European Commission

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Best available techniques guidance document on upstream hydrocarbon exploration and production (Hydrocarbons BREF)

Gap analysis on existing guidance – initial assessment of data compiled by the subgroup

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Amec Foster Wheeler Environment
& Infrastructure UK Limited

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Report for

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1. Background

1.1 Purpose of this document

This paper presents an 'initial assessment' of data submitted by the subgroup for the gap analysis on to inform the scope of the 'best available techniques guidance document on upstream hydrocarbon exploration and production'.

At the kick-off meeting of the technical working group (TWG), good progress was made in identifying environmental issues to be the focus for onshore activities. However, there was widespread opinion in the TWG that many, if not all, environmental issues for offshore activities were already covered by existing obligations and/or best available techniques based guidance or standards.

As set out in the mandate in Appendix A, a subgroup was set up to undertake a gap analysis to identify where there is/is not guidance to assist in how to address the key environmental issues covering offshore activities and certain onshore activities.

In order to inform the gap analysis, TWG volunteers provided information on existing approaches and guidance, including (in some but not all cases) details of how the various environmental issues are addressed, by 27 November 2015. Following provision of this data, Amec Foster Wheeler has undertaken an initial assessment of the data provided, in order to facilitate discussions at the meeting of the sub-group which will take place in Brussels on 28 January 2016.

Based on the information provided in this paper, and other data and considerations of the subgroup, the 28 January meeting will aim to reach a conclusion on the extent to which there are outstanding topics for each of the key environmental issues covered by the mandate that should be included in the guidance document (i.e. what the added value in exchange of information by the TWG would be, and whether these issues should be added to those already identified at the kick-off meeting for onshore activities). The subgroup will report back to the wider TWG, with a final decision of the TWG to be reached by 14 March 2016. Where no material has been submitted against a topic the intention is for that topic to be taken forward in the exchange of information without discussion by the subgroup.

The detailed remit of the sub-group is set out in Appendix A.

1.2 Information submitted by the subgroup

Members of the subgroup provided a wide range of information to be taken into account in the gap analysis. In order to ensure transparency of the process, the information provided has been uploaded on to the project information exchange platform (emeaext.amec.com/sites/p_36406/default.aspx). Several hundred references were provided, with a listing of those references provided in Appendix C.

Information was provided by the following members of the subgroup: DNV GL, EOSCA, IADC, IOGP, NOGEPA, Norway, Oil & Gas UK, Poland, The Netherlands, The United Kingdom and WEG.

The information submitted took a variety of forms, including: multilateral guidance; national guidance; industry guidance; standards developed by national and international bodies; as well as national and multilateral legislation.

It will ultimately be for the subgroup to recommend to the TWG – based on the information submitted – whether there are remaining issues to be addressed and the extent to which they should be covered by the guidance document.

1.3 Approach to the assessment

Due to the volume of information made available, and the short timescales for preparation of this paper (c. 3 weeks), the information presented here is intended to be an 'initial assessment' which will inform the subgroup's overall assessment, to be reflected in the report of the 28 January 2016 meeting.

As a result of the above, there will inevitably be gaps and potentially inconsistencies in the detailed information provided in the appendices to this report. Notwithstanding this:

- The assessment has been conducted to a sufficient depth to draw conclusions on the existence and type of gaps that exist.
- The subgroup should be prepared to consider, in the round, whether there is merit in covering each of the environmental issues within the scope of the BREF. To this end, any major omissions or inconsistencies in the assessment here should be raised at (or prior to) the 28 January meeting.

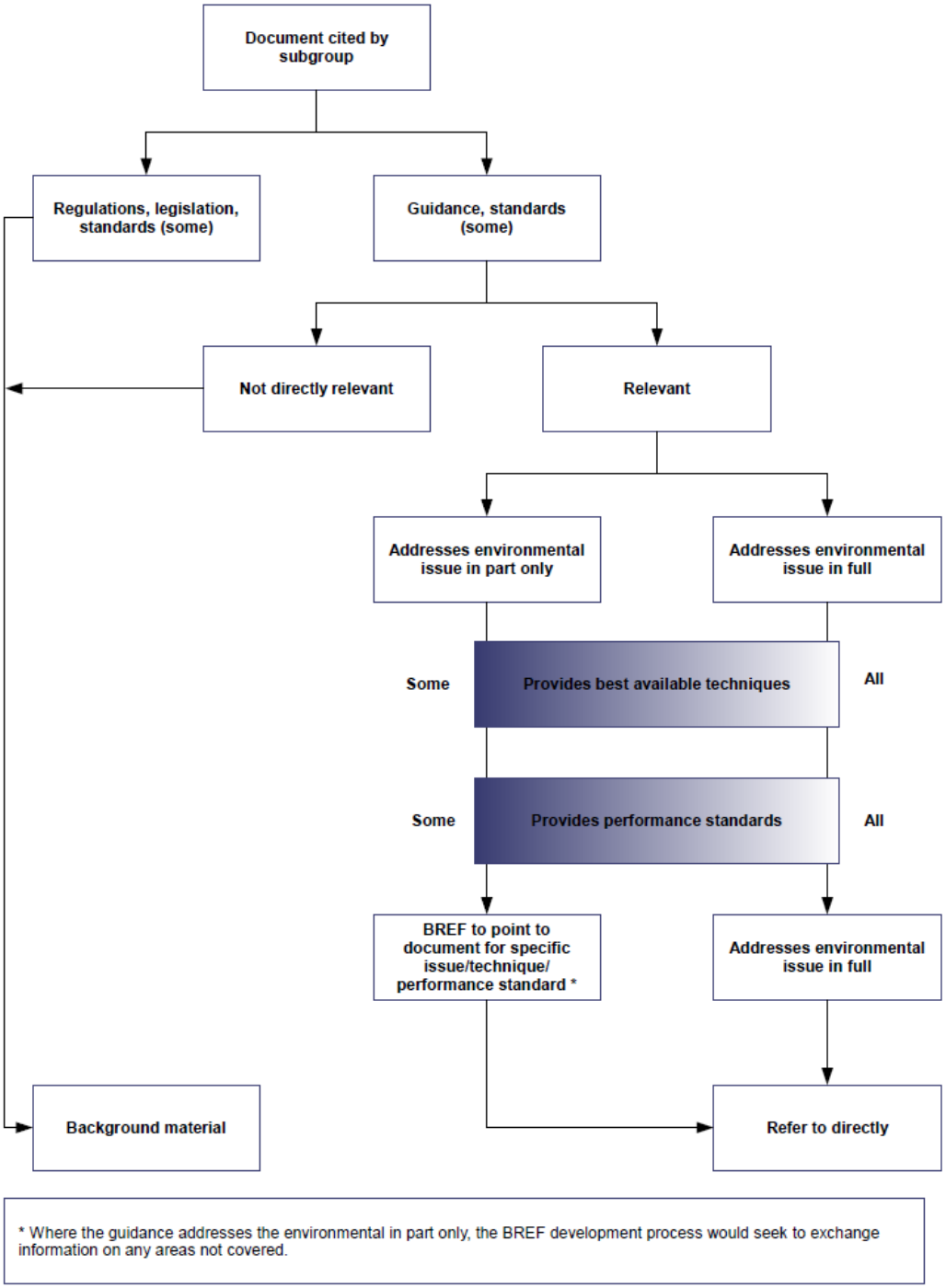
In conducting the assessment of potential gaps, the following key steps were undertaken:

- A rapid review of all documents (in detail or based on the abstract) was undertaken.
- The documents relevant to each environmental issue (Annexes I and II to the mandate) were incorporated into a synthesis table, with a separate table for each document, as set out in Appendix B[1].
- In order to assess whether there are gaps that exist, the criteria set out in the mandate (as further elaborated in Appendix A) were used to draw initial conclusions on each document. These criteria included:
  - The geographical scope of the approaches
  - The environmental scope of the approaches
  - The accessibility of the approaches to operators and competent authorities across the EU
  - The age of the approaches and the extent to which they reflect present day techniques and technologies
  - An overall conclusion on each document was also drawn, and summarised at the start of each of the documents in Appendix B.
- Finally, an overall summary of the assessment was made, including conclusions on the coverage of the information reviewed, and the identification of gaps. The potential use of the document in the context of the BREF was assigned to one of two categories:
  - 'Refer to directly' relates to guidance that is considered highly relevant to the guidance document. Some of these documents may already represent the best available techniques to address the issue, or elements thereof. Indeed in some cases the guidance document might simply point to existing guidance or (performance) standards, if the subgroup agrees that there is merit in including the issue.
  - 'Background material' relates to other references which, although they may include important and useful information, are not considered to directly fill any particular gap,

[1] Note that it was not practicable (or worthwhile) to do this for every single document individually, and in some cases documents were grouped and/or conclusions drawn at a high-level in terms of potential relevance to the gap analysis.

in terms of guidance that can assist with permitting at an EU scale. This may include, for example, national legislation, design standards, etc. which while clearly important in addressing environmental impacts in some cases, do not directly fill a gap.

The subgroup is therefore asked to consider the conclusions on the identified gaps, and therefore the merit in adding these environmental issues to the scope of the guidance document. Further analysis and input from the subgroup at and in advance of the meeting may identify further gaps or alternatively identify where gaps do not exist.



2. Cross-cutting issues – identified gaps

As set out in Sections 3 and 4 of this paper, a number of gaps have been identified for the specific environmental issues covered by the subgroup's remit. Those sections, therefore, include areas for the subgroup to consider where the information provided – when considered as a whole – is concluded to leave remaining gaps. In these cases it is considered there would be merit in undertaking an exchange of information with a view to addressing the gaps through an EU-relevant guidance document, namely the hydrocarbons BREF.

