRCC.

1.2.3 Provision of liaison officer(s) to the MRCC in the event of an emergency.

Initial Company liaison in the event of an emergency would be best provided through the Primary Contact via marine VHF or telephone.

Should MRCC deem there to be a need for a liaison officer to be locally available at Lerwick or elsewhere on Shetland, it should be possible to make either our Onshore or Offshore Manager available within a few hours (allowing for travel time from the Nova site in Yell).

Alternatively, and in addition to the 2 arrangements above, if a more technical or director-level representative is required they can normally be on site within around 12 hours by air from mainland Scotland – or can assist remotely at immediate notice.

1.2.4 Alternative arrangements

In certain circumstances and where appropriate, the MRCC may elect to send a local Coastguard Officer to the relevant duty holder coordination centre to act as a liaison representative.

1.3 Liaison arrangements between Nova and Police Scotland

1.3.1 Coordination

Nova will inform the relevant police force who may agree to send a liaison officer to the duty holder coordination centre or, to set up agreed communications between the police force and the duty holder emergency response centre.

1.3.2 Information exchange and reporting

During construction the Primary Contact will have access to all information regarding engaged personal, operations and equipment deployed or deployable including Persons on Board (POB). This information would be shared with Police Scotland by email.

Initial communication would be by telephone.

1.3.3 Incident Liaison Officer (ILO)

Where appropriate, the police may elect to send an Incident Liaison Officer (ILO) to the relevant duty holder coordination centre to act as a liaison representative.

2 Search and Rescue Information

2.1 The Maritime Rescue Coordination Centre (MRCC)

2.1.1 Role and Responsibility of the MRCC:

As the UK maritime emergency service, HM Coastguard's MRCCs are responsible for the coordination of all civil 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 MRCC 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.

2.1.2 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.

2.1.3 Radio Communications

All MRCCs 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 62, 63 and 64 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 MRCCs for SAR and general communications. If HMCG requires any development 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.

2.1.4 MRCC Contact Information

Please see section 0 for specific contact details for the most appropriate MRCC for the development.

2.1.5 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 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.

2.2 SAR Facilities and their Response Capability

2.2.1 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, development work and safety craft should respond and provide assistance in accordance with IMO SOLAS regulations, Chapter V.

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 Wind Turbine Generators or enter an OREI and should not be requested to do so. Their role in the OREI context is limited to rescuing or assisting persons from the water or accessible areas of an OREI or providing support to vessels in the area.

All national SAR resources are tasked and coordinated by HM Coastguard and therefore any request for assistance should be made via HM Coastguard and not directly to the resource.

Please see section 5.6 for relevant surface rescue craft available for the development.

2.2.2 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.

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.

See section 5.18.3 for details of the nearest aircraft relevant to the development(s).

All SAR aeronautical resources are tasked by the Joint Rescue Coordination Centre (JRCC UK) 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.

2.2.3 Preparation for SAR helicopters

Should SAR aircraft be required, the marine coordinator will be required to ascertain the specific requirements either from the MRCC or SAR helicopter crew.

2.3 Medical advice/assistance

2.3.1 There is no telemedicine advice provider for the Shetland Tidal Array.

NOTE: Medical advice by radio to telephone link call is available via HM Coastguard. If the OREI operator has its own telemedicine capability, they should use this in the first instance unless the situation is considered urgent. Evacuation of injured or ill persons can be arranged with HM Coastguard if the operators own resources (work and/or safety boat) are considered inappropriate or speed is of the essence. If in doubt, HM Coastguard should be contacted.

2.4 Exercises

2.4.1 Periodic exercises will be held to test and practice procedures, processes and arrangements for responding to emergencies on or around the OREI, in conjunction with the SAR services.

Full advice on exercises can be found in the Regulators Expectations for Emergency Response document. All exercises involving HM Coastguard and/or SAR resources should be planned in consultation with the MCA Offshore Energy Liaison Officer.

2.4.2 Note: It is recognised as good practice for an initial table-top exercise to be held shortly after commencement of operations. This serves as a 'get to know you' and educational process for all the duty holder’s staff and the emergency services who might be expected to respond to any emergency in or around the installation.

2.5 Unexploded ordnance and wreck materials located on or near OREIs

2.5.1 Unexploded Ordnance (UXO)

During decommissioning 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.

2.5.2 If commercial contractors are not available, the following procedures should be followed:

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 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 MRCC.

In all cases, HM Coastguard must be informed of every ordnance discovery as international reports (OSPAR) are required to be completed.

2.5.3 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 72575

Or email row@mcga.gov.uk or contact 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

2.6 Counter pollution

Any pollution incident resulting from the Shetland Tidal Array, or associated activities will be dealt with in accordance with the Shetland Islands Council Marine Pollution Contingency Plan, available at:

https://www.shetland.gov.uk/ports/port-safety-regulation/2#

This plan was prepared in accordance with the MCA guidelines provided in the National Contingency Plan for Marine Pollution from Shipping and Offshore Installations and covers the organisation and procedures for containment and clearance of marine pollution within the Shetland area. The plan is based upon the need to minimise the impact of marine pollution on the environment, property and amenities. A copy of Shetland Contingency Plan is kept on site at Cullivoe and onboard all vessels engaged in Works. Measures in the Plan will be followed as appropriate.

The Bonn Agreement also contains useful information on responding to pollution events in and around offshore renewable energy installations. Information on this can be found in the following Bonn Agreement web page:

http://www.bonnagreement.org/eng/html/counter-pollution_manual/Chapter08_offshore%20windfarms.htmNote: the MRCC will not have access to the MPCP.

Any accidental pollution or breaches resulting from the Shetland Tidal Array, or associated activities will be reported to HMCG immediately and Marine Scotland within 24 hours.

3 Support arrangements

3.1 Criminal actions and accidents to persons

3.1.1 The MRCC and the local police force will be informed of any suspected criminal activity. Contact information for the relevant police forces is contained in 5.19.

The police must always be informed of any deaths and serious injuries on OREIs so that early consideration can be given to the investigation, travel to the location, training and health and safety requirements. More information is available in Section 4.

3.2 Informing Next-of-Kin

Nova holds information for the next-of-kin of all the company's staff; the contact details for contractor staff next-of-kin would be sourced from the contractor.

The Police are responsible for informing next-of-kin in the UK where death or injury likely to prove fatal occurs.

In major incidents a Police Casualty Bureau will be established as a central contact point for those seeking or providing information about persons who might have been involved, to collect data, and collate records. Contact telephone numbers will be disseminated via the news media. Documentation teams staff each landing site and each hospital, mortuary and survivor reception centre.

In all these matters the Police will liaise closely with other authorities involved, including the Coastguard and the Company.

Further consideration should also be given to when proactive notifications will be made to NOK by the duty holder and when police will deliver a message of involvement. It is important that all parties are aware of the difference.

3.3 HR arrangements

Nova's Engineering Director or their nominated delegate would lead HR support during any incident.

3.4 Media relations

In order to prevent the dissemination of misleading, incomplete, or incorrect information, and to reduce the danger of the news media impeding SAR operations, it is important that media liaison arrangements be established between Nova, the MCA and the police.

The Marine and Coastguard Agency (MCA)'s Press Officer will be alerted by the MRCC in the event of an incident. It is the MCA Press Officer's responsibility to contact their opposite numbers in the company, any harbour authority involved, and the Police. If necessary, a media liaison team will be set up. Statements released to the media will be agreed beforehand, and each member of the team will avoid comment on other members' areas of responsibility. In general terms, these areas of responsibility are:

- MCA: providing information on the role of the Coastguard and the co-ordination of maritime emergency response resources during the incident;

- Nova Innovation: providing information on the vessel, operations, company policy, etc.

- Harbour operator (Shetlands Islands Council): if involved, providing information on activity in the port area, etc. SIC media contact: Carol Anderson, Senior Communications Officer - 01595 744 258

- Police: providing information on activities ashore, including survivor and casualty information, and the role and responsibilities of the Police. (Management of the media liaison team will pass from the MCA to the Police when activities at sea are concluded.) In general, MCA spokespeople will provide factual SAR information only - avoiding personal judgements and opinions or speculation as to causes or results. The MCA will not release the names of individuals involved or - before the company has been informed - the name of the ship or company. It is usual practice for the Police to release information about civilians involved in the incident and for the company to release crew details. The Police do not generally release details of persons involved in an incident, however, when dealing with death, the name of the deceased is released after positive identification has been achieved and NOK informed. Information on military personnel involved should be released only by the service to which they belong.

Any statements to the media (in the event of an incident or otherwise) must be authorised by one of the Nova Company Directors:

Gary Connor, Engineering Director: [Redacted], gary.connor@novainnovation.com

Simon Forrest, CEO: [Redacted], simon.forrest@novainnovation.com

The MCA Press Office can be contacted on:

Tel: +44 (0) 23 8032 9401

3.5 Shore reception arrangements

Survivors may need to be delivered to a location other than the normal embarkation/disembarkation point depending on:

- the location of the development
- the origin point of the rescue units
- the weather and/or incident conditions and situation
- the scale of the incident and its consequences
- if any of the survivors have injuries.

