

HSE Information Sheet

The Role of an Offshore Metocean Advisor

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Introduction

1 This information sheet deals with meteorological and oceanographical matters (usually shortened to metocean) concerning offshore installations and operations. It gives one example of good practice in how duty holders can deal with these matters, by the setting up of an appropriately informed role referred to in this guidance as a 'Metocean Advisor'.

Background

2 There are many matters to be considered in the offshore industry which concern metocean. These can range from fundamental design considerations to ensure that offshore structures are built to withstand the impact of the marine environment, the planning of many offshore operations such as combined operations, to the routine day-to-day operational management decisions offshore. Many of these design and operational matters are subject to regulation and guidance.

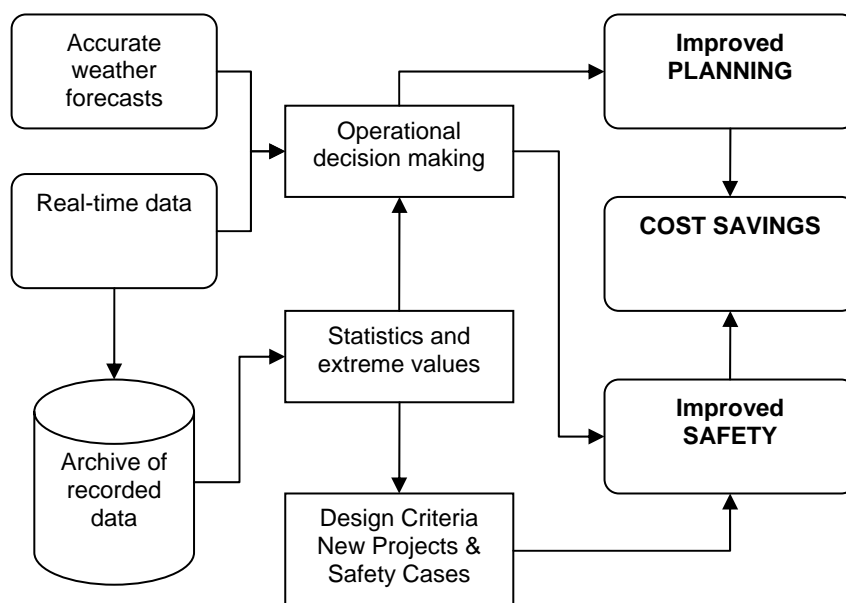
3 One practical example of good practice in ensuring duty holders can deal effectively with these matters is by the setting up of a 'Metocean Advisor'.

NOTE: The term 'Metocean Advisor' identifies a role rather than an individual. This role could be fulfilled by an internal appointment of a suitable individual, but could also be by a mix of appropriately informed other internal and external resources.

The Metocean Advisor

4 A Metocean Advisor's key responsibilities will include making informed judgements regarding what the company should do with respect to metocean issues, and to act as an informed buyer for metocean equipment and services. For optimal benefit the Metocean Advisor will manage an 'Integrated Metocean Process', such as described in Figure 1 below.

Figure 1 Integrated Metocean Process



5 It is desirable that a Metocean Advisor has sufficient competence to

- Identify the company's metocean requirements.
- Provide basic advice to colleagues on a day-to-day basis, perhaps by reference to published information.
- Identify those occasions when the use of specialist contractors is appropriate.
- Work with contractors requiring metocean advice e.g. those providing standby vessels, supply boats and helicopters to an offshore installation.
- Act as a point of contact in relation to metocean matters with the Health & Safety Executive, the Independent Competent Person (ICP), and Metocean advisors working for other companies.

6 There is no university qualification that specifically addresses 'metocean'. Most metocean experts have degrees in the disciplines relating to marine science. Professional recognition for metocean specialists is provided by the Institute of Marine Engineering Science and Technology (IMarEST) and fully accredited metocean specialists will be Chartered Marine Scientists (CMarSci).

Typical duties of a Metocean Advisor

7 A Metocean Advisor's typical job specification might include the following duties:

(a) Design Issues

8 Good practice for metocean aspects of the design of offshore structures will be in accordance with the new International Standard, ISO 19901-1¹ and HSE's Technical Policy relating to Extreme Weather Hazards², The Metocean Advisor may be responsible for arranging the preparation, and independent review, of design criteria in accordance with ISO 19901-1. The calculation of extreme values for use as engineering criteria is a highly specialised task, involving a mix of statistical and oceanographic skills. The Metocean Advisor may not be expected to perform these calculations personally unless they are already expert in this field.

(b) Weather Forecasts

9 To arrange and manage weather forecasting services; including, but not limited to:

- Checking the daily weather forecasts and that these are delivered on time.
- Appropriate dissemination of weather forecasts within company.
- Ensuring key personnel are aware of any adverse weather warnings.
- Monitoring forecast accuracy, to ensure it meets the required standards.
- Arranging additional forecasting requirements for special operations.

10 Such metocean information will enable the Offshore Installation Manager (OIM) to make objective decisions during adverse weather conditions, e.g. crane operations, over-side working, and recovery of personnel from the water. This type of metocean information can also improve the operator's ability to optimise flights, for example with respect to:

- Fuel and Payload.
- Scheduling, e.g. the potential for visits to several platforms during one sortie.
- Avoidance of abortive flights.

(c) Data Collection

11 To arrange and manage the acquisition and archiving of metocean data, for example to:

- Anticipate the need for metocean data and instigate data acquisition as appropriate.
- Arrange for the purchase and installation of offshore data acquisition systems.
- Monitor the acquisition, quality control and archiving of metocean data so acquired.