Lack of consistent EU-wide coverage in guidance

There is presently a lack of EU-wide references to assist operators and competent authorities to determine the best available techniques to address the key environmental issues listed. Regionally there is significant variation in the status and nature of guidance, with the likes of HELCOM and OSPAR containing a number of sources of guidance that go into significant detail on BAT and potential performance standards (in some areas). However, in parts of the EU (e.g. with less mature offshore O&G industries) the materials available are limited and it is generally unclear as to the extent the techniques employed in such countries are consistent with those developed in the likes of OSPAR and HELCOM parties. This applies to most if not all of the key environmental issues identified.

This is a key issue given that one of the aims of the guidance document is to identify and exchange information on best practices, with a view to improving the EU environment as a whole. There is much good practice in areas with mature O&G industries that would benefit from being disseminated more widely.

Variability in different performance standards included in guidance

Linked to the above, where performance standards are included in guidance/requirements, there is variability in the numerical values expressed in guidance across guidance from different parts of the EU and also other guidelines such as those of the World Bank (e.g. for oil in produced water[2], content of NADF in disposed drill cuttings – where permitted). There is clearly potential for added value in identifying BAT-based performance standards (without prescribing any particular technique) within the guidance document. Furthermore, where performance standards are in force, actual performance in such areas is generally better than the standards concerned e.g. UK performance in comparison to OSPAR performance standards.

Lack of information on applicability of techniques

Very little of the guidance provides information on applicability of techniques (e.g. to different regions / types of offshore installations). As highlighted at the kick-off meeting, applicability of techniques can vary substantially, even within e.g. the North Sea area. This lack of information is likely to hinder operators and competent authorities in assessing which techniques are most appropriate at the installation level, and hence represents a gap where further exchange of information would be beneficial.

Lack of information on economics of techniques

Economic feasibility / affordability of techniques is missing from the majority of the guidance reviewed (which often e.g. simply list techniques for consideration). This is a key issue in identifying whether techniques are appropriate at the installation level and in enabling setting permit conditions. While

[2] By way of example, under OSPAR the limit is 30 mg/l; under HELCOM it is 15 mg/l; the UKCS average is 20 mg/l; and the World Bank guidelines give figures of 29-42 mg/l (depending on the averaging period).

economic factors will obviously vary substantially from installation to installation, further guidance on this aspect is considered to be of benefit to authorities and operators alike.

Lack of information on available techniques to achieve environmental objectives

Where issues are addressed under regional sea conventions (e.g. OSPAR, HELCOM, Barcelona), in some cases there is guidance on how to achieve relevant performance standards (e.g. techniques for management of produced water under OSPAR). However, in other areas, there is little information identified that would assist authorities or industry in identifying techniques to achieve the environmental objectives (e.g. techniques to reduce/avoid discharges of chemicals; techniques to meet the discharge limit for oil-based drilling mud cuttings).

Other issues identified

Other cross-cutting issues identified through the assessment of information submitted for the gap analysis include:

- Most of the information available focuses on engineered systems/hardware. There is less focus on operations/procedures that can be used to address the environmental issues. While such information is often included in individual companies' internal guidelines, there is little publicly available information on this aspect.
- A number of the documents identified include information/techniques that may be relevant in terms of identifying candidate best available risk management approaches[3].

[3] See e.g. the guidance reviewed for 'activities with potential for accidental hydrocarbon spills'.

3. Identified gaps for key environmental issues – offshore

This section provides a summary of the identified gaps for each of the key environmental issues covered by the gap analysis for the *offshore* sector.

Appendix B includes the detailed initial assessment of data, while the tables below provide a summary of the key conclusions on whether gaps in coverage have been identified. For each key environmental issue, a recommendation is made to the subgroup on whether the issue should be included in the guidance document, given the existing guidance available.

The subgroup members may consider that there are additional gaps for each key environmental issue that should be raised at the meeting on 28 January. Likewise, the subgroup members may consider that the identified gaps are not substantial enough to warrant inclusion of the issue in the guidance document; in which case, the reasoning for this should be provided to the rest of the group.

Key environmental issue 1	**Seabed disturbance – Sea-bed infrastructure impact, e.g. pipework, concrete mattresses, rock dumping, anchoring, piling, jacket footings in-situ**
Identified gaps	• **Lack of EU-wide guidance on the potential impacts on seabed disturbance from infrastructure and the key techniques that can be applied to mitigate such impacts:** Certain Member State guidance in relation to EIA addresses this issue in part but there appears to be significant variability across the EU. • **Seabed disturbance impacts from infrastructure, in particular from concrete mattresses, piling, rock dumping and pipe laying are covered in little detail in guidance provided**.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 2	**Seabed disturbance – Drill cuttings pile material and toxic contaminants on seabed**
Identified gaps	• **Partial EU coverage of the guidance**: where guidance has been developed it only applies to part of the EU total sea area. • **Lack of information on the implementation of OSPAR 2006/5 in practice and the measures applied by Parties**: This includes BAT for determining thresholds for identifying potential pollution and BAT for addressing such pollution where it is identified.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 3	**Discharges to sea – Handling of residual chemical additives/hydrocarbons (planned/accidental releases to sea, e.g. mud additives in cuttings, drainage water containing hydrocarbons, cement, sewage water, ballast discharge)**
Identified gaps	• **Approaches for chemical selection vary across the EU**: The partial EU coverage of guidance and differing approaches under the different international conventions (HELCOM, OSPAR, Barcelona, etc.) is a potential gap. In particular, this applies to the process of chemical selection and approval in permits by national authorities, where approaches differ amongst countries, and are clearly less stringent in some areas (e.g. Barcelona, Bucharest conventions). • **Lack of a consolidated reference containing performance standards**: The lack of an EU reference for relevant performance standards related to chemical releases (e.g. some are included in HELCOM and OSPAR, while the World Bank guidance provides performance indicators for a range of different parameters). Clearly others have found it possible to develop certain performance standards for chemicals, and an EU-level guidance document on such standards (and techniques to consider in meeting these standards) would aid consistency in information available for permitting. • **General lack of information on available techniques**: There is relatively little information/guidance to assist operators and permitting authorities on identifying specific techniques to prevent/minimise discharges to sea, and information to assess the merits and applicability of those techniques. The guidance available is largely **limited in geographical**

Key environmental issue 3	**Discharges to sea – Handling of residual chemical additives/hydrocarbons (planned/accidental releases to sea, e.g. mud additives in cuttings, drainage water containing hydrocarbons, cement, sewage water, ballast discharge)**
	coverage (e.g. to a single country) and it is not clear that authorities and industry across the EU will have guidance available to support with permitting. Examples include response to chemical spills (which is covered by a HELCOM Manual but seeming not other multi-country guidance). • **Lack of guidance to support with setting discharge limits:** The lack of EU-level guidance on setting of discharge limits in permits, and the apparent lack of an EU reference document to assist authorities / operators to identify options to meet discharge limits.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 4	**Discharges to sea – Activities with potential for accidental hydrocarbon spills, e.g.:** **- Well blowout (Tier 3)** **- In-field riser/flowline rupture, topsides vessel / heat exchanger rupture, fuel tank loss of containment, topsides drainage system failure (Tier 2)** **- Bunker hose failure, dropped tote tank, small-hole riser leak, helideck fuel spills (Tier 1)** **- (Note events listed here by Tier are for indicative purposes only, actual spills may vary)**
Identified gaps	<u>Prevention/Detection</u> - **Very little guidance was supplied on best available techniques (BAT) in terms of particular technologies or equipment that are at the leading edge of design:** Foer example for drilling, well construction, offshore processing, and systems which could potentially initiate Tier 1/2 spills, or are equipment known to represent an environmentally favorable solutions. - **Although guidance on operator competence exists, very little guidance, and no best practice information, was provided for offshore activities around operator awareness of unfolding incidents and the ways in which operators make judgments and deal with these in order to prevent spills**: This includes the domain of offshore drilling, for which guidance appears to be non-existent. It is assumed therefore that very little information exists in the public domain. - **The Offshore Directive regulates Environmental Critical Elements (ECEs) for the first time, although little guidance is available on how to implement in practice.** <u>Control/Mitigation/EER</u> - **No common European guidance on control / mitigation / EER was identified**: guidance that does exist is focused on offshore spill response. Guidance is largely region specific. - **Very little is provided on best available techniques (BAT) known to address the problem of a Tier 3 spill from the perspective of Control/Mitigation**: Guidance provided focuses primarily on two aspects: preparedness (having a plan in place for a spill); and cleanup (acting following a spill). However, for example, no industry guidance appears to exist on the matter of stopping losses of containment that are in progress, from smaller spills up to large well blowouts. The techniques and means available to do so appear to not be covered in existing materials
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 5	**Discharges to sea – Handling of oil-based drilling mud cuttings (e.g. disposal to sea)**
Identified gaps	• **Partial EU coverage of the guidance**: a gap exists in exchange of information on best available techniques across the EU. • **Age of the guidance:** In some cases where information was emphasized as representing BAT the age of the documentation concerned suggest that developments in techniques may have taken place since publication e.g. 2001 OSPAR document. • **Variability of performance standards**: the currently available standards (ranging from no guidance in some sea areas, 10% dry weight, 1% or total prevention of discharge) identify potentially significant variation in existing practices that would benefit from additional exchanges of information. • **Lack of information on specific techniques** • **Identification of national techniques that may offer value if applied elsewhere**: for water-based mud contaminated cuttings the Norwegian approach warrants further investigation as to application elsewhere in the EU.