There are multiple possible scenarios however, it is only likely that the police will attend a reception centre where an incident involves death, missing people and/or casualties.

Full information on the site-specific plans can be found in section 5.16.

4 Additional information

The information contained in this section describes the duties and functions of various participants in SAR, explains areas or information requirements of particular importance to SAR and other emergency response within OREIs, and details the support which may be provided by the police.

4.1 The SAR Mission Coordinator (SMC)

Each SAR operation is carried out under the direction of a SAR Mission Co-ordinator (SMC) at the MRCC. 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.

4.2 The On-Scene Coordinator (OSC)

The SMC may, according to the severity of an incident, wish to appoint a wind farm work/safety boat as OSC. The information below is for the guidance of the persons in charge of such boats.

- According to IAMSAR , 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 MRCC) designates the OSC, who may be in charge of a Search and Rescue Unit (SRU), ship 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 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 the 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)
- co-ordinate safety of flight issues for SAR a/c (where no Aircraft Co-ordinator 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.

4.3 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, 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 OREI resources e.g., anemometer information and how the MRCC can obtain this.
- Explanation of the procedures to be carried out by the MRCC, and any information or actions required from the operator, in the event of search planning action being required.

4.4 Suspension / Termination of SAR action

The SMC is responsible for deciding when to terminate attempts to rescue and/or search operations for incidents but will do so in conjunction with:

- SAR resources
- On scene Coordinator
- OREI Operators, personnel or contractors
- Third parties
- Other emergency services
- Any other relevant party engaged in the incident.

4.5 Police

4.5.1 During offshore renewables incidents which require a SAR response, the police may have a critical role and can provide significant support and guidance to the duty holder, therefore early notification of the incident to the appropriate force by HM Coastguard and by the duty holder is essential.

In the event of a major land-based incident, the police normally provide overall coordination of the emergency services and other responding agencies. In offshore renewables incidents, however, HM Coastguard are responsible for the at sea coordination while the police will concentrate upon the coordination of the onshore response. The duty holder should always give early consideration to the preservation of an area where an incident has occurred to assist investigation into the cause.

Upon completion of the SAR response, i.e., when everyone has been accounted for or when there is no longer any reasonable expectation of finding further survivors, a formal handover of primacy should be agreed between HM Coastguard and police ensuring a clear transition from the SAR phase to the recovery and investigation.

4.5.2 When contacting the police, the following information should be provided to ensure a suitable initial briefing:

- What is the name/nature of the asset?
- Where is it located?
- What has actually happened? (Collision/Fire/Helicopter Incident etc) (Give as much information as possible, as the Police will use this information to make an initial assessment)
- Which duty holder has primacy for the Emergency Response and where is it being managed from? (e.g., locally, internationally, remotely)
- What is the POB (Person on Board)
- What is your name/contact number?

4.5.3 It is vital for the police to receive an electronic and/or hard copy of the POB list and NOK information as required. The provision of this should be considered by duty holders and the process recorded within the ERCoP.

4.5.4 Where possible, the relevant police force may elect to send a police Incident Liaison Officer (ILO) to the duty holder coordination centre, and/or an alternative location as required. The role of the ILO is to provide an effective interface between police and the emergency response room of companies when responding to an offshore emergency.

4.5.5 It is acknowledged that this might not always be possible face to face due to the remote location of an emergency response room. To that end it is imperative that duty holders consider this and offer alternative solutions. An ILO or other designated police officer will require a briefing from a duty manager whether in person or virtually.

4.5.6 Should a fatality occur it is imperative that police are contacted as a priority. Please be aware of considerations instructed by the Crown Office Procurator Fiscal Service in Scotland, the Crown Prosecution Service or Coroner in England and Wales and the Public Prosecution Service in Northern Ireland in relation to investigation.

The duty holder must give consideration as to how a police enquiry team will be transported to the location and all health and safety requirements.

4.6 Emergency services liaison

It is recognised as good practice that OREI operators and the emergency services, including the local police force, should build relationships during the planning and construction phases of any project in order to maximise joint understanding and situational awareness. Once operational, regular visits should be undertaken to operations/control rooms/centres, in order to test and exercise agreed protocols and maintain understanding between all parties.

For coordination of exercises with Police Scotland, the contact is:

Energy Industry Liaison Unit – OSDEnergyAberdeen@scotland.pnn.police.uk

5 Decommissioning Emergency Response Cooperation Plan (ERCoP) for the Shetland Tidal Array

5.1 Shetland Tidal Array information

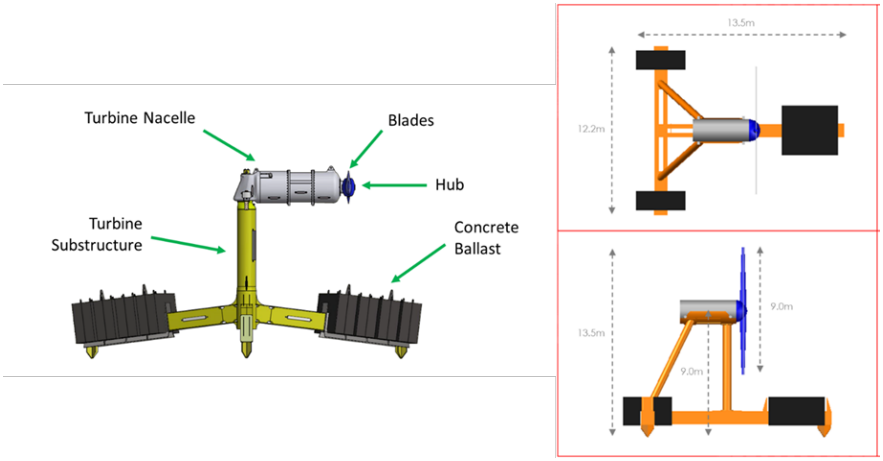
This ERCOP contains information relevant to decommissioning turbines and associated infrastructure in the Shetland Tidal Array in Bluemull Sound. The project is located approximately one kilometre east of Cullivoe Pier (on the northern end of the island of Yell in Shetland). The subsea development currently consists of three Nova M100 turbines and three M100-D (direct drive) turbines. A subsea hub with export cable has also been installed, connected via jumper cables to the fifth and sixth M100D turbines. In total there are five export cables back to the landfall at Cullivoe Pier.

During the decommissioning phase covered by this ERCOP, the three M100 turbines in the Shetland Tidal Array will be fully decommissioned as part of the EU-funded research project Enabling Future Arrays in Tidal (EnFAIT). The three M100-D turbines and associated infrastructure (cables and subsea hub) will not be decommissioned and will remain in situ on the seabed.

Decommissioning the three M100 turbines will involve the removal of the following infrastructure for each turbine:

- Turbine nacelle, including the hub and rotor.
- Gravity-base steel sub-structure and concrete ballast.
- Export cable.

See Figure 1 provides an illustration of the M100 turbine (left) and dimensions (right).



Source: Copyright © Nova Innovation 2020

Figure 1: Nova M100 turbine components and dimensions.

