

ENVIRONMENTAL EFFECTS METADATA SURVEY FORM

Name

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Project name: Atlantis Resources Corporation - EMEC

Planned In Operation Completed

Project description:

Project Developer: Atlantis Resources Corporation

Technology Developer: Atlantis Resources Corporation

Technology type: Tidal Turbine (With gravity base)

Resource (wave, tidal): Tidal

Project scale (test site, prototype, array, commercial): Single Device

Installed capacity (MW): 1 MW

Project Website: <http://www.atlantisresourcescorporation.com/projects/emec.html>

Launch Date: August 2011

Additional Description: Atlantic proposes to install one 1000kW tidal energy conversion device (AK-1000), at the fall of Warness tidal energy test site at EMEC. The device was due to operate in August 2010; however, due to technical problems the site was delayed until August 2011.

The device operates with two sets of blades, which are fitted on a single unit, the AK-1000 tidal turbine to tackle reflux and flood tides. The diameter of each blade is 18m, and they rotate slowly at a rate of six to eight revolutions a minute, resulting in low environmental impact.

Location:

Ocean/Water body: South Seal Skerry (West Coast of Eday) Orkney. Tidal range: 3m. Tidal speeds up to 3.7 m/s.

Closest city:

Country: United Kingdom

Coordinates (please use Mercator): 59.128445°N, 2.803811°W

Depth: 33 m

Process status: The AK-1000 tidal turbine was planned to be installed in August 2010 at EMEC’s test sites, Orkney. However, due to construction issues, the installation was delayed until August 2011. Currently the Mark 1 turbine is installed. After a 12 month period, the Mark 1 device will be replaced by a Mark 2 turbine. The Mark 2 turbine will be have identical dimensions as the Mark 1 turbine, and will be able to maintain a maximum power output of 1MW. The GBS (Gravity based structure) will not need replacing.

Licensing information (brief description): As part of the decommissioning plan in 2004, Atlantis operations Ltd applied for two consultation rounds. The first was sent to 16 DECC (formerly DTI/BERR) specific stakeholders including; The Chamber of Shipping, Historic Scotland, Orkney Fisheries Association and the Orkney Island Council. The second report produced to apply towards specific government departments, including; CEFAS, Marine Scotland, the Crown Estate and The UK Hydrographic Office. The stakeholders had a statutory 30days to provide consultation Responses.

Key Environmental issues: The sites seabed ranges from eroding sub-littoral sandbanks in the east to smooth scoured bedrock ridges and platforms with occasional boulders towards the center of the site.

Fall of Warness is not a protected area, however, there are protected sites is close proximity.

Which include:

- Faray and Holm of Faray SAC – protected for its grey seal populations.
- Sanday SAC – Protected for its harbor seal populations, intertidal mudflats and sandflats, inshore sublittoral rock and subtidal sandbanks.
- Muckle and Little Green Holm SSSI – Nationally important grey seal breeding colony (Around 3% of the national breeding population).

Environmental webpage: *link to project official environmental webpage (if available)*

Baseline studies and project effects studies: Atlantis Resources Corporation - EMEC				
General description				
Receptor	Study description including question and/or objective	Design and methods (brief description)	Results (brief description)	Status (planned, underway, completed, with dates)
Dynamically Position Vessel Activity	Noise and vibrations from vessels engine could cause disturbance to wildlife – Presence	Desk based review. Consultation with statutory and non-statutory stakeholders.	Little known data on the impact of DP vessels in shallow water, but the noise output may be similar to the cumulative noise output of several vessels.	Completed