Key environmental issue 5	**Discharges to sea – Handling of oil-based drilling mud cuttings (e.g. disposal to sea)**
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 6	**Discharges to sea – Planned liquid hydrocarbon discharge (drop-out) to sea surface**
Identified gaps	• Attempts have been made to address this issue with little success to date as identified by OSPAR Parties. The ability of the TWG to address this issue requires further discussion although it has previously been identified in existing multilateral environmental agreements that this topic is not a key environmental issue.
Recommendation	Recommend not including this environmental issue in the guidance document

Key environmental issue 7	**Discharges to sea – Handling/treatment of hydrocarbon-contaminated waste water (e.g. produced water) (discharge to sea, etc. during well completion and clean up, and during production)**
Identified gaps	• **Lack of EU-wide guidance on techniques**: The techniques listed under the OSPAR guidance listed above are comprehensive in nature. However, their application outside of the OSPAR area is unclear and there appears to be value in ensuring that similar guidance exists for the entire EU. • **Significant variability in levels of performance in relation to oil content in discharged water**: Whilst a number of the multi-lateral agreements presented by subgroup members have developed performance standards on the basis of the application of BAT, the performance across the different agreement areas appears to vary to a relatively large extent with little rationale provided as to such variation.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 8	**Discharges to sea – Storage and handling of completion fluids (accidental loss of containment and discharge to sea of e.g. corrosion inhibitor, biocide, oxygen scavenger)**
Identified gaps	• **Lack of EU-wide guidance on techniques to avoid accidental release**: While there are numerous design standards that will serve to reduce the likelihood and magnitude of releases, there are no identified EU guidance documents that set out available techniques/practices, or considerations in their use. The guidance documents identified by the sub-group include a Norwegian Standard and World Bank Guidelines. • **Gaps in data collection on accidental releases of chemicals**: While data are collected under OSPAR and related national provisions on the number, size and type of accidental chemical releases*, there does not appear to be EU-wide guidance on the reporting of such information (and management action resulting from the data). The provisions under the Barcelona Convention for example are still under development and subject to the MAP.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 9	**Discharges to sea – Storage and loading of hydrocarbon cargo (accidental loss of containment and discharge to sea)**
Identified gaps	• **Partial EU coverage of the guidance:** there is a lack of information on best available techniques across the EU. (This is a general issue across various environmental issues.) • **Performance standards provided are applicable to ships only:** No performance standards appear to exist for offshore installations.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 10	**Discharges to sea – Well closure / plugging**
Identified gaps	• **Lack of EU-wide guidance on techniques**: The techniques listed under one piece of guidance (the UKOG guidance) are comprehensive in nature. However, their application outside of the UK is unclear and there appears to be value in ensuring that similar guidance exists for the entire EU. • **Lack of information on applicability and cost of techniques**.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 11	**Releases to air – Drilling rig (air emissions from drilling rig and associated supply and transport vessels)**
Identified gaps	• **Lack of EU-wide guidance on techniques:** No individual references provide the level of detail sought on Performance Standards and techniques and their application beyond their respective drafted boundaries is presently unclear.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 12	**Releases to air – Flaring (emissions from during blowdown, completion or unplanned event)**
Identified gaps	• **Lack of EU-wide guidance on techniques:** individual guidance such as NORSOK S-003 is well rounded for techniques applicable to air emissions from flaring. However it only applies currently in Norway. No EU wide guidance was provided. • **Lack of a full list of techniques:** It is not clear that the techniques identified in the materials provided are comprehensive for this activity. Further review is therefore required to determine additional measures.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 13	**Releases to air – Production (accidental gas releases due to loss of containment)**
Identified gaps	• **Lack of EU-wide guidance on techniques:** In general the Guidance provided can be used to inform particular aspects of the BREF for accidental releases, but no standalone document that is currently applied across the EU that provides the level of detail sought on Performance Standards and techniques was identified.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 14	**Releases to air – Production (Planned gas emissions from venting, fugitive emissions)**
Identified gaps	• **Lack of EU wide guidance on techniques:** no individual references provide the level of detail sought on Performance Standards and techniques. • **Variability in the guidance provided:** the guidance provided appears to reflect different practices and performance levels in place across the EU at this point in time with no explanation for such variation.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 15	**Physical presence – Drilling/production facilities (impact on commercial vessel operations e.g. shipping/fishing)**
Identified gaps	• **Partial EU coverage of the guidance:** the guidance identified is often nation / region specific and does not appear to be mirrored across the EU.

Key environmental issue 15	**Physical presence – Drilling/production facilities (impact on commercial vessel operations e.g. shipping/fishing)**
	• **Identification of all environmental impacts:** The material submitted focusses on a relatively narrow number of environment consequences of physical presence of offshore facilities. Other practices than marking/ lighting do not appear to be considered.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 16	**Physical presence – Offshore facility lighting (impact on seabirds and migration)**
Identified gaps	• **Partial EU coverage of the guidance:** A gap exists in certain parts of the EU in the guidance available. OSPAR, for example, only applies only to Parties. • **Lack of information on techniques to identify un-necessary lighting and techniques to limit impacts of seabirds and migration.**
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 17	**Physical presence – Jacket decommissioning (physical presence of jacket footings left in situ)**
Identified gaps	• **Lack of EU-wide guidance on techniques**: The techniques listed under the one piece of national guidance (the UK) are perhaps the most detailed. However, their application outside of the UK is unclear and there appears to be value in ensuring that similar guidance exists for the entire EU. • **Lack of information on applicability and cost of techniques**.
Recommendation	Recommend including this key environmental issue in the guidance document

Key environmental issue 18	**Marine biodiversity – Seismic surveying (impact on marine species due to high impact noise)**
Identified gaps	• It is considered that several of the Guidance documents provided contain a sufficient level of detail on specific techniques such that the guidance can refer to, rather than producing a new set of guidance
Recommendation	Recommend not including this environmental issue in the guidance document

4. Identified gaps for key environmental issues – onshore

This section provides a summary of the identified gaps for each of the key environmental issues covered by the gap analysis for the *onshore* sector.

Appendix B includes the detailed initial assessment of data, while the tables below provide a summary of the key conclusions on whether gaps in coverage have been identified. For each key environmental issue, a recommendations is made to the subgroup on whether the issue should be included in the guidance document, given the existing guidance available.

Unlike the offshore sector, the issues covered by this gap analysis are limited to two issues where there was substantial discussion on whether there was really merit in addressing these issues through the guidance document. The subgroup members should therefore consider whether these two environmental issues should be added to the list of issues already agreed at the kick-off meeting[4].

Key environmental issue 19	**Releases to air – Power generation (air emissions)**
Identified gaps	• Power generation from combustion installations above 50 MW is already addressed by the IED which includes BAT and BREFs. There is no similar instruments for smaller combustion units yet, but the proposed Medium Combustion Plant Directive (published in 2013) includes ELVs for installations as little as 5 MW[5]. • Air emissions from power generation are not specific to hydrocarbons, all industrial sectors require, to some extent, power generation (e.g. construction sites, hospitals, manufactures), as such it is not considered that this is a 'key environmental issue' for the purpose of the guidance and it is proposed to exclude from scope.
Recommendation	Recommend not including this environmental issue in the guidance document

Key environmental issue 20	**Releases to air – Site equipment and vehicles (air emissions)**
Identified gaps	• Air emissions from site equipment and vehicles are important, but these are not specific to hydrocarbons, several industrial sectors involve, to some extent, emissions from equipment and vehicles (e.g. construction sites), as such it is not considered that this is a 'key environmental issue' for the purpose of the guidance and it is proposed to exclude from scope
Recommendation	Recommend not including this environmental issue in the guidance document

[4] (1) Groundwater contamination: Site selection and underground characterisation (relevant as a mitigation measure); Well pad construction (spillages); Well integrity / well casing (leakage of chemicals and seepage of oil and gas); Drilling wells - handling of drilling muds and fluids from drilling; Well commissioning (hydrostatic testing water dosing and disposal); Handling of fluids from well completion (spillages); Production (spillages); Handling of fluids emerging at the surface following hydraulic fracturing (produced/flowback water) (subject to check against MWEI BREF conclusions); Well stimulation including hydraulic fracturing and enhanced recovery (direct groundwater contamination by chemicals and hydrocarbons). (2) Surface water contamination: Drilling wells - handling of drilling muds and fluids from drilling; Handling of fluids from well completion (spillage and seepage); Production (spillages). (3) Water resources (formerly depletion): Water used for well drilling cementing; Water used for production (e.g. process plant); Water used for hydraulic fracturing. (4) Releases to air: Flaring of gas (emissions of VOCs during drilling and production; Well completion; Crude oil and gas processing.

[5] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52013PC0919

5. Conclusions and recommendations

5.1 Findings of the initial assessment of gaps

Based on the assessment in the preceding sections and the appendices to this paper, it is clear that there is a vast volume of highly relevant information that can assist authorities and industry in the permitting of offshore oil and gas installations. Much of this goes into substantial detail on specific approaches, techniques and considerations in relation to addressing the key environmental issues.

Nevertheless, the conclusions of this initial assessment are that there would be merit in including a large majority of the identified issues within the scope of the work of the TWG.

In some cases, the existing guidance is highly advanced in certain regions. If included within the scope, the TWG may decide that the most appropriate means of exchanging information would be to simply refer to the performance levels and guidance already developed in the best-performing areas/regions, and not to seek to develop additional guidance. This is considered to be of benefit to areas with less mature oil and gas industries.

In other cases, the guidance identified provides less information on *how* the key environmental issues can be addressed, and is thus of less value, suggesting that further development of guidance (through the exchange of information process) is warranted.

The subgroup is requested to consider the conclusions on each of the key environmental issues, and to make recommendations as to which key environmental issues should be taken forward for inclusion in the guidance document. These recommendations will then be presented to the wider TWG.

5.2 Suggested discussion points at the subgroup meeting

A one-day meeting is planned to agree recommendations to the wider TWG on which key environmental issues to add to those already agreed. It is proposed that the discussions should be structured as follows:

- Discussion on the overall approach to the initial assessment of gaps
- Discussion of the cross-cutting issues (section 2) and the implications for the need to develop guidance in general terms
- Review of each key environmental issue to determine whether or not to recommend inclusion to the wider TWG
- Agreement on next steps (subgroup report and recommendation to the TWG)

Any disagreements that remain within the subgroup with regard to the recommendations made at the end of the subgroup meeting shall be recorded and included in the submission to the TWG.