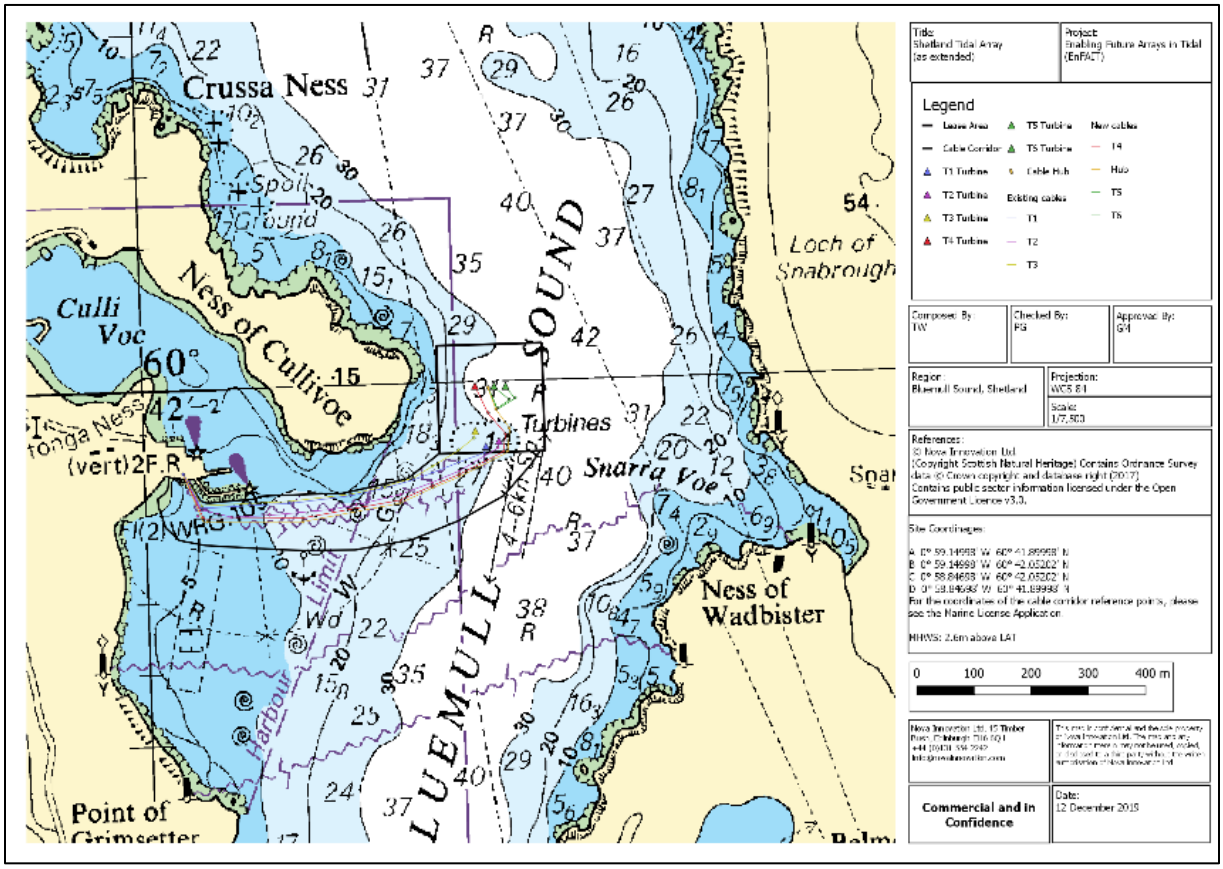
The Shetland Tidal Array is located between the islands of Yell and Unst in Bluemull Sound, near Cullivoe Harbour, within the area bounded by joining the following points:

60° 41.900’ N 000° 59.150’ W	60° 41.900’ N 000° 58.847’ W
60° 42.052’ N 000° 58.847’ W	60° 42.052’ N 000° 59.150’ W

Cable landing point:

60° 41.883’ N 000° 59.933’ W

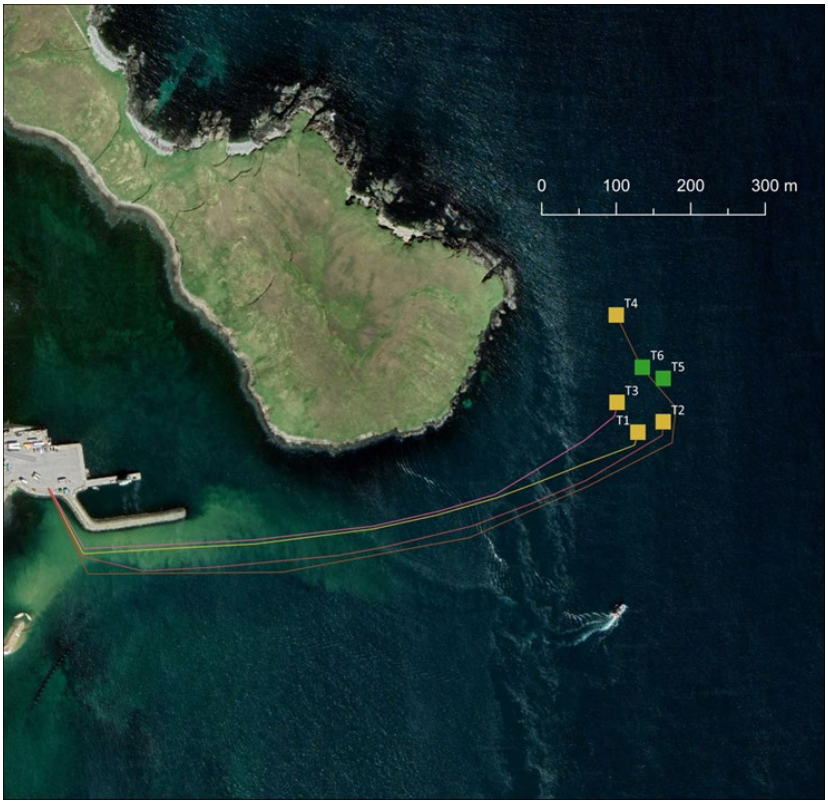
Figure 2 shows the boundary of the Crown Estate Scotland seabed lease in which all six turbines in the Shetland Tidal Array are located and export cable corridor. Note that turbine and cable positions in this Figure are approximate. For accurate, as installed, positions see Figure 3 and Table 1.



Source: Nova Innovation 2019

Figure 2: Project Location showing Crown Estate Scotland lease boundary.

Figure 3 shows the as installed layout of the Shetland Tidal Array, including the three M100 three new M100D turbines (T4, T5 and T6) and five export cables.



Source: Nova Innovation 2023

Figure 3: Shetland Tidal Array installed layout, including six turbines and five export cables.

The as-installed coordinates for the six turbines in the Shetland Tidal Array are provided in Table 1.

Table 1: Turbine coordinates

	UTM V30 N/E		WGS84 GPS Lat/Long (Degrees and decimal minutes)					
	Northing	**Easting**	**Deg**	**Min**	**N/S**	**Deg**	**Min**	**E/W**
T1 Turbine	6730893	610079	60°	41.91	N	000°	59.02	W
T2 Turbine	6730908	610113	60°	41.92	N	000°	58.98	W
T3 Turbine	6730923	610049	60°	41.93	N	000°	59.05	W
T4 Turbine	6731051	610060	60°	41.99	N	000°	59.03	W
T5 Turbine	6730965	610113	60°	41.94	N	000°	58.98	W
T6 Turbine	6730980	610085	60°	41.96	N	000°	59.01	W
T5/6 Hub	6730970	610098	60°	41.95	N	000°	58.99	W

Source: Copyright © Nova Innovation 2020

Table 2: Subsea cable routes

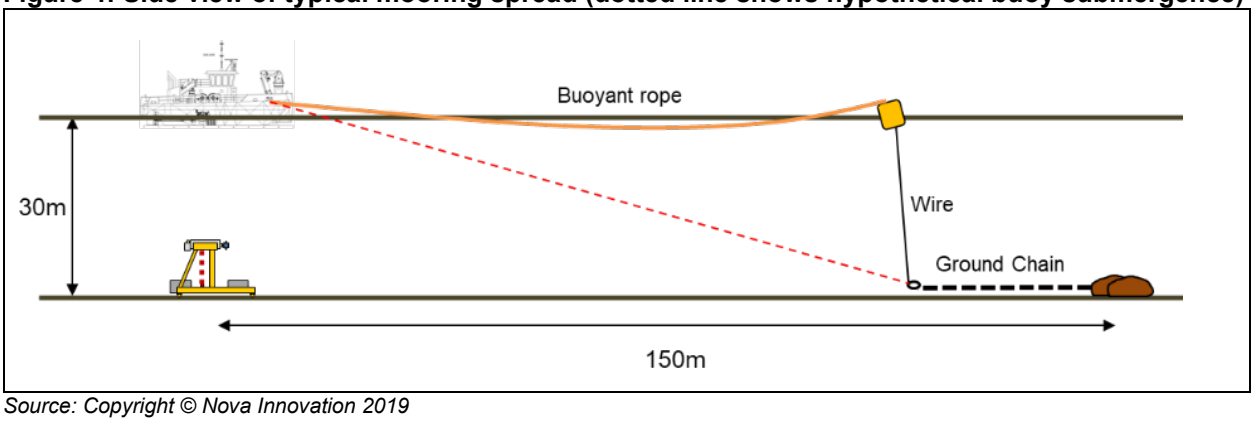
	UTM V30 N/E		WGS84 GPS Lat/Long (Degrees and decimal minutes)					
			Lat			Long		
	Northing	**Easting**	**Deg**	**Min**	**N/S**	**Deg**	**Min**	**E/W**