12 As part of this data collection role, the Metocean Adviser will address the:

- Past – historical data for the derivation of operational statistics and design criteria.
- Present – real-time data describing present conditions for operational decision-making.

- Future – forecasts that address what is yet to come for planning purposes.

13 Metocean data is relevant to a wide range of offshore activities and impacts on safety, costs and planning. If properly archived and applied, it can be of significant commercial benefit. One published analysis³ indicated that five years of recorded metocean data (which cost approximately £70K to gather) reduced the cost of a new neighbouring platform and its associated infrastructure by over £3 Million.

(d) Provision of meteorological and oceanographic data/statistics

14 To manage the application of archived and third party data to meet the company's needs, e.g. summary statistics for operational planning purposes and design criteria for safety cases.

- Perform literature searches in order to obtain metocean background to new regions.
- Locate data that have been measured in locations of interest.
- Find out who owns data, where it is kept and how it may be obtained.
- Convert data as supplied into operational statistics, e.g. downtime estimates.
- Derive extreme values, e.g. 100 year and 10000 year return period conditions.

15 This metocean information will be important to the planning of many offshore operations, particularly with respect to:

- Platform design.
- Rig and vessel selection.
- Appropriate allowances for non-working time due to weather.
- Assessment of the risk of downtime due to weather.

(e) Representation

16 To represent the company, with respect to metocean issues, in its dealings with other organisations, for example;

- In relevant external committees (e.g. Oil & Gas UK - formerly UKOOA, International Association of Oil and Gas Producers (OGP), UK Marine Information Council (UKMIC).
- In its dealings with HSE with respect to metocean matters.
- Act as the interface between the company, its contractors, including the metocean advisors in other companies, and specialist metocean contractors.

17 Examples of the type of activities which the Metocean Adviser could become involved in are given below:

Example 1: Helicopter Operations

18 CAA CAP437 Guidance⁴ requires that all platforms served by helicopters must be equipped with a “means of ascertaining and reporting at any time” the current weather conditions. The Metocean Adviser may be required to determine how this is met and whether the platform needs to be fitted with a weather station that provides a display of actual (real-time) conditions.

Example 2: Safety Cases

19 One of the Metocean Adviser’s roles is to provide metocean input to safety cases. The Metocean Adviser may provide a channel through which their company obtains metocean criteria for safety case submissions. Safety Cases⁵ are required for:

- All new offshore installations.
- Modifications to existing installations
- Mobile units operating in the UKCS for the first time.
- Existing structures at specified intervals.

Example 3: Adverse Weather and Incidents

20 The Metocean Adviser might reasonably be expected (by both HSE and the owner/operator) to be able to produce metocean data that were recorded at the time of a fatality or other incident, thus providing a basis for the assessment of the contribution that adverse weather might have made to the event in question. In order to do, so the Metocean Adviser might wish to consider, alongside more qualitative measures, provision for the continuous recording of metocean data.

Actions

21 HSE wishes to encourage duty holders to pay appropriate attention to metocean issues, bearing in mind the relevant legislation and guidelines referred to in this document. By so doing they can reduce the risk to personnel and infrastructure while offsetting the relatively minor costs against potentially significant financial benefits that will accrue in the short to medium term.

22 This note has provided an example of good practice as to how these requirements may be met through the role of a Metocean Adviser. It will form the basis for part of the inspection interventions carried out by HSE inspectors.

Relevant legal requirements and guidance

23 There are certain specific offshore regulations and guidance which have impact with respect to metocean, as defined in the following:

- The Offshore installation and Pipeline Works (Management and Administration) Regulations 1995 (MAR) – Regulation 14⁶
- Offshore Installations (Safety Case) Regulations 2005⁵
- Health & Safety Executive, Offshore Division - Technical Policy Relating to Extreme Weather Hazard²

24 Further requirements can be found in:

- CAP 437 – Offshore helicopter landing areas – guidance on standards, CAA 1998⁶

References

1 Petroleum and Natural Gas Industries - Specific Requirements for Offshore Structures Part 1 – Metocean Design and Operating Conditions BS EN ISO 19901 1:2005 ISBN 0 580 47507 7

2 Health & Safety Executive, Offshore Division, Technical Policy Relating to Extreme Weather Hazard – Revision 3, Aug 05
<http://www.hse.gov.uk/offshore/extremeweather.htm>

3 Bellamy N F and Cresswell N J - Economic Benefit of Metocean analyses to the Offshore Oil Industry, WMO Conf. Economic Benefit of Meteorological & Hydrological Services, Geneva 1994

4 Civil Aviation Authority, CAP437 Offshore helicopter landing areas – guidance on standards CAA 1998 ISBN 0860397416 <http://www.caa.co.uk/docs/33/Cap437.pdf>

5 The Offshore Installations (Safety Case) Regulations 2005 Statutory Instrument 2005/3117 ISBN 0110736109
<http://www.opsi.gov.uk/si/si2005/20053117.htm>

6 The Offshore Installation and Pipeline Works (Management and Administration) Regulations 1995 Statutory Instrument 1995/738 ISBN 0110527356
http://www.opsi.gov.uk/si/si1995/Uksi_19950738_en_2.htm

Further information

Any queries relating to this notice should be addressed to:

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 Offshore Division
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This information sheet contains notes on good practice which are not compulsory but which you may find helpful in considering what you need to do.