Appendix A: Copy of mandate for subgroup

EUROPEAN COMMISSION
DIRECTORATE-GENERAL ENVIRONMENT
ENV.F – Strategy
ENV.F.1 – Resource Efficiency & Economic Analysis

Brussels, 11 November 2015

MANDATE, TERMS OF REFERENCE AND WORKING APPROACH OF THE BEST AVAILABLE TECHNIQUES GUIDANCE DOCUMENT ON UPSTREAM HYDROCARBON EXPLORATION AND PRODUCTION SUBGROUP ON GAP ANALYSIS

INTRODUCTION

At the Kick-off meeting for the Best Available Techniques guidance document on upstream hydrocarbon exploration and production, held in Brussels from 13 until 15 October 2015, good progress was made in identifying environmental issues to be the focus for onshore activities. However, there was widespread opinion in the Technical Working Group (TWG) that many, if not all environmental issues for offshore activities were already covered by existing obligations and/or best available techniques based guidance or standards. The TWG was, therefore, unable to prioritise the key environmental issues on which to exchange information for offshore activities. For onshore activities, whilst a majority of the environmental issues identified were considered as reasonable for inclusion in the exchange of information processes a certain number of issues were considered as potentially benefitting from further analysis. Consequently, the TWG agreed to create a TWG subgroup with a mandate to undertake a gap analysis in relation to identify where there is/is not guidance to assist in **how to address the key environmental issues** covering offshore activities and certain onshore activities. The existence of EU or national legislation addressing in whole or in part a particular environmental issue does not necessarily imply that appropriate guidance and / or standards has been developed that is commensurate with the application of best available techniques. Consequently, the focus of the subgroup shall be on the existence and nature of available guidance and/or standards either related to or separate from existing legislative requirements.

In order to ease the understanding of this mandate the following should be noted:

- The subgroup is created to address specific issues within the scope of the work of the TWG. The functioning of the sub-group will be managed in a transparent way enabling all TWG members to have access to the group and allowing them to follow and understand the subgroup's activities and its outcome (e.g. meeting agenda and minutes and reports will be uploaded onto the SharePoint systems in a timely manner).

- The meeting of the TWG subgroup will be held on the premises of the Commission in Brussels.

- Discussions and work in the subgroup will not replace the plenary TWG meetings where decisions are made involving the whole TWG. The outcomes of the subgroup may be subject to written agreement of the TWG rather than though agreement at a plenary meeting.

ESTABLISHMENT OF THE GAP-ANALYSIS SUBGROUP

In principle, all **TWG members** are welcome to nominate representatives to join the gap-analysis subgroup. The subgroup will also benefit from a balanced representation between representatives from Member States, EEA States, NGOs and industry. At the same time, it needs to be considered that conducting the work of the subgroup with a limited number of participants, who have the **necessary expertise** and can **fully commit** to the foreseen tasks, is most likely to contribute to a smooth and efficient process. Hence, all organisations represented in the TWG are invited to reflect internally on which of their members of staff may have the most relevant expertise and can ensure optimal commitment to the process according to the schedule outlined below.

Based on these criteria, TWG organisations that did not note their interest in nominating members of the subgroup at the TWG kick-off meeting itself are invited to **propose representative(s) to participate in the subgroup activities by 13 November 2015**.

REMIT OF THE GAP-ANALYSIS SUBGROUP

The subgroup shall:

i) Examine to what extent the key environmental issues for offshore activities identified in Table 3.2 of the background paper (and as duplicated in Appendix I to this mandate) are already addressed by existing guidance that assists operators and competent authorities in understanding **how to address these issues** (e.g. guidance developed in relation to EU measures, guidance developed under the OSPAR[1] Convention and similar Conventions applicable elsewhere as well as national guidance pertinent to all activities);

ii) Examine to what extent the key environmental issues for onshore issues that were identified by the TWG as requiring further analysis as provided in Appendix II to this mandate are already addressed by existing approaches;

iii) Examine to what extent additional key environmental issues for offshore and onshore activities should be recommended for inclusion to the TWG;

iv) Confirm whether the existing approaches are relevant and sufficient in addressing the environmental issues examined in relation to the following criteria:

   a. *The geographic scope of the approaches:* Guidance identified must be relevant for all EU areas. Should an issue be addressed by guidance developed under a regional Convention such as OSPAR, the subgroup shall assess the applicability of such guidance to the other sea areas of the EU (e.g. the Celtic Sea, North Sea, Baltic Sea, the Mediterranean Sea and the Black Sea). Only guidance that can be applied to all sea areas are considered to meet the geographical scope criterion. Recognising that developments are likely to take place over the lifetime of this project in the context of new and revised EU and multi-lateral agreements and associated guidance and standards, such proposed developments should not lead to a conclusion of the subgroup to propose exclusion of such issues to the TWG. This is particularly important given that proposed EU measures may be subject to significant change prior to finalisation and measures under multi-lateral environmental agreements are not fully within the control of the European Union and, consequently, are not certain to be agreed with other non-EU countries. Rather, it will be for the TWG to ensure that data collection for such issues and any potential BAT and Risk Management Technique conclusions reached ensure complementarity with such wider international developments;

[1] Convention for the protection of the marine environment for the North-East Atlantic

b. *The environmental scope of the approaches:* Existing guidance and/or standards need to address the environmental issue in full. If this is not the case the subgroup shall identify any remaining issues that should be considered for inclusion by the TWG.
c. *The accessibility of the approaches to operators and competent authorities across the EU:* Existing guidance and/or standards is to be readily accessible e.g. via the internet. Internal company guidance and/or standards are not to be considered to meet this requirement;
d. *The age of the approaches and the extent to which they reflect present day techniques and technologies*;

v) On the basis of points i), ii), iii) and iv) above, make recommendations on the outstanding issues that should be addressed by the TWG exchange information with a mind to drawing conclusions on the Best Available Techniques (BAT) and Risk Management Techniques; and

vi) **Not** undertake a legal gap analysis.

The resulting output of the subgroup will be submitted to the TWG for its consideration.

The report of the subgroup should contain a sufficient level of detail of BAT and Risk Management Techniques for each of the environmental issues considered to assist the TWG in its deliberations as to which issues should be included in the exchange of information process. The report will make recommendations but will not make decisions – such matters can only be considered at the full TWG level. With this in mind the report will, for each of the approaches identified and assessed, describe how such approaches measure against the criteria listed under points iv) a. to d. above.

The subgroup will be assisted in its deliberation through a paper to be developed by Amec Foster Wheeler, as contractor to the Commission, which will be submitted to the subgroup in advance of its meeting. Members of the TWG are invited to voluntarily submit information to the contractor to inform this paper. The paper will be separated into onshore and offshore issues, will list the data received, include an initial assessment of that data and be structured in a way so as to assist in the organisation of the subgroup meeting.

The gap-analysis subgroup will make all documents, contributions, meeting reports/minutes and information exchanges available to all the TWG members in a widely used format (e.g. pdf, doc/docx/rtf, xls/xlsx).

TIMESCALES

The following timetable for the operation of the subgroup shall apply:

Stage of operation	**Date**
TWG volunteers to provide information on existing approaches and guidance, including details of how the environmental issue is addressed. This is a cut—off date and submissions received after this deadline are not considered by the subgroup.	27 November 2015
Amec Foster Wheeler critique information received and provide paper to subgroup for its consideration	23 December 2015
Meeting of subgroup	28 January 2016
Subgroup meeting report distributed to TWG	14 February 2016

TWG decision on way forward	No later than 15 March 2016

ANNEX I - KEY ENVIRONMENTAL ISSUES FOR OFFSHORE ACTIVITIES TO BE CONSIDERED BY THE SUBGROUP

Issue	Relevant activities/processes/techniques
Seabed disturbance	• Sea-bed infrastructure impact, e.g. pipework, concrete mattresses, rock dumping, anchoring, piling, jacket footings in-situ • Drill cuttings pile material and toxic contaminants on seabed

Discharges to sea	• Handling of residual chemical additives/hydrocarbons (planned/accidental releases to sea, e.g. mud additives in cuttings, drainage water containing hydrocarbons, cement, sewage water, ballast discharge)
	• Activities with potential for accidental hydrocarbon spills, e.g.:
	  ○ Well blowout (Tier 3)
	  ○ In-field riser/flowline rupture, topsides vessel / heat exchanger rupture, fuel tank loss of containment, topsides drainage system failure (Tier 2)
	  ○ Bunker hose failure, dropped tote tank, small-hole riser leak, helideck fuel spills (Tier 1)
	  ○ (Note events listed here by Tier are for indicative purposes only, actual spills may vary)
	• Handling of oil-based drilling mud cuttings (e.g. disposal to sea)
	• Planned liquid hydrocarbon discharge (drop-out) to sea surface
	• Handling/treatment of hydrocarbon-contaminated waste water (e.g. produced water) (discharge to sea, etc. during well completion and clean up, and during production).
	• Storage and handling of completion fluids (accidental loss of containment and discharge to sea of e.g. corrosion inhibitor, biocide, oxygen scavenger)
	• Storage and loading of hydrocarbon cargo (accidental loss of containment and discharge to sea)
	• Well closure / plugging

Releases to air	• Drilling rig (air emissions from drilling rig and associated supply and transport vessels) • Flaring (emissions from during blowdown, completion or unplanned event) • Production (accidental gas releases due to loss of containment) • Production (planned gas emissions from venting, fugitive emissions)
Physical presence	• Drilling/production facilities (impact on commercial vessel operations e.g. shipping/fishing) • Offshore facility lighting (impact on seabirds and migration) • Jacket decommissioning (physical presence of jacket footings left in situ)
Marine biodiversity	• Seismic surveying (impact on marine species due to high impact noise)

ANNEX II - KEY ENVIRONMENTAL ISSUES FOR ONSHORE ACTIVITIES TO BE CONSIDERED BY THE SUBGROUP

Issue	Relevant activities/processes/techniques
Releases to air	• Power generation (air emissions) • Site equipment and vehicles (air emissions)

Appendix B: Gap analysis for each environmental issue

Seabed disturbance	• **Sea-bed infrastructure impact, e.g. pipework, concrete mattresses, rock dumping, anchoring, piling, jacket footings in-situ**

Summary

Impacts on seabed can be considered at several stage of the installation life-cycle: when selecting the site (ensuring that it is not a sensitive area), during the building phase and when laying cables (the impacts are more important if these are being buried), anchoring and piling.
It is considered that several of the reference provided by the TWG contain a sufficient level of detail on specific techniques such that the BREF can refer to these, rather than producing a new set of guidance. These are summarised as "Refer to directly" in the table below. The remaining guidance provided by TWG members are mostly focused on how to manage seabed conditions to ensure the safety of the operations.
Several TWG members referred to the importance of the EIA procedure, however guidance from the UK only was provided. These include environmental aspects to consider during the environmental impact assessment.
The remaining documents are considered useful only as "Background material".