T1 Cable								
Turbine T1	6730893	610079	60°	41.91	N	000°	59.02	W
WP01	6730876	610075	60°	41.90	N	000°	59.02	W
WP02	6730851	610007	60°	41.89	N	000°	59.10	W
WP03	6730824	609939	60°	41.87	N	000°	59.17	W
WP04	6730806	609889	60°	41.87	N	000°	59.23	W
WP05	6730784	609807	60°	41.85	N	000°	59.32	W
WP06	6730765	609725	60°	41.85	N	000°	59.41	W
WP07	6730745	609564	60°	41.84	N	000°	59.59	W
WP08	6730739	609461	60°	41.84	N	000°	59.70	W
WP09	6730731	609335	60°	41.83	N	000°	59.84	W
SHORE	6730819	609287	60°	41.88	N	000°	59.89	W
T2 Cable								
Turbine T2	6730908	610113	60°	41.92	N	000°	58.98	W
WP01	6730889	610110	60°	41.91	N	000°	58.98	W
WP02	6730828	610009	60°	41.88	N	000°	59.10	W
WP03	6730798	609938	60°	41.86	N	000°	59.17	W
WP04	6730767	609856	60°	41.84	N	000°	59.27	W
WP05	6730741	609740	60°	41.83	N	000°	59.39	W
WP06	6730726	609677	60°	41.83	N	000°	59.46	W
WP07	6730714	609513	60°	41.82	N	000°	59.64	W
WP08	6730707	609414	60°	41.82	N	000°	59.75	W
WP09	6730710	609325	60°	41.82	N	000°	59.85	W
SHORE	6730819	609287	60°	41.88	N	000°	59.89	W
T3 Cable								
Turbine T3	6730923	610049	60°	41.93	N	000°	59.05	W
WP01	6730915	610048	60°	41.92	N	000°	59.05	W
WP02	6730883	610007	60°	41.90	N	000°	59.10	W
WP03	6730840	609939	60°	41.88	N	000°	59.17	W
WP04	6730809	609889	60°	41.87	N	000°	59.23	W
WP05	6730785	609813	60°	41.86	N	000°	59.31	W
WP06	6730768	609725	60°	41.85	N	000°	59.41	W
WP07	6730748	609564	60°	41.84	N	000°	59.59	W
WP08	6730742	609461	60°	41.84	N	000°	59.70	W
WP09	6730734	609335	60°	41.84	N	000°	59.84	W
SHORE	6730819	609287	60°	41.88	N	000°	59.89	W
T4 Cable								
Turbine T4	6731051	610060	60°	41.99	N	000°	59.03	W
WP01	6730991	610102	60°	41.96	N	000°	58.99	W
WP02	6730947	610152	60°	41.94	N	000°	58.93	W
WP03	6730860	610140	60°	41.89	N	000°	58.95	W

WP04	6730753	610053	60°	41.83	N	000°	59.05	W
WP05	6730703	609945	60°	41.81	N	000°	59.17	W
WP06	6730665	609735	60°	41.79	N	000°	59.40	W
WP07	6730668	609409	60°	41.80	N	000°	59.76	W
WP08	6730733	609326	60°	41.83	N	000°	59.85	W
SHORE	6730819	609287	60°	41.88	N	000°	59.89	W
T5/6 Cable								
T5/6 Hub	6730970	610098	60°	41.95	N	000°	58.99	W
WP01	6730931	610109	60°	41.93	N	000°	58.98	W
WP02	6730920	610130	60°	41.92	N	000°	58.96	W
WP03	6730870	610130	60°	41.90	N	000°	58.96	W
WP04	6730763	610043	60°	41.84	N	000°	59.06	W
WP05	6730713	609935	60°	41.81	N	000°	59.18	W
WP06	6730675	609725	60°	41.80	N	000°	59.41	W
WP07	6730678	609419	60°	41.80	N	000°	59.75	W
WP08	6730743	609336	60°	41.84	N	000°	59.84	W
SHORE	6730819	609287	60°	41.88	N	000°	59.89	W

Figure 4 gives an indication of the amount of clearance underneath mooring lines for a typical vessel occasionally present on site for decommissioning.

Figure 4: Side view of typical mooring spread (dotted line shows hypothetical buoy submergence)



Source: Copyright © Nova Innovation 2019

5.2 Decommissioning activities

NOTE: information during decommissioning is dynamic and should be sent in periodic emails and/or verbal update reports to HM Coastguard.

The Decommissioning Schedule and Method Statement for the three M100 turbines in the Shetland Tidal Array[1] should be referred to for full details on the methodology and processes for the removal of the tidal turbines, their support structures, array cables and all associated

[1] Nova Innovation (2023). Shetland Tidal Array Decommissioning Schedule and Method Statement (T1-3).

equipment. It is written in accordance with legislation and guidance. An overview is provided here, with an indication of anticipated timescales.

Decommissioning the three M100 turbines in the Shetland Tidal Array will involve the removal of the following infrastructure for each turbine:

- Turbine nacelle, including the hub and rotor.
- Gravity-base steel sub-structure and concrete ballast.
- Export cable.

Decommissioning is currently planned to take place in May 2023, based on vessel availability. Decommissioning will involve removing each of the turbines in turn: removing the turbine, foundation and cable to shore for recycling or disposal and surveying the site to confirm all equipment has been removed. Decommissioning will occur over one vessel mobilisation lasting approximately 2 weeks. An outline schedule is provided in Table 3. Notices to Mariners will be issued in advance of works commencing and will be notified to HM Coastguard at renewables@hmcg.gov.uk.

Table 3: Outline decommissioning schedule for 2023. Full details of activities are provided in the Decommissioning Method Statement.

Turbine	Activity	w/c 24/05/2023	w/c 01/05/2023
T1	Remove nacelle	●	
	Lift substructure	●	
	Recover and spool cable	●	
T2	Remove nacelle	●	
	Lift substructure		●
	Recover and spool cable	●	
T3	Remove nacelle	●	
	Lift substructure		●
	Recover and spool cable	●	
T1-T3	Site survey		●

Source: Copyright © Nova Innovation 2023

5.3 OREI information

Each of the three subsea turbines to be decommissioned consists of an upper nacelle unit attached to a steel substructure with additional concrete ballast. An electrical cable is connected to the nacelle and cable runs subsea to shore.

• Description of the type of turbine/device/unit (manufacturers type-name and/or number and power output);

The three devices to be decommissioned are subsea tidal turbines developed by Nova. The rated power output of all three turbines is 100 kW at 3.3 kV. The three M100 turbines (T1, T2 and T3) are gearbox-driven.

• The depth of turbine tower/installation, including to the blade tips (when blades are in the upright position), below mean sea level.

All parts of the array including the three M100 turbines that will be decommissioned and the three M100-D turbines that will remain in situ are at least 15 m below LAT. Note that there are just two blades on each device, so the minimum clearance is when the rotor is in the “I” position.

- Blade diameter

The blade diameter (blade tip to blade tip) is maximum 9.0 m.

- Turbine/device/unit dimensions (length, width and height in metres) or general dimensions for other devices/units.

See Figure 1 on page 18.

- Spacing between turbines/devices/units installed.

See Figure 3 on page 20.

- Description of how turbines/devices/units/transition pieces are to be lit and marked (buoyage) during the decommissioning period;

The turbines are fully submerged and not lit. During the short decommissioning period, the vessels involved in decommissioning will display the appropriate vessel lights. Temporary mooring buoys will be in place on the site during the decommissioning period. All vessels and buoys will comply with all aspects of COLREGS where applicable.

- Power (export) Cable layouts including depth of burial, location of entry to foundation;

The cable layout and route coordinates are given above. The cables are double armoured and stable on the seabed under their own weight. No additional deposits are required to secure them.

- How the construction site is to be guarded and monitored during the decommissioning phase e.g. guard vessel(s) on site? AIS/radar surveillance? What periods of operation such vessels will be on site, etc.

The vessel used during decommissioning will be fitted with AIS and a radar system as detailed in Section 5.6. The vessel will be on site during decommissioning activities only. A watch will be maintained.

- Details of Temporary Exclusion Zones around each installation/work activity;

There will be no Temporary Exclusion Zones around the work area. Local Notices to Mariners will request passing vessels to keep their distance and to pass at minimum speed.

As the works involve only one multicat workboat on site at a time, there is no additional monitoring of the site during decommissioning.

5.4 Emergency Response

5.4.1 Equipment on OREIs

All those working on the Shetland Tidal Array will wear lifejackets when working on deck or on the quayside.

Lifejackets fitted with AIS Personal Locator Beacons are used by Nova offshore staff for any night transfers from the vessel offshore to the quayside. At least one member of the Nova team will be First Aid trained.

Any workboats on site will be compliant as a minimum with MCA Category 1 requirements for emergency lifesaving equipment.

5.4.2 Emergency Communications

The communication equipment aboard the working vessel is outlined in section 5.6.1. The onshore team will also have a portable VHF, landline and mobile phones. Should a working vessel deploy a small lineboat/tender or rescue craft, the crew of this will also have a mobile VHF on board.

5.5 Emergency shutdown procedures and processes

All of the tidal turbines on the array are entirely submerged with their blade tips more than 15m below the water surface. Individual turbines or the whole array can be immediately shut down either by an operative on site in Cullivoe or from Nova's control centre in Edinburgh. The first contact for HMCG would be the Nova Offshore Manager or their delegate, however any of the numbers listed as a contact in this document would be able to request an immediate shutdown.

The method for electrical isolation of the turbines in the Shetland is defined in the Nova document TM_NM100 RAMS_STA Electrical Isolation_0.2.

