

8 ELECTROMAGNETIC FIELDS (EMF)

8.1 INTRODUCTION

COWRIE EMF studies have been undertaken by CMACS Ltd to investigate the modelling and measurement of the E (electric) and B (magnetic) emission from a typical offshore subsea cable. A desk and laboratory study was completed in 2003 and more recently a review of existing information on the impacts of EM-Fields has taken place including proposals for strategies on future research and monitoring. The key findings of the COWRIE Stage 1 and Stage 1.5 reports are provided in The FEPA Report for the period 2003/4 (June 2005).

No further research on 'Stage 2' has been published since the submission of the construction stage FEPA report and therefore the information summarised in that report is not repeated here. A summary of last year's EMF chapter is set out below.

8.2 SUMMARY

The COWRIE report concluded that the current state of knowledge regarding the EMF emitted by undersea power cables is too variable and inconclusive to make an informed assessment of any possible environmental impact of EMF in the range of values likely to be detected by organisms sensitive to electric and magnetic fields.

As stated in the 2003/4 FEPA Report, the COWRIE report attempted to define the likely range of sensitivity of elasmobranchs to E-fields. The following summarises the present state of knowledge; however, it must be stressed that there is very little rigorous, experimentally based evidence to support such generalisations at present.

Elasmobranch sensitivity:	0.5 – 1000 $\mu\text{V/m}$
Potential range of attraction:	0.5 – 100 $\mu\text{V/m}$
Potential range of repulsion:	> 100 $\mu\text{V/m}$

In relation to North Hoyle, the modelling undertaken for the COWRIE EMF report is relevant. This predicted that the E-field on the sea bed adjacent to a 1m buried industry standard three-core power cable would be 91 $\mu\text{V/m}$. This value therefore lies on the boundary of emissions that are expected to attract and those that repel elasmobranchs.

A further COWRIE study (Stage 2) is expected to be commissioned that will investigate the specific biological significance for electrosensitive fish species of EMF. This study should comprise experimental behavioural investigations of fish response to underwater power cables. Findings of this study will be related to the North Hoyle site as they become available. In addition, results of the SEAS study at Rødsand, Denmark should become available within the period of FEPA monitoring for North Hoyle.

NWP Offshore Ltd proposes that the findings of this continued COWRIE research and any subsequent monitoring protocol forms the basis of any future monitoring strategy imposed under the conditions of the FEPA License, if such research suggests that deleterious impacts may result on electro-sensitive species.