Several gaps have been identified when reviewing the information submitted:

- **Lack of EU-wide guidance on the potential impacts on seabed disturbance from infrastructure and the key techniques that can be applied to mitigate such impacts:** Certain Member State guidance in relation to EIA addresses this issue in part but there appears to be significant variability across the EU.
- **Seabed disturbance impacts from infrastructure, in particular from concrete mattresses, piling, rock dumping and pipe laying are covered in little detail in guidance provided**.

Candidate Guidance	Provided by	Overview	Use in BREF?
HELCOM Baltic Sea Action Plan – Action plan for the protection of the environment from offshore platforms	DK	Action plan does not include Performance Standards for seabed disturbance Action plan does not include specific techniques. Action plan does not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed	Background material
MAP - Study on International Best Practises under the Offshore Protocol of the Barcelona Convention	DK	Study does not include Performance Standards for seabed disturbance Study does not include specific techniques, most of what is described as 'best practices' are regulatory requirements Study does not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed, however the HC BREF should refer to this.	Background material

Candidate Guidance	Provided by	Overview	Use in BREF?
Guidelines for 'Plan for development and operation/Development and Installation	DNV GL	Guidelines do not include Performance Standards for seabed disturbance Guidelines do not include specific techniques, most of what is described as 'best practices' are regulatory requirements Guidelines do not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed	Background material
EN16260:2012 Water Quality – Visual sea bed surveys using remotely operated and/or towed observation gear for collection of environmental data.	DNV GL	Standard for visual seabed surveys. Standard includes techniques for conducting the survey of seabed.	Refer to directly
ISO 19905-1 - "site specific assessment of Mobile Offshore Units"	IADC	Standard for site specific assessment of independent leg jack-up units. Standard does not provide techniques on how to minimise disturbance of the seabed.	Background material
ISO 19900 2013– General requirements for offshore structures	IOGP	ISO standard for offshore structures, does not include specific information on seabed disturbance. Standards do not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed	Background material
ISO 19901 1 : 2005 – Part 1 Meteocean design and operating conditions ISO 19901 2 : 2004 – Part 2 Seismic design procedures and criteria	IOGP	ISO standard on meteocean and seismic designs. Standards do not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed, however includes mention that seabed disturbance is to be considered as factor to ensure safety of the installation.	Background material
ISO 19901 4 : 2003 – Geotechnical and foundation design considerations ISO 19901 6 : 2009 – Marine operations	IOGP	ISO standards on design of foundation of structure and marine operations. Includes requirement that disturbance of seabed is minimised during installation.	Refer to directly
ISO 19902 : 2007 – Fixed steel offshore structures ISO 19903 : 2006 – Fixed concrete offshore structures	IOGP	ISO standards which do not include specific focus on seabed disturbance as an environmental impact, only considered from a safety point of view. do not include performance standards Standards do not provide information on techniques to be implemented to ensure that the environmental issue is managed	Background material
IOGP Report 373-18-1 Guidelines for the conduct of offshore drilling hazards site survey IOGP Report 373-18-2 Conduct of offshore drilling hazard Site Surveys – Technical Notes	IOGP	While the reports do not include performance standards, they include some information on possible techniques (e.g. minimum distance) to be implemented to ensure that the environmental issue is managed.	Refer to directly
IOGP Report 529: Overview of IOGP's Environmental-Social-Health Risk and Impact Management Process	IOGP	Reports do not include performance standards for seabed disturbance. Reports provide some information on techniques to be implemented to ensure that the environmental issue is managed	Background material

Candidate Guidance	Provided by	Overview	Use in BREF?
IOGP Report 475 : Managing oil and gas activities in coastal areas - an awareness briefing IOGP Report 510 : Operating Management System Framework for controlling risk and delivering high performance in the oil and gas industry IOGP Report 511 : OMS in practice. A supplement to Report No. 510, Operating Management System Framework			
IOGP Report 449 : Environmental management in Arctic oil & gas operations - good practice guide (2013)	IOGP	Report do provide information on techniques and good practice to manage oil and gas operations in arctic environmental. There is no specific performance standards or techniques included for seabed disturbance.	Background material
API RP 2FPS Planning, Designing, and Constructing Floating Production Systems	IOGP	Standards for planning, design and construction of floating systems. Standards do not mention practices to minimise seabed disturbance, however seabed is included as a factor to consider in order to ensure the safety of the installation and anchoring. The standards refer to a site survey that should consider seabed conditions.	Background material
API Spec 2F Specification for Mooring Chain	IOGP	n.a	n.a
API RP 2I In-Service Inspection of Mooring Hardware for Floating Structures	IOGP	Standards do not include information on minimising impacts from mooring hardware on seabed disturbance	Background material
API RP 2SM Design, Manufacture, Installation, and Maintenance of Synthetic Fiber Ropes for Offshore Mooring	IOGP	n.a	n.a
2.72/254 Environmental management in oil and gas exploration and production 1997	IOGP	Report does not include performance standards or information on techniques to be implemented to ensure that disturbance of the seabed are minimised.	Background material
Good practice in the Prevention and Mitigation of Primary and secondary Biodiversity impacts	IOGP	Guidance does not include performance standards Guidance does include an overview of relevant impacts and possible aspects to consider in order to ensure seabed disturbance is minimised.	Refer to directly
Guidelines on Best Environmental Practice (BEP) in cable laying and operation	IOGP	Guidance does not include performance standards Guidance does include an overview of relevant impacts and possible aspects to consider in order to ensure seabed disturbance is minimised.	Refer to directly
Code of environment Practice 2008	IOGP	Code does include some performance standards and it includes an overview of relevant impacts and possible techniques to consider in order to ensure seabed disturbance is minimised.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
OCIMF Anchoring Systems and Procedures 2010	IOGP	Guidance does not include performance standards Guidance does not provide information on techniques to be implemented to ensure that the environmental issue is managed	Background material
OCIMF Guidelines for the Purchasing and Testing of SPM Hawsers 2000 OCIMF Mooring equipment guidelines 2008	IOGP	n.a	n.a
Emissiebepaling en Rapportage – Bodembeheer (Dutch only)	NOGEPA	Guidance does not include performance standards Guidance does not provide information on techniques to be implemented to ensure that the environmental issue is managed, however it indicates that soil survey is to consider seabed disturbance	Background material
Environmental monitoring of petroleum activities on the Norwegian continental shelf, 2015, M-408	Norway	Guidance does not include performance standards Guidance does not provide information on techniques to be implemented to ensure that the environmental issue is managed but includes information on monitoring.	Background material
OSPAR Guidelines for Monitoring the Environmental Impact of Offshore Oil and Gas Activities (Agreement 2004-11)	Norway	Guidance does not include performance standards Guidance does not provide information on techniques to be implemented to ensure that the environmental issue is managed but includes information on monitoring.	Background material
OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry	UK	Guidance does not include performance standards Guidance does not provide information on techniques to be implemented to ensure that the environmental issue is managed but includes information on monitoring.	Background material
Habitats Regulation Appraisal of plans. Guidance for Plan-making bodies SNH 2015.	UKOG	Guidance does not include recommended techniques. However it includes some useful information / methodology. Guidance does not relate specifically to the environmental issue in question.	Background document
Guidance notes on Offshore Petroleum Activities (Conservation of Habitats) Regs.	UKOG	Guidance does not include recommended techniques. It is a useful source as showing an example of licensing and assessment conducted in order to ensure permitting takes into account environmental issues. <u>Use in BREF: Reference material</u>	Refer to directly
Guidance notes for oil and gas surveys and shallow drlling.	UKOG	Guidance includes useful indications on types of surveys which could be useful for the HC BREF. The guidance is not extensive but it provides an overview of the type of survey techniques that require an environmental assessment.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
Guidance Notes on the Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 (October 2011)	UKOG	Guidance does include some minimum thresholds and specific techniques for when specific environmental licenses are needed to assess disturbance of seabed.	Refer to directly
JNCC MARINE STRATEGY FRAMEWORK DIRECTIVE – PROGRESS TO DATE AND FUTURE IMPLICATIONS. UK Programme of measures - Defra	UKOG	General guidance including brief overview of indicators and descriptors that can be used for assessing impacts.	Background material
Guide to Marine Licencing Marine Scotland 2012.[1]	UKOG	Guidance provides explanation on what activities require licensing, this includes any activity which use a vehicle, vessel, marine structure or floating container to remove any substance or object form the seabed within the Scottish marine area. This does not include specific techniques so it has not been further reviewed.	Background material
Scotland National Marine Plan, East of England Plan[2]	UKOG	This guidance includes a chapter on oil and gas that states that new challenges due to shift of operation toward area with environmental sensitivity. Requirement of environmental impact assessment for any oil and gas exploration / development project. This does not include specific techniques so it has not been further reviewed.	Background material
The Environmental Damage (Prevention and Remediation) Regulations 2009 - Guidance notes for England and Wales. Scottish Government Quick Guide to the Environmental Liability Regulations	UKOG	General guidance on understanding environmental damage. Guidance does not relate specifically to the environmental issue in question.	Background material
Energy Institute Guidance on establishing a species and habitats baseline for the Environmental Damage/Liability Regulations 2009[3]	UKOG	Provides methodology for defining a baseline to be used in impact assessments, does not appear to include oil and gas specific information but interesting information on how to screen, review and characterise features of the site. The full report should be assessed.	Background material