5.6 Vessels on site during decommissioning, or work and safety boats during operations

The scale and modularity of Nova's turbines mean that only one multicat workboat vessel is required to carry out decommissioning activity. In advance of decommissioning operations, Nova will notify Shetland MRCC of which vessels will be used.

Table 4: Vessels which may be on site during construction, or work and safety boats during operations

Name of Vessel or Vehicle Registration	Operator	Type(s)
C-Odyssey (routine use)	**Leask Marine**	**Multicat workboat**
C-Fenna (routine use)	**Leask Marine**	**Multicat workboat**

C-Force (routine use)	**Leask Marine**	**Multicat workboat**
Voe Vanguard (routine use)	**Delta Marine**	**Multicat workboat**
Voe Jarl (relief vessel)	*Delta Marine*	*Multicat workboat*
BK Marjorie (relief vessel)	*BK Marine*	*Multicat workboat*
Aurora Venture (relief vessel)	*Ocean Farm Services*	*Multicat workboat*
Aurora (relief vessel)	*Ocean Farm Services*	*Workboat*
Aurora Quest (relief vessel)	*Ocean Farm Services*	*Workboat*
Brenda (relief vessel)	*Malakoff*	*Workboat*
Uskmoor (relief vessel)	*Leask Marine*	*Workboat*
Ruby May (relief vessel)	*Ocean Kinetics*	*Small survey boat*
Compass Rose (relief vessel)	*Compass Rose Charters*	*Small survey boat*
Moder Dy (relief vessel)	*NAFC*	*Small survey boat*
Oberon (relief vessel)	*Oberon Boat Charters*	*Small survey boat*

5.6.1 Vessels in routine use

5.6.1.1 C-Odyssey

Figure 5: Example working vessel (MV C-Odyssey). Source: Leask Marine

Table 5: MV C-Odyssey

Vessel name	**MV C-Odyssey**
Vessel Callsign	2ETW7
Vessel Maritime Mobile Service Identity number (MMSI)	235088132
Type of vessel	Multiworker Twenty6
Normal number of crew carried	3 (+5 man dive team as required)
Weather and/or other operational limitations	MCA Workboat Cat1: 150 miles from shore, Wind 30knts & 2m swell
Telephone contact numbers (mobile and/or satellite)	Boat no.: [Redacted] Office no.: +44 (0) 1856 874 725
Email address	c-odyssey@email.com
Communications equipment fitted e.g., VHF, MF and HF Marine band radios, satellite systems, fitted, etc.	- VHF: 2no. Sailor DSC 6222 - VHF handheld: 2no. Emergency VHF's & 3 Deck VHF's - VHF GMDSS: 1no. Furuno; Inmarsat-C: Yes - AIS: Furuno FA-100
Communications channels/frequencies monitored during normal and abnormal operations e.g., when at sea proceeding to and working at the site	Working Channel 10 or 14 Listening watch on VHF16 + DSC 70
Dates on site	TBC to Shetland MRCC and renewables@hmcg.gov.uk

5.6.1.2 C-Fenna

Figure 6: Example working vessel (MV C-Fenna). Source: Leask Marine

Table 6: MV C-Fenna

Vessel name	**MV C-Fenna**
Vessel Callsign	MBAH3
IMO	9675963
Vessel Maritime Mobile Service Identity number (MMSI)	232008023
Type of vessel	Neptune Eurocarrier 2611
Normal number of crew carried	3 (+5-man dive team as required)
Weather and/or other operational limitations	MCA Workboat Cat1: 150 miles from safe haven, Wind 30knts & 2m swell
Telephone contact numbers (mobile and/or satellite)	Office no.: +44 (0) 1856 874 725 [Redacted]
Email address	c-fenna@leaskmarine.com
Communications equipment fitted e.g., VHF, MF and HF Marine band radios, satellite systems, fitted, etc.	2 x VHF radio telephones THRANE & THRANE type SAILOR RT 6222 1 x MF/HF radio telephone THRANE & THRANE type SAILOR 6300 2 x INMARSAT-C satellite communication systems THRANE & THRANE type SAILOR 6110 1 x Universal AIS JRC type JHS-182 1 x Navtex JRC type NCR-333 1 x EPIRB, MCMURDO type E5 1 x SART, MCMURDO type S4 1 x GSM/UMTS system 1 x Bridge Navigational watch alarm system ALPHATRON 2 x portable VHF Radiotelephones GMDSS SAILOR type SP3520
Communications channels/ frequencies monitored	Working Channel 10 or 14 Listening watch on VHF16 + DSC 70
Dates on site	TBC to Shetland MRCC and renewables@hmcg.gov.uk

5.6.1.3 C-Force

Figure 7: Example working vessel (MV C-Force). Source: Leask Marine

Table 7: MV C-Force

Vessel name	**MV C-Force**
Vessel Callsign	MITT4
Vessel Maritime Mobile Service Identity number (MMSI)	232033970
Type of vessel	Damen Multicat 2712
Normal number of crew carried	4 (+5-person dive team as required)
Weather and/or other limitations	MCA Workboat Cat1: 150 miles from shore, Wind 30knts & 2m swell
Telephone contact numbers (mobile and/or satellite)	Boat no.: [Redacted] Office no.: +44 (0) 1856 874 725 Satellite phone 00881621412838
Email address	c-force@email.com
Communications equipment fitted e.g., VHF, MF and HF Marine band radios, satellite systems, fitted, etc.	SBB – 1x Sailor 6310; Inmarsat – C – 2x Sailor 6110 Navtex – 1x Furuno, NX-700A; Intercom – 1x Phonetech, CIS3000 VHF – 2x Sailor, RT6222, with DSC; Handheld VHF – 2x TR-20
Communications channels/frequencies monitored during normal and abnormal operations e.g. when at sea proceeding to and working at the site	Working Channel 10 or 14 Listening watch on VHF16 + DSC 70

Vessel name	MV C-Force
Dates on site	Confirmed to Shetland MRCC and renewables@hmcg.gov.uk

5.6.2 Voe Vanguard

Figure 8: MV Voe Vanguard. Source: Delta Marine

Table 8: MV Voe Vanguard

Vessel name	**MV Voe Vanguard**
Vessel Callsign	MBEN9
IMO	9809693
Vessel Maritime Mobile Service Identity number (MMSI)	232008636
Type of vessel	Bespoke design type RSV3315 (Renewables Service / Anchor Handling Vessel) Tug • AUT UMS
Normal number of crew carried	7
Weather and/or other operational limitations	MCA Workboat Class VIII
Telephone contact numbers (mobile and/or satellite)	Office no.: T: +44 1595 694 799
Email address	info@deltamarine.scot
Communications equipment fitted e.g., VHF, MF and HF Marine band radios, satellite systems, fitted, etc.	DGPS KONGSBERG 2x Kongsberg DPS 110 REFERENCE SYSTEM: 1x Kongsberg Spottrack RADAR SYSTEM: 2x Furuno FAR 2117B DGPS: 1x Furuno GP-170 VHF: 2x T&T Sailor, RT6222 HANDHELD VHF: 2x T&T Sailor SP3520 MF/ HF SSB: 1x T&T Sailor 6310 INMARSAT – C: 2x T&T Sailor 6110 Mini-C LRIT NAVTEX: 1x Furuno NX-700A AIS: 1x Furuno FA-150 INTERCOM:1x Phonetech CIS 3000 GSM: 1x Huawei E5172 IRIDIUM TELEPHONE: 1x Sailor SC-4000A

Communications channels/ frequencies monitored	Working Channel 10 or 14 Listening watch on VHF16 + DSC 70
Dates on site	TBC to Shetland MRCC

5.6.3 Guard Vessel

No dedicated Guard Vessel will be used.

5.6.4 Rescue Boat Capabilities

No dedicated Rescue Boat will be used.

5.7 Airborne activities

Not applicable

5.8 Locating aids used by personnel or vessels working at the site

Nova offshore staff wear lifejackets fitted with Ocean Signal RescueMe MOB1 AIS/DSC Beacons. A list of these is available shoreside and Nova plan to register the project beacons with the beacon registry, though this has not yet been completed at the time of writing. These beacons transmit an alert to all AIS receivers and AIS enabled plotters in the vicinity. The integrated GPS ensures a precise location is sent to the vessel and any others that may be assisting. An additional feature of the MOB1, is its ability to activate the DSC alarm on the vessel VHF, alerting the crew to the situation.

5.9 Electronic Surveillance and Monitoring Systems

The working vessel will be fitted with AIS (Class A). This is not routinely monitored from the shore.

5.10 Radio Communication Aerials

The site is not fitted with radio communications aerials. The working vessel can communicate using VHF. Vessel contact details are given above.

5.11 Maintenance and Work Operations

Nova was awarded funding for a five-year programme of research, testing and turbine upgrades[2]. This will allow Nova to operate, monitor, recover, upgrade and redeploy turbines to maximise learning from their operation and decommissioning.

