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Annex B

JNCC Guidelines for Minimising Acoustic Disturbance to Marine Mammals whilst using explosives - March 2008

The use of explosives in the marine environment ranges from inshore activities such as harbour construction to offshore operations such as well head or oil platform decommissioning, all of which have the potential to impact upon marine mammals. Amendments to the Habitat Regulations (HR) for England and Wales and the Offshore Marine Conservation (Natural Habitats, &c.) Regulations 2007 (known as the Offshore Marine Regulations or OMR) have now been implemented and it has been recognised that sound generated from explosive use has the potential to cause 'significant disturbance' (i.e. disturbance that constitutes an offence under regulations 39(1)b of the HR and OMR). It is considered that adherence to the recommendations of these guidelines will minimise the potential of an offence being committed, however, those undertaking operations should consider the implications of the above and whether 'significant disturbance' is likely to occur.

As the scale of explosive use will vary for each operation, it is recommended that the generic guidance provided below is customised by producing an Environmental Protection Plan (EPP) detailing actions and responsibilities for a specific activity. Ideally, this EPP should be attached to any applications for consent which are submitted.

Section 1 - The Planning Stage

When the use of explosives is planned, those undertaking the activity should:

- Consult relevant literature and if necessary, contact the Joint Nature Conservation Committee (JNCC) to determine the likelihood that marine mammals will be encountered. For instance: <http://www.jncc.gov.uk/default.aspx?page=2713>
- Determine, based upon the proposed explosive use and the information available on the distribution of marine mammals, whether there is potential for impact to marine mammals and hence the level of mitigation which may be necessary.
- If, based upon the above assessment, that there is potential to cause 'significant disturbance', determine the area within which this may occur. This area is known as the mitigation zone, the area where mitigation measures must be in place to ensure 'significant disturbance' does not occur.
- Plan activities so that their timing will reduce the likelihood of encounters with marine mammals especially during the breeding and calving seasons
- Plan to minimise the amount of explosive use necessary for an operation.
- Plan for the sequence in which the explosive charges are detonated so that the smaller charges are detonated first to maximise the 'ramp effect' and / or use of smaller 'Fish Scarer' charges ahead of main charge detonation.
- Consider the use of Marine Mammal Observers and Passive Acoustic Monitoring (PAM) during the operation. The use of MMO(s) and/or PAM will depend upon the time of year, the type of marine mammals which may be impacted upon and the scale of the activities and should be

considered by those undertaking the explosive activity when assessing 'significant disturbance' and what mitigation measures are appropriate within the mitigation zone.

Section 2 - At the time of activity

- At least 1 hour before any detonation a check either visually or using PAM, known as the pre-watch, should be carried out in the mitigation zone.
- If a marine mammal is observed or acoustically detected within the mitigation zone, it is to be monitored and tracked until it moves out of range. If, once detected, the marine mammal is not spotted again for 30 minutes, it is to be assumed that it has left the area.
- The use of explosives should not commence until at least 30 minutes after the last detection of a marine mammals

Visual Monitoring

- The use of dedicated Marine Mammal Observers (MMO) prior, during and after the detonation of explosive should be considered and, dependent on the scale of activities, will often be a recommendation from the relevant nature conservation agency.
- The MMO(s) should be onboard the vessel which provides the best viewing platform and is likely to be closest to the explosive activities.
- Depending upon the size of the mitigation zone, more than one MMO may be required and it may be necessary to place MMO(s) on more than one vessel to ensure the entire mitigation zone can be watched.
- Visual monitoring for marine mammals should be carried out, during daylight hours, from a suitable platform such as the ships bridge to give 360 degree cover.
- The MMO(s) should concentrate their efforts before, during and after detonation.
- The MMO(s) should be suitably equipped including binoculars.

Passive Acoustic Monitoring.

- Passive acoustic monitoring should be carried out to supplement the Visual Monitoring and to establish the presence of marine mammals ahead of detonations.
- Attempts should be made to ensure any hydrophones used as part of the PAM system are situated over the area where charges are to be placed (as many boats will move away from the charges prior to detonation, the boat may not be the most efficient place for any PAM equipment).