[1] http://www.gov.scot/Resource/0039/00392525.pdf

[2] http://www.gov.scot/Resource/0046/00465865.pdf

[3] http://publishing.energyinst.org/__data/assets/file/0019/6751/Pages-from-Guidance-on-establishing-a-species-and-habitats-baseline-for-the-ELD-Regs-09.pdf

Candidate Guidance	Provided by	Overview	Use in BREF?
Energy Institute Introductory guide to environmental damage	UKOG	Guidance does not include techniques, but provides useful information to consider when considering environmental damage. Guidance does not relate specifically to the environmental issue in question.	Background material
Offshore Energy Strategic Environmental Assessment An Overview of the SEA process. A Practical Guide to the Strategic Environmental Assessment Directive - UK Government	UKOG	Guidance does not include techniques, but provides useful information to consider in relation to SEA. The requirement to include SEA for licensing round can also be a useful good practice for HC BREF.	Refer to directly
OSPAR guidance on threatened and/or declining species or Habitats and Descriptions of Habitats on the OSPAR[4] list of threatened and/or declining species and habitats (Word document)	UKOG	This page includes list of threatened and declining species habitats, useful reference to verify that the proposed site does not include one of these. However, there is no further content on how to consider site with threatened habitat so this reference is not further reviewed	Refer to directly

[4] http://www.ospar.org/work-areas/bdc/species-habitats/list-of-threatened-declining-species-habitats

Guidance Identified	
• Title, link, etc	HELCOM Baltic Sea Action Plan http://helcom.fi/documents/baltic%20sea%20action%20plan/bsap_final.pdf *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Baltic Sea only. Principles contained in the plan regarding management of environmental impacts from production and exploration of oil and gas could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The plan contains a specific action plan for the protection of the environment from offshore platforms, however it is general and does not address specifically seabed disturbance. The primary objective of the action plan is to set an overarching framework to ensure that environmental impacts from production and exploration correspond to BAT and BEP (best environmental practice). The Action plan covers, chemicals, discharges of oil, air emissions, solid wastes, decommissioning and environmental impact assessment, management, monitoring and reporting. For all, except the later, a zero discharge principle is applied. For all activities an EIA is required and operators must introduce an environmental management system. The plan does not described techniques to use or include specific standards. The plan also refers to guidelines to be adopted on monitoring.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Action plan considered sufficiently current and relevant. 2007.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Action Plan is general and does not include Performance Standards. Action Plan does not address specific techniques. Action Plan does not provide sufficient information on specific techniques to be implemented to ensure that the environmental issue is managed. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	MAP - Study on International Best Practises under the Offshore Protocol of the Barcelona Convention http://www.rempec.org/admin/store/wyswigImg/file/News/Forthcoming%20Meetings/3rd%20Offshore%20Protocol%20Meeting,.%20Malta%2017-18%20June%202014/E-%20Info%20and%20Ref%20Docs/4_%20WG_34_INF_%203%20-%20WG_34_19%20-%20Study%20on%20the%20Intel%20Best%20Pratices-Rev1.pdf *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is parties to the Barcelona Convention. Principles contained in the report could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The study is a review of the existing legislation and best practices in relation to the implementation of the Offshore Protocol. For each of the article of the protocol, the study includes relevant international rules, standards and or recommended best practices available. The study does refer to best practices in relation to seabed disturbance for sensitive seabed resources included in the US GOM (Golf of Mexico), but these are very general and only applicable to sensitive seabed.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Study considered sufficiently current and relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for	Study does include Performance Standards but not for seabed disturbance. Study does include specific techniques, practices identified for US GOM for sensitive seabed. Guidance does not provide sufficient information on specific techniques to be implemented to ensure that the environmental issue is managed, however the BREF HC should refer to it. <u>Use in BREF: Refer to directly</u>

the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Guidelines for plan for development and operation of a petroleum deposit and plan for installation and operation of facilities for transport and utilisation of petroleum http://www.npd.no/Global/Engelsk/5-Rules-and-regulations/Guidelines/PDO-PIO-guidelines_2010.pdf *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Norwegian waters only. Principles contained in the guidelines on impact assessment and installations could be applied Europe wide Agreed guidelines
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The aim of the guidelines is to support the implementation of the national legislation. It includes information on element to include in the impact assessment, some of which is relevant to seabed disturbance (e.g. pipelines routes) however, these are described from a permitting / compliance point a view rather than best practice. Guidance is not specifically concerned with the issue of seabed disturbance rather it is considered as part of the wider 'environment' that the IA must consider.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidelines considered sufficiently current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidelines do not include Performance Standards for seabed disturbance. Guidelines do not provide sufficient information on specific techniques to be implemented to ensure that the environmental issue is managed. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	EN16260:2012 Water Quality – Visual sea bed surveys using remotely operated and/or towed observation gear for collection of environmental data. http://shop.bsigroup.com/ProductDetail/?pid=000000000030241897 *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is EU wide – CEN standard It can be applied to all EU areas It is fully developed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standards on performing sea bed mapping and monitoring. Relevant to the environmental issue but only address one aspect of it and does not include techniques to minimise seabed disturbance. It provides guidance on how to conduct sea bed mapping and monitoring and a template for a fieldwork registry.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but not freely accessible.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2012.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards are relevant and useful, but cover only mapping and monitoring of the seabed, it does not address how the disturbance of the seabed can be minimised per se. Standards do not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	ISO 19905-1 Petroleum and natural gas industries – Site specific assessment of mobile offshore units http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=34592 *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide but does not apply to units operating in regions subject to sea ice and icebergs. It can be applied to all EU areas It is fully developed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The standard provides requirements and guidance for site-specific assessment of independent leg jack-up units for use in oil and gas. It does not address design, transportation to and from site or installation and removal from site. The standard are detailed and cover the MOUs however it does not indicate on which techniques are more suited to minimise seabed disturbance.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but not freely accessible.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2012.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards are relevant and useful, but it does not indicate how the techniques described can minimise the disturbance of the seabed. Standards do not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	ISO 19900 2013– General requirements for offshore structures *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ISO standards so international Can be applied to all EU Agreed
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	General standards on offshore structures with further details in specific ISO standards. Does not include standards / information on seabed disturbance. Standards addresses routine events, accidental events are not considered applicable in this case.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2013.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This reference is general and does not focus on seabed disturbance, it also does not include reference to techniques to be used. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	ISO 19901 1 : 2005 – Part 1 Meteocean design and operating conditions ISO 19901 2 : 2004 – Part 2 Seismic design procedures and criteria *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	International standards Can be applied to all EU Agreed standards
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	ISO standards on specific aspects to take into consideration for offshore operations, it includes design and operating conditions. No particular focus on seabed disturbance as an environmental impact. Seabed disturbance is included as a factor to take into account to ensure the safety of the installation. ISO standards on how to take into account seismic risks in design of the offshore structure. No particular focus on seabed disturbance as an environmental impact. Seabed disturbance is included as a factor to take into account to ensure the safety of the installation.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2005 and 2004.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards does include some references to seabed disturbance but no specific techniques Use in BREF: Background material