During normal operations, nacelles and ancillary equipment may be inspected, maintained, recovered and redeployed along with survey and measurement equipment as part of normal array operations. Inspection and maintenance work may also be carried out on cables within the

[2] See: http://tidalenergytoday.com/2017/07/06/horizon-2020-picks-nova-innovation-to-lead-e20m-tidal-arrays-project/

licensed cable corridor. The substructures and other turbine equipment will remain in place. A full set of Risk Assessment and Method Statement (RAMS) documentation will be developed for all such operations and MRCC in Lerwick will be notified of any offshore site works in advance. Notices to Mariners and Seafish/Kingfisher notifications are also issued in advance of works.

5.12 Diving Operations.

Decommissioning activities will involve divers. A recompression chamber will be provided on the vessel or at the head of the Cullivoe Pier. In addition, a fully operational recompression chamber dedicated to emergency response is available 24 hours a day, 7 days per week, at the following location:

Ocean Kinetics
Port Business Park
Lerwick
Shetland ZE1 0TW
Phone: 01595 696 707

Any diving activities will be fully compliant with the requirements of the Diving at Work Regulations 1997, as set out in the Health and Safety Executive Approved Code of Practice (ACOP) for inland/onshore commercial diving projects3.

Diving operations will be notified to HMCG in advance via a Notice to Mariners sent to renewables@hmcg.gov.uk and a courtesy call in advance of operations to the local MRCC in Lerwick.

5.13 Integrated Emergency Response Cooperation Plan (IERCP)

There are no other offshore renewables projects in the immediate vicinity so no IERCP is required

5.14 Offshore Transmission Owner (OFTO)

Not applicable

5.15 Firefighting, Chemical hazards, Trapped Persons, etc

There are no specific procedures to be followed beyond those defined in the onshore health and safety documentation and in the construction vessel's procedures.

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.

[3] Available at http://www.hse.gov.uk/pubns/books/l104.htm

5.16 Survivors Shore Reception Arrangements

It is envisaged that the Cullivoe Pier would be the most appropriate shore reception area in most foreseeable circumstances, given its proximity (~1km) to the turbines and the good shelter this harbour provides for vessels coming alongside.

Any incident involving evacuation of a casualty using a rescue helicopter would likely result in a direct transfer of the casualty by air to the nearest hospital in Lerwick.

Overall co-operation of emergencies ashore in the UK is the responsibility of the Police.

The Police may therefore work with local partners and co-ordinate other local responders managing shore reception resources such as temporary accommodation, emergency feeding and rest centers, transport, equipment, etc. Landing sites are designated in port and local authority plans.

Whether or not a reception Centre will be opened is dependent on many factors, including the size of the emergency and the number of staff or facilities available. (Refer to page 62 of G+ IOER document for further guidance).

Companies have a duty of care to the welfare of their staff and should have arrangements in place for such incidents. The Nova Site Office at Cullivoe Pier and, if necessary, nearby staff accommodation on Yell would provide an adequate shore reception area for the relatively small numbers of individuals likely to be affected by an incident on the Shetland Tidal Array. If a larger reception area was required, Nova would be able to assist Police Scotland in setting this up, given the company's knowledge and existing relationships with the local harbour master and accommodation providers.

The Police are also responsible for security and preservation of the incident scene (so far as possible); news media control; visits by VIPs; and subsequent investigation in parallel with agencies such as the Marine Accident Investigation Branch and the MCA Enforcement Branch.

5.17 MRCC Contact Information

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

Shetland MRCC
Knab Road
LERWICK
Shetland
ZE1 0AX

Primary emergency and routine telephone: 0344 382 0721

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

Routine landline: 01595 692976

Email: zone1@hmcg.gov.uk

Watch kept: 24 hours.

VHF/MF DSC routine contact MMSI: 002320001

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 MRCC

Radio call sign: 'Shetland Coastguard'

In an emergency, VHF communication with the MRCC on Channel 16 will be the preferred method. For routine purposes the office telephone and/or email may be used.

5.18 SAR Facilities and their Response Capability

5.18.1 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, development work and safety craft should respond and provide assistance in accordance with IMO SOLAS regulations, Chapter V.

5.18.2 Surface Craft Rescue Resources Available:

Figure 5: Lerwick Lifeboat RNLB 17-10 Michael & Jane Vernon[4]

Royal National Lifeboat Institution (RNLI) All-weather lifeboats (ALB) are able to reach virtually

[4] Source: http://www.lerwicklifeboat.shetland.co.uk/rnlb-17-10-michael-jane-vernon/

any point 50 miles from the coast of the British Isles within 2½ hours. RNLI ALBs are stationed at:

Shetland Islands	Aith and Lerwick (Figure 9)
Orkney Islands	Kirkwall, Stromness and Longhope
Mainland Scotland	Thurso, Wick, Invergordon, Buckie and Fraserburgh

The two lifeboats stationed at Aith and Lerwick are Severn Class lifeboats as shown in Figure 9. The following information generalises the capabilities of this lifeboat type:

- Inherently self-righting, inflatable daughter boat and comprehensive medical equipment
- Portable salvage pump
- Crew of 7
- Maximum speed of 25 knots
- Range of 250 nautical miles
- Length 17.3m, Beam 5.9m, Draught 1.78m
- Displacement of 42 tonnes
- Fuel capacity of 5,600 litres

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 Turbine Generators or enter an OREI 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.

5.18.3 Airborne Rescue Resources

There are ten UK SAR helicopter bases, the following two are the most relevant to the Shetland Tidal Array, with Sumburgh the closest at ~70 miles from the OREI:

Coastguard S-92 helicopters based at Sumburgh, Shetland and Inverness.

Figure 10: Sikorsky S-92

These aircraft must not be factored into 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 this 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

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.

5.19 Police contact information

Following discussions with Police Scotland Lerwick, Nova have been advised that in the event of an emergency on the Shetland Tidal Array, the police should be contacted by dialling 999.

5.20 Emergency Action Card

EMERGENCY ACTION CARD
For Shetland Tidal Array

Please see Section 5 for further information (*this hyperlink should take the user to the ERCoP for the relevant development)*

Communications with the marine coordinator should be via HM Coastguard whenever possible.

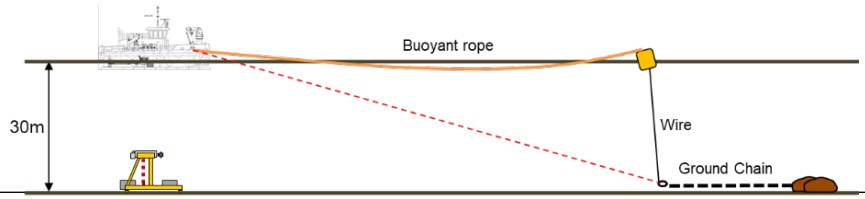
Emergency Contact One of the following or a combination of both, must be 24/7	
Duty Holder name	Nova Innovation Ltd ("Nova")
Marine Coordinator (primary number)	Tom Wills, Offshore Manager – [Redacted]
Secondary number	Gary Connor, Engineering Director: [Redacted]
Media relations	Simon Forrest, CEO: [Redacted]
Coastguard	Shetland MRCC, 0344 382 0721 or 999
Police	North Command, 999

Tidal Array Summary	
Phase	Construction
Range & Bearing from land	600 metres east of Cullivoe Pier
Number of turbines	6 (fully submerged)
No. of substations	Zero

Location of primary ER facility
Nova Site Office, Cullivoe Pier

Turbine specific information					
Depths (below LAT, in m & ft)		**Lights** *Incl. flash, IR, colour, etc.*		**Helicopter Winch**	
Total depth to blade tip (below surface)	15m / 49ft	Aviation lights	None (fully submerged)	Suitable for winching?	n/a – any winching would be from vessel deck

Note: the tidal turbines are fully submerged in 30m water depth and the working vessel typically sits on a 4-pt mooring as shown opposite:



Communications		
VHF	**Aviation**	**Additional comms**
Working Channel 10 or 14 Listening watch on VHF16 + DSC 70	n/a	n/a

Electronic Monitoring *(include details if feeds are provided to HM Coastguard)*		
AIS	**Radar**	**CCTV**
n/a	n/a	n/a

Site Rescue Teams

Not applicable. Any incident not within the capacity of the working vessel to respond to, would require SAR assistance.

Shutdown procedure

All of the turbines installed on site can be shut down on request via the Nova Marine Coordinator, either remotely from the Edinburgh-based control room, or by a site operative in Cullivoe.