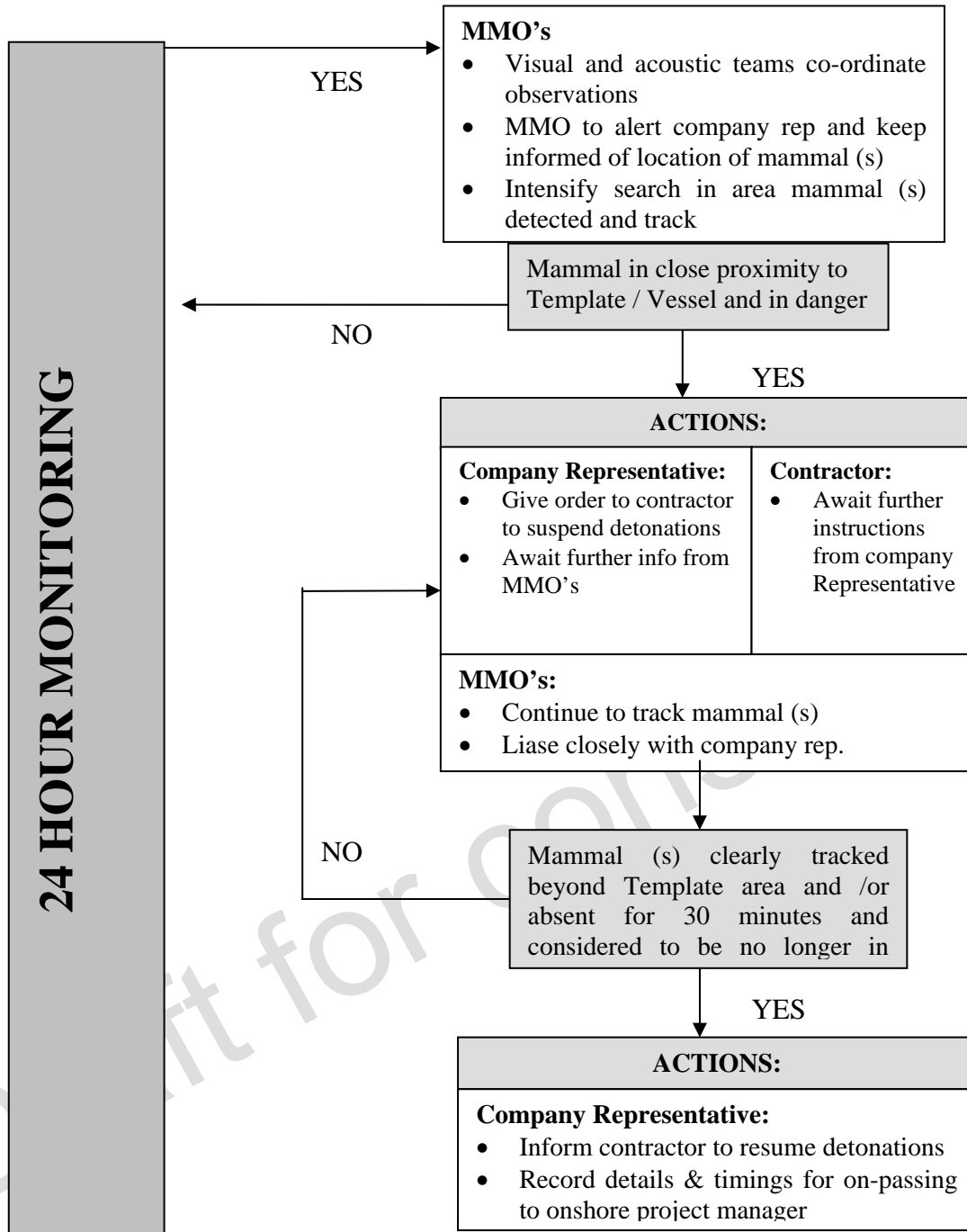
Sequencing of the explosive charges.

- The order in which the explosive charges are detonated is to be controlled with the aim of lessening the environmental impact. The progressive increase in charge size (generally referred to as 'ramp up' or 'soft start') may be effective in reducing the risk by allowing time for marine mammals to move away from the area.
- Where practical, the sequence of detonations is to start with the smaller charges and to leave the larger charges until last. Where the workscope dictates that groups of charges are to be detonated together, fusing should be employed which will delay the detonation of the second and subsequent charges (only by milliseconds) thus reducing the cumulative effect of the charges and lessening the impact of the shock wave.
- If operational constraints do not allow the detonation of the smaller charges first, then consider using an additional 'Fish Scarer' charge (approx. 0.5kg) which can be detonated to provide a 'soft start' ahead of the main charge detonation.

Communication

- It is vital that a clear communication channel between MMO(s) / PAM operators and those detonating the explosives is established. An example of a communication and reporting flowchart is provided below.

COMMUNICATION AND REPORTING FLOWCHART



Section 3 - Reporting

A report detailing the marine mammal observation (or lack of), the 'MMO report', should be sent to the JNCC after the explosive operation has been completed. Ideally the MMO report should be sent by e-mail to seismic@jncc.gov.uk or posted to the address at the top of these guidelines. Reports should include:

- Any reference number provided to those undertaking the activity by the regulating authority
- Date and location of activity
- Details of the proposed operation - for instance, any information available on the size of charges used, any variation from the application and a record of all occasions when explosives were used, including the timing of operations
- Marine mammal sightings (using standard record of sighting form)

- Details of watches made for marine mammals and the explosive activity during watches (using standard record of observation form)
- Details of any problems encountered during the activity including instances on non-compliance with these JNCC guidelines.

Draft for consultation