	of international, nationally and locally important species including seals, cetaceans and birds.			
	Atmosphere Emissions.	Desk based review. Consultation with statutory and non-statutory stakeholders.	Winds in Orkney average force 3, and in winter force 6. Atmospheric emissions are rapidly depressed naturally.	Completed
	Wildlife disturbance due to vessel presence and use of DP system – Presence of international, national, and locally important species including seals, cetaceans and birds.	Desk based review. Consultation with statutory and non-statutory stakeholders.	Over a vessel present for 1 day with regular use of thrusters to maintain position.	Completed
	Hazard to navigation from presence of vessel.	Desk based review. Consultation with statutory and non-statutory stakeholders.	Risk migration/controls determined by the NSRA. The work will be broadcasted by appropriate notices to mariners and navigational warnings. The removal of the nacelle, cable disconnected and GBS removal expected to be a maximum three days of activity. The fall of Warness will still be navigable around the proposed works.	Completed
	Impact of local fisheries (including diving fishermen).	Desk based review. Consultation with statutory and non-statutory stakeholders.	Test site boundary/lease area has been reduced based on consultations undertaken with fishermen representatives since initial site establishment.	Completed
Dynamically Position Vessel Activity	Impact of local fisheries (including diving fishermen).	Desk based review. Consultation with statutory and non-statutory stakeholders.	Test site boundary/lease area has been reduced based on consultations undertaken with fishermen representatives since initial site establishment.	Completed
Removal of GBS Structure	Seabed habitat disturbance from removal of GBS –	Desk based review. Consultation with statutory and non-	GBS removal not expected to greatly disturb the predominately bedrock seabed.	Completed

	no protected seabed habitats or species of conservation importance present.	statutory stakeholders.	Lack of mobile sediments negates scour or sediment redistribution issues.	
Waste Disposal	Waste Disposal.	Desk based review. Consultation with statutory and non-statutory stakeholders.	The nacelle will be disassembled and extensively studied following testing to inform future design improvements. Once investigations are completed all components will be handled in accordance with waste hierarchy with priority on re use and recycling. Any items disposed of will be done so in line with legislative requirements to avoid unnecessary environmental impact.	Completed
Accidental Discharges to Sea	Oil/Chemical spill.	Desk based review. Consultation with statutory and non-statutory stakeholders.	All subcontractors will have valid shipboard marine pollution emergency plans, which include a shipboard oil pollution emergency plan (SOPEP) or equivalent procedures as required.	Completed
	Loss of ballast blocks.	Desk based review. Consultation with statutory and non-statutory stakeholders.	Handling equipment used are tested and designed to withstand large loads. Any lessons learned during the installation phase will be implemented as required during decommissioning.	Completed
Ecological Effects	Major impacts.	Desk based review. Consultation with statutory and non-statutory stakeholders.	Degradation to the quality or availability of habitats and/or wildlife with recovery taking more than 2 years.	Completed
	Moderate Impacts	Desk based review. Consultation with statutory and non-statutory stakeholders.	Change in habitats or species beyond natural variability with recovery potentially within 2 years.	Completed
	Minor disturbances.	Desk based review. Consultation with	Change in habitats or species which can be seen and	Completed

		statutory and non-statutory stakeholders.	measured but is at same scale as natural variability.	
	Negligible effects.	Desk based review. Consultation with statutory and non-statutory stakeholders.	Change in habitats or species within scope of existing variability and difficult to measure or observe.	Completed
Reports or Papers	N/A			
Research Projects	Atlantis Resource Cooperation. (2012). EMEC Decommission Programme.			

Monitoring and adaptive management: Atlantis Resources Corporation - EMEC				
General description				
Receptor	Monitoring program description including question and/or objective (several can be listed per receptor)	Design and methods (brief description)	Results (brief description)	Status (planned, underway, completed, with dates)
Physical environment				
Benthos				
Fish and fisheries				
Large vertebrates				
Birds				
Marine uses/users				
Other* (can be named)				
Reports or Papers	(Key papers on the areas addressed should be listed here; when possible the files themselves can be made available in downloadable PDF format, alternatively links to the files or project website can be provided when available e.g. SeaGen.)			
Research Projects	(past or on-going environmental research projects at the site)			