Personal SAR Locating Device Make & Model		Ocean Signal RescueMe MOB1 AIS/DSC Beacon		
Functions: yes/no	**COSPAS-SARSAT**	**AIS**	**DSC**	**121.5MHz**
	No	**Yes**	**Yes**	**No**

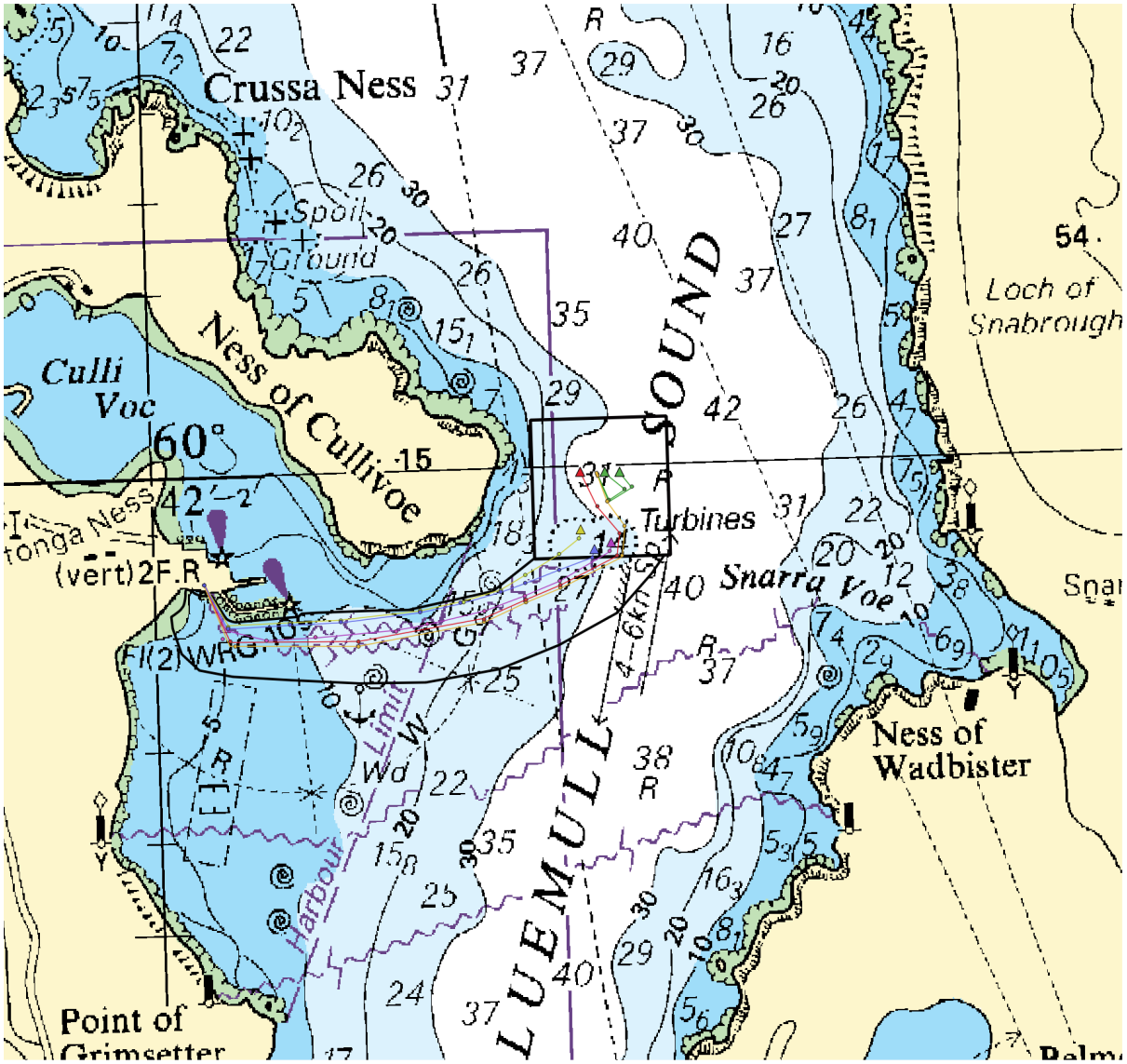
Mass Evacuation Places of Safety ***To indicate if mass evacuation is required where persons could be taken to, whether it be accommodation vessel, landfall or near Offshore Installation for temporary relief.***		
Place Name	**Range and bearing from centre of tidal array**	**Location in Latitude and longitude**
Cullivoe Pier	600 metres west of tidal array centre	60° 41.883’ N 000° 59.933’ W

Key points of note

Information to be added by HM Coastguard which is beneficial for a SMC

Any contact information contained in the EAC and provided to the Maritime and Coastguard Agency (MCA) will be used solely for the purposes of emergency response as part of the Agency’s, which may include sharing with SAR resources during an incident or with the relevant police force(s). The information will be kept secure and will not be used for any other purpose without their permission. The information will be stored by the MCA and the SAR helicopter provider until the duty holder provides updated information or the development ceases to exist, at which point the information will be deleted.

Shetland Tidal Array Chart. *– see more details in 5.1 and 5.3.*



Title: Shetland Tidal Array (as extended)	Project: Enabling Future Arrays in Tidal (EnFAIT)

Legend

- Lease Area
- Cable Corridor
- T1 Turbine
- T2 Turbine
- T3 Turbine
- T4 Turbine
- T5 Turbine
- T6 Turbine
- Cable Hub

Existing cables
- T1
- T2
- T3

New cables
- T4
- Hub
- T5
- T6

Composed By: TW	Checked By: PG	Approved By: GM

Region: Bluemull Sound, Shetland	Projection: WGS 84
	Scale: 1/7,500

References:
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(Copyright Scottish Natural Heritage) Contains Ordnance Survey data © Crown copyright and database right (2017)
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Site Coordinages:

A 0° 59.14998' W 60° 41.89998' N
B 0° 59.14998' W 60° 42.05202' N
C 0° 58.84698' W 60° 42.05202' N
D 0° 58.84698' W 60° 41.89998' N
For the coordinates of the cable corridor reference points, please see the Marine License Application.

MHWS: 2.6m above LAT

0 100 200 300 400 m

Nova Innovation Ltd. 45 Timber Bush, Edinburgh EH6 6QH
+44 (0)131 554 2242
Info@novainnovation.com

Commercial and in Confidence

Date: 12 December 2019

ANNEX 1: CONTINGENCY PLAN FOR COMPLIANCE WITH LICENCE CONDITIONS

This section outlines the steps that must be taken to ensure compliance with key licence conditions. Note: this is not part of the emergency response per se, but some notifications are required within 6 or 24 hours of an incident, so are included here for completeness.

A. Licence conditions

Attention is drawn to the following conditions from Nova's register of conditions compiled from Marine Scotland Licence MS-00009110 and SIC Works License No. 2022/015/WL.

Table 9: Selected Conditions from Marine Scotland Licence MS-00009110

Ref.	Description	Action
PART 3.1	**GENERAL CONDITIONS**	
3.1.4	***Force Majeure:*** *Deemed to apply when due to stress of weather or any other cause, the master of a vessel or vehicle operator determines that it is necessary to deposit the substance or object other than at the Site*	Notify MS-LOT within 48 hrs
PART 3.2	**CONDITIONS APPLICABLE TO ALL PHASES OF THE WORKS**	
3.2.1.2	***Incident reports:*** *breaches of health, safety or environmental obligations must be reported within 24 hours*	Notify MS-LOT within 24 hrs
3.2.3	**CONDITIONS APPLICABLE DURING CONSTRUCTION OF THE WORKS**	
3.2.3.3	***Navigational safety:*** *The Licensee must, in case of damage to, destruction or decay of, the Works notify the Licensing Authority in writing as soon as reasonably practicable. The Licensee must carry out any remedial action required by the Licensing Authority, following consultation with MCA, NLB & any other such advisers.*	Carry out remedial works as necessary
3.2.4	**CONDITIONS APPLICABLE ON COMPLETION OF THE WORKS**	
	Navigational safety: *The Licensee must ensure that a contingency plan is in place to respond to catastrophic failures - this plan should include the transmission of local Radio Navigation Warnings.*	See flow chart below

Table 10: Selected Conditions from SIC Works License No. 2022/015/WL

Ref.	Description	Action
SITE / PROJECT SPECIFIC CONDITIONS		
10	*In event of works falling into disrepair or becoming damaged, adrift, stranded, abandoned or sunk in manner to cause obstruction or danger to navigation, the developer shall carry out…. all measures necessary for lighting, buoying, raising, repairing, moving or destroying, as appropriate… to remove [the] obstruction or danger to navigation.*	Carry out remedial works as necessary
STANDARD TERMS AND CONDITIONS		
4	*In the event of environmental pollution causing a nuisance, either on land or ashore or in the sea, in connection with the operations on, in about or in connection with the Works, the Licensee shall carry out or make arrangements for the carrying out of all measures considered reasonably necessary for the clearance and removal of any such pollution. The*	Carry out remedial works as necessary

	Licensee shall ensure that any damage caused as a result is made good. [redacted]	

B. Responsibilities

The Nova Offshore Manager (or their appointed duty replacement) will have operational responsibility for ensuring compliance with the license conditions. Ultimate responsibility for compliance with these conditions lies with the Nova Directors.

