

**Array deployment of Seatricity's
Oceanus wave energy converter at
EMEC's wave test site in Orkney**

Environmental Monitoring Plan

Report to Seatricity

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Revision record

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1.0	03/02/12	Draft for issue to EMEC
2.0	29/02/12	Final draft for issue to Marine Scotland

1 Introduction

The following Environmental Monitoring Plan (EMP) has been developed based on the conclusions of an environmental appraisal undertaken to identify and assess the potential impacts associated with Seatricity's proposed deployment at EMEC's wave test site this year. The EMP is part of an information package to support the applications for the necessary licences and permits. As such, this EMP should be read in parallel with the following documents:

- Environmental Report (Aquatera, 2012)
- Report to inform Habitats Regulations Appraisal (Aquatera, 2012)
- Baseline seabed survey report (Aquatera, 2012)

The environmental appraisal concluded that no potentially significant impacts would arise from the proposed development. The following EMP has been developed to address a number of unknowns relating to the technology and to ensure that best practice is applied to throughout operations.

2 Proposed monitoring measures

Seatricity is planning to undertake the following monitoring measures:

- Post-deployment and post-decommissioning seabed surveys
- Noise signature characterisation of the Seatricity array

2.1 Post-deployment and post-decommissioning seabed surveys

A post-installation seabed survey will be conducted to allow an assessment of the impact(s) on the seabed from installation activities to be undertaken. The results of this survey will be used alongside those of the baseline characterisation survey undertaken by Seatricity earlier this year (refer to 'Baseline seabed survey report', Aquatera, 2012) to investigate any effects on the benthic ecology and seabed character in the vicinity following installation.

A further survey will be undertaken following decommissioning. The results of this survey will be used alongside that of the previous surveys to investigate any effects on the benthic ecology and seabed character following decommissioning.

For each survey, an ROV with an additional 'stills camera' and an accurate position-fixing system will be deployed from a suitable survey vessel. The survey will follow the approved guidelines issued by EMEC (ROV Seabed Survey Guideline REP167-02-02 20100210). The ROV will be used to inspect the area around each anchor and along the installed umbilical cable during the post-installation survey and around the same areas following the removal of equipment in 2017.

The results will be included within the Environmental Monitoring Report which will be submitted to Marine Scotland after onsite works on site have been completed.

2.2 Noise signature characterisation of the Seatricity array

A post installation survey will be undertaken to characterise the noise signature of the array during normal operation. Results will be gathered in such a way that they can be used to inform future project planning, design, site selection, environmental assessments, research and monitoring activities. It should be noted that no significant effects on marine wildlife are anticipated due to underwater noise during any phase of the project.

Hydrophones will be used to determine the noise signature of the operational array. EMEC's seabed mounted system (with a Songmeter) or a similar system will be used to undertake this work. Baseline acoustic data will be used when it becomes available from EMEC following consultation with the Scottish Government.

The results will be presented to Marine Scotland on completion of the survey.

2.3 Additional measures

In addition to these monitoring measures, Seatricity is also committed to adhering to the Scottish Marine Wildlife Watching Code¹ during all marine operations wherever possible. Copies of the Code will be held on all suitable work vessels and the crews will be briefed on the contents of the Code prior to any marine works. Vessel crew(s) and project team members will also record all noteworthy sightings of marine mammals within the immediate area of works during operations as and when possible. These incidental observations will help build a picture of marine mammal behaviour around wave energy converters and installation vessels.

¹ <http://www.marinecode.org/>