C. Contingency plan actions

The flow chart below outlines the actions to be taken in the event of an incident and the external communications that should be made to ensure compliance with the project's license conditions.

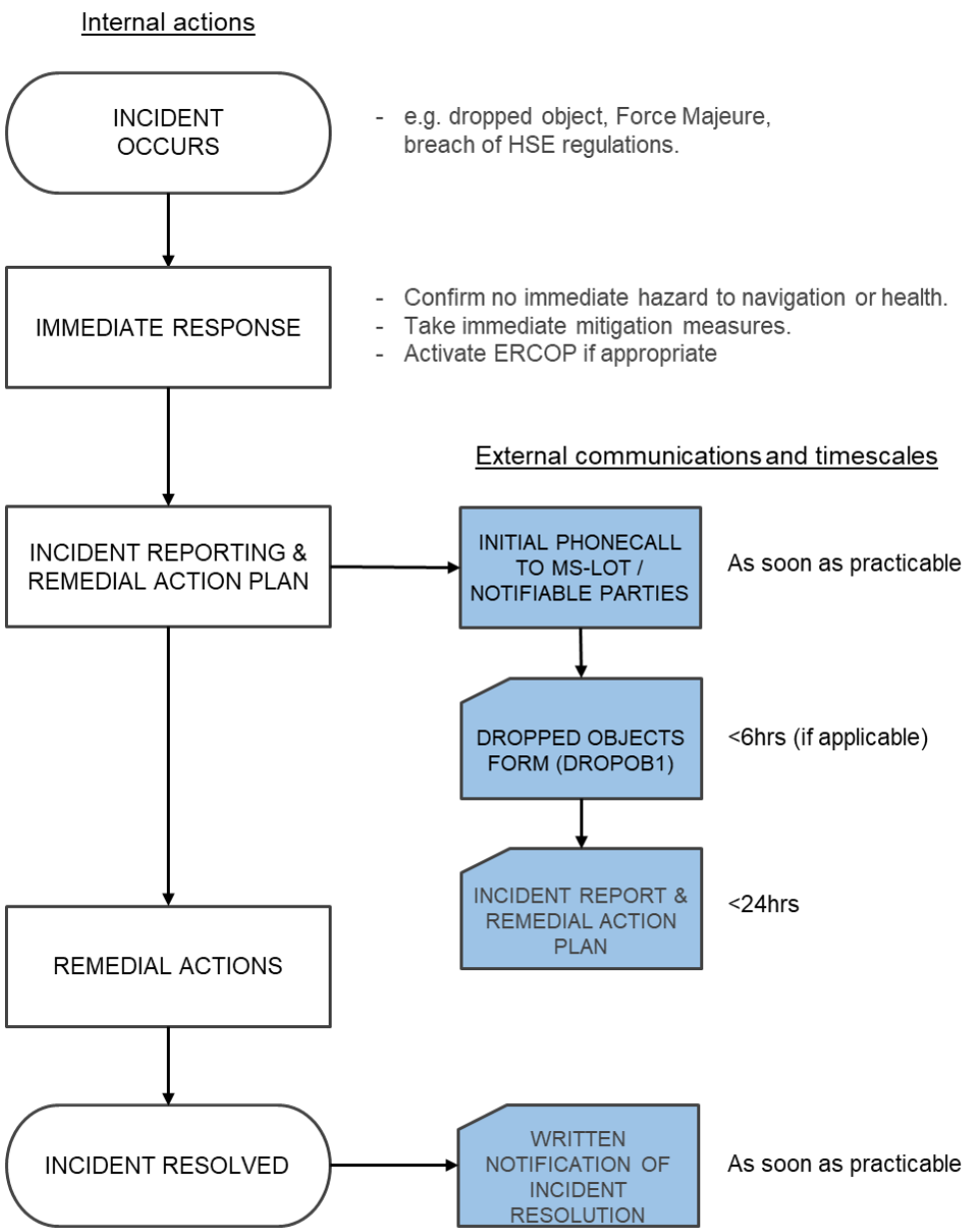

Figure 6: Contingency plan for compliance with license conditions

D. Key notifiable parties

The key parties that may need to be notified of an incident are listed below.

Marine Scotland (MS-LOT) Case Officer: Lauren Cowan Tel: +44 (0)300 244 5046 Email: lauren.cowan@gov.scot CC: MS.MarineRenewables@gov.scot ; toni-marie.mcginn@gov.scot
Crown Estate Scotland Development Manager: Mark McKean Tel: 0131 260 6114 / Mob: [Redacted] Email: mark.mckean@crownestatescotland.com
Maritime and Coastguard Agency (MCA) Email : oelo@mcga.gov.uk, navigationsafety@mcga.gov.uk, zone1@hmcg.gov.uk renewables@mcga.gov.uk Primary emergency and routine telephone: 01595 692976 Primary emergency and routine telephone (UK Renewables): 0344 382 0721
Shetland Islands Council (SIC) Ryan Leask: Marine Planning Officer Email: ryan.leask@shetland.gov.uk **Tel:** 01595 745 682

Other parties may also need to be notified as appropriate: see licence documentation here: https://www2.gov.scot/Topics/marine/Licensing/marine/scoping/nova

E. Reporting templates

The following reporting templates to ensure compliance with regulatory conditions are provided below:

- Generic Incident Report and Remedial Action Plan
- Dropped Object Notification form

Generic Incident Report and Remedial Action Plan (Nova Innovation Shetland Tidal Array)

Reporter details

Full Name:	Position/Title:
Contact Telephone No:	Contact E-Mail:

Incident details

Date of incident:	Time of incident:
Description of incident:	
Remedial action taken or planned:	
Parties requiring notification:	
Any additional information that may be useful*	
Date of incident report:	Date incident resolved:

** Attach details (images/diagrams) or continue on separate sheets if required*

NOVA INNOVATION

DROPOB1 - OFFSHORE WIND & MARINE RENEWABLES DROPPED OBJECTS FORM

Marine Scotland notification pro-forma for reporting the dropped materials from the offshore wind/marine renewables industry at sea

[The local Coastguard must be contacted by telephone ASAP. This form should also be completed and submitted to the following contacts within 6 hours of dropping an object, where possible, and in any event within 5 days of becoming aware of loss /dumping incident.

Marine Scotland	**MS.MarineRenewables@gov.scot**
	& Case Officer
Scottish Fisherman's Federation	PON2@sff.co.uk
Regional Inshore Fisheries Groups (RIFGs):	
West Coast RIFG	Alastair.mcruaraidh.mcneill@gmail.com
Outer Hebrides RIFG	duncan@craigard.co.uk
Orkney Management Group	orkneyfisheries@btconnect.com
Shetland Shellfish Management Organisation	carole@ssmo.shetland.co.uk
Maritime & Coastguard Agency	navigationsafety@mcga.gov.uk
	and zone1@hmcg.gov.uk
Appropriate local HM Coastguard Station	
Kingfisher at Seafish	kingfisher@seafish.co.uk
Northern Lighthouse Board	Navigation@nlb.org.uk
UK Hydrographic Office (UKHO)	sdr@ukho.gov.uk
Navigational Warnings at UKHO	navwarnings@btconnect.com

Reporter Details		**Date of Report:**
Full Name:	**Position/Title:**	
Contact Telephone No:	**Contact E-Mail:**	
Operator/Organisation/Company responsible for dropped object:		
Name offshore Wind/Marine Renewable development or ship responsible for dropped object		
Location/position at the time of dropping object:		
Latitude:	**Longitude:**	
Date dropped:	**Time (24hours):**	
Weather conditions at time:	**Depth of Sea (metres):**	
Wind Direction (0-360 degree):	**Wind Speed (knots):**	
Beaufort Scale: Tide Rate/Direction	**Wave Height (metres):**	

Dropped Object(s) – provide full description. Materials involved, function of object, dimensions etc. Provide Photos if available.	
If the materials are resting on the seabed are they near wind turbines / renewable devices? Yes or No:	
Are the materials likely to float on sea surface or in water column? Yes or No: **If no, estimated clearance over object:**	
If the answer to question above is YES - are materials likely to reach shore or cross an international border? - please specify	
Reasons for dropping object(s)	
What are the plans to recover the materials? *Please specify details, including anticipated timescales for the recovery operation. If there are no plans to recover the materials the reason for this must be clearly specified.*	
What are considered to be the risks and dangers to other users of the sea as a result of the lost or dumped materials not being recovered?	
Any further information that may be useful:	
Please list the organisations that you have / will copy this form to:	

For internal use only:
Incident history:
Date of circulation to consultees by developer:
Actions taken:
Final Action:
Confirmation that case is closed: ☐
Name of person closing the dropped objects case:
Date closed:
Reason for closing case:

For Internal Marine Scotland use only

Close offs received from:

MS – Compliance/Fisheries/Renewables	
SFF	
NFFO	
IFGs	
MCA	
Kingfisher	
NLB	
UKHO	