Guidance Identified	
• Title, link, etc	ISO 19901 4 : 2003 – Geotechnical and foundation design considerations ISO 19901 6 : 2009 – Marine operations *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ISO international standards Applicable to all EU Agreed
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	ISO standards on design of foundation of structure. Includes requirement that disturbance of seabed is minimised during installation but not explained how to minimise it. ISO standards on the conduct of marine operations. Does include reference to seabed disturbance as one of the impact that the environmental impact study should consider Both include relevant information to the HC BREF.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2003 and 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards highlights the role of the EIA as a way to prevent seabed disturbance is highlighted. Seabed disturbance is considered and should be minimised during the installation of the platform. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	ISO 19902 : 2007 – Fixed steel offshore structures ISO 19903 : 2006 – Fixed concrete offshore structures *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	International standards Applicable to all EU Agreed
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	ISO standards on fixed offshore structures such as jackets and bottom founded structures related to offshore structures. No particular focus on seabed disturbance as an environmental impact. Seabed disturbance is included as a factor to take into account to ensure the safety of the installation. ISO standards on fixed concrete offshore structure, environmental considerations should be included in the environmental evaluation of the site, however no further information is included on how to minimise impacts from these structures on the seabed.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2009 and 2007.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	ISO standards include some useful elements to refer to in the HC BREF, however they do not include techniques or details on how environmental issue related to seabed disturbance should be considered. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	IOGP Report 373-18-1 Guidelines for the conduct of offshore drilling hazards site survey http://www.ogp.org.uk/pubs/373-18-1.pdf IOGP Report 373-18-2 Conduct of offshore drilling hazard Site Surveys – Technical Notes http://www.iogp.org/pubs/373-18-2.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Industry association reports, considered to generally cover a range of worldwide environments and geographical regions. Covers offshore geophysical surveying activities. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidelines from IOGP on site survey which includes a summary of the features of the seabed that need to be addressed by the survey. Give guidance on the distance area to consider according to the type of rig (bottom founded, platform based, anchored or dynamically positioned). It includes a useful overview table of the type of constraints per type of rig Technical notes on the conduct of offshore drilling hazard site. It indicates that acquisition of environmental data and the analysis, interpretation and reporting of environmental data should be the responsibility of a specialist marine environmental scientist. However it states that the environmental assessment may need to include the identification of habitats.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2013.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance provides a number of general management measures around operational planning. Guidance also provides several more specific mitigation measures for the marine environment. These are considered valuable and could be referenced in the BREF. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	IOGP Report 529: Overview of IOGP's Environmental-Social-Health Risk and Impact Management Process http://www.ogp.org.uk/pubs/529.pdf IOGP Report 475 : Managing oil and gas activities in coastal areas - an awareness briefing http://www.ogp.org.uk/pubs/475.pdf IOGP Report 510 : Operating Management System Framework for controlling risk and delivering high performance in the oil and gas industry http://www.iogp.org/pubs/510.pdf 2014 IOGP Report 511 : OMS in practice. A supplement to Report No. 510, Operating Management System http://www.iogp.org/pubs/511.pdf 2014 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the reports could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The reports focus on different aspects of management of oil and gas activities: - Overview of E-SHRIMP process designed to identify, consider and manage potentially significant project-related environmental, social and health impacts. This process does not include aspects on seabed disturbance. - The management of activities in coastal area report does not include standards or best techniques, but rather recommendations for activities undertaken in coastal areas. The report mentions possible disturbance of the seabed from activities but include little recommended techniques. One example noted is for avoiding disturbance of corals, locating platforms away from coral reefs. - Management system framework for controlling risk designed to help companies define and achieve performance goals while managing risks inherent to the industry. The report is not specific for seabed disturbance and it does not include standards or performance requirements.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	All 4 reports are considered sufficiently current and relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards?	The reports do not include Performance Standards, they are intended to describe overall framework for the management of environmental, social and health risk and impacts. They do include some techniques, but the range is limited.

• Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IOGP Report 449 : Environmental management in Arctic oil & gas operations - good practice guide (2013) http://www.ogp.org.uk/pubs/449.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Artic areas. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Report intended to describe good practice for arctic oil and gas operations. Includes some mentions of seabed disturbance but no performance standards or techniques.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current and relevant. 2013.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Report do provide information on techniques and good practice to manage oil and gas operations in arctic environmental. There is no specific performance standards or techniques included for seabed disturbance. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	API RP 2FPS Planning, Designing, and Constructing Floating Production Systems http://specs4.ihserc.com/Document/Document/ViewDoc?docid=HIQONEAAAAAAAAAA *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	USA. Principles contained in the standards could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standards do not mention practices to minimise seabed disturbance, however seabed is included as a factor to consider in order to ensure the safety of the installation and anchoring. The standards refer to a site survey that should consider seabed conditions.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards considered sufficiently current and relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards do not mention practices to minimise seabed disturbance. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	API RP 2I In-Service Inspection of Mooring Hardware for Floating Structures *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	International standard. Principles contained in the standards could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	International standard on mooring components for MODU and focusing on inspections and aspects to look at for. Disturbance of the seabed from the mooring is considered, however not from an environmental point of view, the focus is on safety and ensuring the chain resists wear due to continuous contact with the seabed.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards do not include information on minimising impacts from mooring hardware on seabed disturbance Use in BREF: Background material

Guidance Identified	
• Title, link, etc	2.72/254 Environmental management in oil and gas exploration and production 1997 http://www.ogp.org.uk/pubs/254.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Industry associate report. Principles contained in the report could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	General environmental management document, does not include performance standards or specific techniques relevant for seabed disturbance. It does include mention that seabed condition should be explored and considered at site selection stage.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report is considered relevant but may need to be reviewed to check it is up to date. 1997.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Report does not include Performance Standards or description of techniques relevant for the environmental issue considered. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Good practice in the Prevention and Mitigation of Primary and secondary Biodiversity impacts http://www.theebi.org/pdfs/practice.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Could be applied to all EU
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance provides a methodology for the identification of possible impacts on biodiversity quite extensive. The guidance includes possible best practices for the mitigation of impacts identified, which include seabed disturbance. No performance standards are included.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but not relevant. 2007.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. However the guidance includes several relevant impacts to focus on and a step wise approach of impacts to consider which will be useful for the HC BREF. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Guidelines on Best Environmental Practice (BEP) in cable laying and operation http://www.subseacablesuk.org.uk/download/?Id=336&source=documents *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	OSPAR guidance including an overview of environmental impacts from laying cable, including disturbance to seabed during placement. Best environmental practice is to reduce impacts by applying best available techniques and mitigation measures. The guidance presents best techniques applicable
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but not relevant. 2012.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards however it includes an overview of best environmental practices for one of the use of the seabed which may have impacts. This will be a useful reference for the HC BREF to refer to. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Code of environment Practice 2008, Australia http://www.appea.com.au/wp-content/uploads/2013/05/Code_of_Environmental_Practice.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Australia Principles contained in the code could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Code is specific to Australia, but includes example of performance standards for specific impacts related to seabed disturbance that could be useful as reference in the HC BREF It includes, of relevance for this topic: potential impacts on the marine environment potential impacts on marine habitats and biodiversity potential impacts on areas of ecological significance pestoration of the environment disturbed by production and decommissioning possible use of the facility as an artificial reef disturbance to other marine resource users during and after decommissioning possible impact on fish stocks of partial removal or disposal at sea potential for any structure left on the seabed to enhance breeding/conservation of fish stocks. Example of performance standards are included in the code.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current and relevant. 2008
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The code does include some Performance Standards per se and some specific techniques. The code contains useful information and where applicable it should be further reviewed and referenced in the HC BREF. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Emissiebepaling en Rapportage – Bodembeheer (Dutch only) http://mijndrieluik.nl/pdf/Environment%20Guideline%2021%20-%20Emissie%20rapportage%20bodem%20%28Dutch%20only%29%2002-12-2009.pdf *Provided by: NOGEPA*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Netherlands. Could be applied to all EU
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance is focusing on monitoring and reporting of soil and seabed. For offshore installations, the guidelines include soil survey including impacts of levelling the floor. No performance requirements
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but not relevant. 2009
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Environmental monitoring of petroleum activities on the Norwegian continental shelf, 2015, M-408 http://www.miljodirektoratet.no/Documents/publikasjoner/M408/M408.pdf *Provided by: Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Could be applied to all EU
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance outlines the recommended techniques for monitoring. These guidelines are a result of the cooperation between the Norwegian Environment Agency, an expert advisory group appointed by the Agency, oil and gas companies and consultancy firms. The guidelines serve as a template for how the more general regulatory requirements can be fulfilled. They cover the expected scope of monitoring activities, which parameters should be analysed and which methods should be used, necessary accreditation and template for reporting.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but not relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Useful only regarding informing types of monitoring for seabed. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OSPAR Guidelines for Monitoring the Environmental Impact of Offshore Oil and Gas Activities (Agreement 2004-11) http://qsr2010.ospar.org/media/assessments/p00453_OA3-BA5_ASSESSMENT.pdf *Provided by: Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance on monitoring general environmental impact of offshore activities. Does not refer to seabed disturbance.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2004.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry http://www.ospar.org/documents?d=32720 *Provided by: UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance is a recommendation on way to promote use of EMS in offshore industry, related to monitoring of activity on environment more than minimising impacts.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but not relevant. 2003.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Habitats Regulation Appraisal of plans. Guidance for Plan-making bodies SNH 2015. http://www.snh.gov.uk/docs/A1500925.pdf *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scotland. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance refers to the jurisdiction of JNCC for sites where likely to be significantly affected. Includes methodology and decision tree for regulators to follow in order to conduct an appraisal of plans.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. However it includes some useful information / methodology. Guidance does not relate specifically to the environmental issue in question. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidance notes on Offshore Petroleum Activities (Conservation of Habitats) Regs. https://www.gov.uk/government/uploads/system/.../**habitat**guid**note**.doc *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK Principles included in the guidance could be applied to all Europe
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance is to support implementation of the regulation. It describes the licensing steps and the consent procedure that must be followed. It states that ' except in certain special circumstances […] may only grant a license or consent having ascertained that the plan or project would not have an adverse effect on the integrity of a site'. Consultation with the competent authority and the nature convervancy body are mandatory. Also indicates that protected species cannot be disturbed. The guidance provides indication on when further assessment must be conducted based on the results of the consultation with competent authorities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2001.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include recommended techniques. It is a useful source as showing an example of licensing and assessment conducted in order to ensure permitting takes into account environmental issues. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Guidance notes for oil and gas surveys and shallow drlling. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/50000/3606-PON14a_guide_110906.pdf *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Guidance applies to any oil and gas survey or shallow drilling activity. It specifies the type of surveys that need to be undertaken based on the type of activities and the attached notification system. The list is not extensive and it excludes some activities from the notification system such as environmental surveys. The guidance lists the activities that require an environmental assessment, it is activities that may disturb marine wildlife or affect a relevant site (including sensitive area). The guidance lists the activities for which an environmental assessment is required (e.g. high resolution seismic site surveys in sensitive areas (these are listed e.g. cardigan bay), or any survey or shallow drilling that could have an effect on the integrity of a relevant site.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2005.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance includes useful indications on types of surveys which could be useful for the HC BREF. The guidance is not extensive but it provides an overview of the type of survey techniques that require an environmental assessment. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Guidance Notes on the Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 (October 2011) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/193705/eiaguidancenote.pdf *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidance presents the notification / permitting process for pipelines. It also includes the criteria for a mandatory environmental statement. Provides criteria for assessing potential disturbance, such as type of infrastructure or species / habitats that may be disturbed, for example pipelines of 800 mm diameter and 40 km or more in length. Operations that may affect significantly herring or sand-eel spawning grounds. The ES should include a description of the activity including the area of seabed taken during construction and operation. Further licences are requested for: - Disturbance of the sea bed, e.g. to access platform legs or to relocate cuttings piles, or to undertake trenching operations that are not covered by a Pipelines Works Authorisation (PWA) issued under the Petroleum Act. - Temporary deposits, e.g. during abandonment operations or in advance of activities authorised under the Petroleum Act or Energy Act. - Deposit or removal of certain cables, e.g. telecommunications, power or control cables not covered by a PWA. - Deposits or removal of substances or objects, e.g. to undertake rock dumping, mattress emplacement or burial operations that are not covered by a PWA, or to remove platforms or other infrastructure from the sea bed. - Deposit and use of explosives, e.g. to remove seabed obstructions, to sever wellheads or during the course of other decommissioning activities (NB seismic use of explosives would be covered by the DECC survey consenting regime).
Accessibility	
• Is the guidance publicly available and accessible?	Publicly available and accessible without charge.

• Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does include some minimum thresholds and specific techniques for when specific environmental licenses are needed to assess disturbance of seabed. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	JNCC MARINE STRATEGY FRAMEWORK DIRECTIVE – PROGRESS TO DATE AND FUTURE IMPLICATIONS. UK Programme of measures - Defra http://jncc.defra.gov.uk/pdf/comm11P06.pdf *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Indicators and descriptors used for assessing impacts against in order to demonstrate Good Ecological Status as requested by the MSFD. These are not presented in any detail. Notes that there are some divergences in how the UK, France and Germany interpret the provisions of articles 9 and 10 of the MSFD and the 'good environmental status'. Does not address offshore oil and gas activities per se, more general statement.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards?	General guidance including brief overview of indicators and descriptors that can be used for assessing impacts. Use in BREF: Background material

• Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	The Environmental Damage (Prevention and Remediation) Regulations 2009 - Guidance notes for England and Wales. https://www.gov.uk/government/publications/environmental-damage-prevention-and-remediation-regulations-2009-guidance-for-england-and-wales Scottish Government Quick Guide to the Environmental Liability Regulations http://www.gov.scot/Resource/Doc/921/0084567.pdf *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK Principles
Environmental Scope contained in the Guidance could be applied Europe wide.	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	General guidance from England / Wales and Scotland on determining environmental damage within the regulatory context. Damage to habitats includes damage to natural habitats or to a site of special scientific interest. The damage is severe enough to have: a significant adverse effect on reaching or maintaining the favourable conservation status of the protected species of natural habitat (referred to in this guidance as a significant conservation status effect). The guidance does not include specific information for assessing environmental damage from oil and gas activities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies?	Guidance considered sufficiently current and relevant. 2009.

• Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	General guidance on understanding environmental damage. Guidance does not relate specifically to the environmental issue in question. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Energy Institute Introductory guide to environmental damage *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance on the assessment of environmental damage for oil and gas activities, it includes guidance on how to understand damage for water, natural and protected habitats, how to assess damage (including guidance on ecosystems services). It is brief however, and does not include particular information on seabed disturbance.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily	Guidance does not include techniques, but provides useful information to consider when considering environmental damage.

quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not relate specifically to the environmental issue in question. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Offshore Energy Strategic Environmental Assessment An Overview of the SEA process. A Practical Guide to the Strategic Environmental Assessment Directive - UK Government https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/7657/practicalguidesea.pdf *Provided by: UKOG*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance on conducting SEA, made for responsible authorities. Oil and gas licensing rounds are listed as plans needing an SEA. The guidance includes examples of objectives and indicators that can be used during the assessment. Not specific to oil and gas however some useful content.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies?	Guidance considered sufficiently current and relevant. 2005.

• Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include techniques, but provides useful information to consider in relation to SEA. The requirement to include SEA for licensing round can also be a useful good practice for HC BREF. Use in BREF: Refer to directly

Seabed disturbance	• **Drill cuttings pile material and toxic contaminants on seabed**

Summary

Potential environmental impacts from drill cuttings piles on the seabed relate to (a) smothering, and (b) potential release of toxic contaminants while in situ or when disturbed. This issue is frequently considered for existing oil and gas installations and has been assessed and addressed extensively particularly in the North Sea region.

Impacts from cuttings piles arise largely due to discharge of OBM-contaminated cuttings. In the OSPAR region, the discharge limit of 1% OPF dry weight on cuttings (link to separate issue on handling of OBM cuttings) has reduced the potential for formation of new contaminated cuttings piles, so the literature suggests this is largely an issue related to historical cuttings piles. Guidelines exist (e.g. under OSPAR 2006/5) which include quantitative standards (thresholds) for assessing rate of oil loss and persistence from cuttings piles. These trigger potential need for investigation of BAT/BEP for specific locations, and a number of different treatment options are available for consideration.

In the OSPAR region, a 2009 report concluded that disturbance of cuttings piles does not appear to lead to increased impacts on the marine environment and that no specific OSPAR measure should be developed at that time.

Overall there is guidance available on this issue, particularly for the OSPAR region.

The main potential gaps identified that we recommend be considered by the sub-group are:

- The partial EU coverage of the guidance and whether a gap exists in exchange of information on best available techniques across the EU. (This is a general issue across various environmental issues.)
- Whether this is an issue of sufficient impact to warrant exchange of information, particularly given the conclusions of the 2009 OSPAR report.
- Whether there would be benefit from exchange of information on key aspects of the existing guidance and recommendations e.g. thresholds for identifying potential for pollution in OSPAR 2006/5; general conclusion that BAT is to leave in-situ and assess disposal options at decommissioning stage.
- Whether further exchange of information is warranted on how specific techniques (options) available can be implemented in practice (e.g. those in OSPAR 2006/5.

Candidate Guidance	Provided by	Overview	Use in BREF?
Mediterranean Action Plan (MAP) Study on International Best Practises, 2014	Denmark	Does not provide details in relation to cuttings piles. Does not include performance standards or specify techniques.	Background material
NORSOK S-003 Environmental Care, section 9.4 (cuttings disposal)	DNV GL, IOGP	Includes guidance on approaches to avoiding environmental impacts from oil-contaminated drill cuttings piles on the seabed. Does not include quantified performance standards. Specifies other techniques (than leaving in-situ / covering) that could be considered on a case-by-case basis.	Refer to directly
The Norwegian Oil Industry Association, Guidelines for characterisation of offshore drill cuttings piles	DNV GL	Does not include performance standards per se, as the document is about characterisation (rather than management) of cuttings piles. Specifies available techniques for characterisation. Overall, could potentially be useful for the BREF depending on the significance of the issue (including potential future significance) across the European Union.	Refer to directly
Environmental monitoring of petroleum activities on the Norwegian continental shelf, 2015, M-408	DNV GL, Norway	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Useful (in this context) only regarding informing types of monitoring for seabed.	Background material
Guideline: Monitoring of drilling activities- areas with cold water corals. Norwegian Oil and Gas.	DNV GL	Guidance does not specifically include performance standards for avoiding adverse environmental effects from drill cuttings pile material. Provides details of a range of techniques, primarily related to avoidance of drill cuttings piles, but some information in relation to existing piles. Overall provides useful guidance in relation to measures to avoid impacts from drill cuttings.	Refer to directly
OSPAR Recommendation 2010/10 on furthering the protection and restoration of deep-sea sponge aggregations in the OSPAR Maritime Area OSPAR 10/23/1-E, Annex 32	DNV GL	Could not access. Link on OSPAR website gives the incorrect Recommendation (2010/01)	N/A
OSPAR Recommendation 2006/5 on a Management Regime for Offshore Cuttings Piles	IOGP	Recommendation includes performance standards of a sort – thresholds for further investigation and identification of BAT/BEP. Provides examples of techniques that can be used without specifying the use of any particular technique (to be identified following site-specific analysis). Overall guidance is deemed relevant and up-to-date in terms of approach.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
Drill Cuttings: Key control and mitigation measures, Oil and Gas UK	IOGP	As with OSPAR 2006/5, reports include performance standards of a sort – thresholds for further investigation and identification of BAT/BEP (rate of oil loss 10 tonnes/yr; persistence over the area of seabed contaminated 500 km2yr). Specifies techniques that can be used and concludes for the UK that the recommended technique is to leave in-situ until decommissioning. Overall report is deemed relevant and up-to-date in terms of approach.	Refer to directly
OSPAR: Assessment of the possible effects of releases of oil and chemicals from any disturbance of cuttings piles	UK, Oil & Gas UK	The document does not include performance standards and is not guidance per se. The document concludes that "The information available to date suggests that disturbance of cuttings piles does not appear to lead to increased impacts on the marine environment. It can be concluded that no OSPAR measure on this subject should be developed at this time. However, OSPAR Contracting Parties should reassess the situation in the meeting cycle 2013/2014, in the light of the results of further post-decommissioning environmental surveys. This is an important consideration for the TWG subgroup in determining whether exchange of information should take place for this issue.	Refer to directly
OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings	IOGP, Netherlands	This document was reviewed for "Handling of oil-based drilling mud cuttings" and is not repeated here. However, it is will address formation of future cuttings piles with potential for contamination. IOGP indicates that this makes this a "legacy issue" relevant for decommissioning.	
OSPAR Other Agreement 2002-8 - Guidelines for the consideration of the best environmental option for the management of OPF contaminated cuttings residue	IOGP, Netherlands	This document was reviewed for "Handling of oil-based drilling mud cuttings" and is not repeated here. However, it is will address formation of future cuttings piles with potential for contamination. IOGP indicates that this makes this a "legacy issue" relevant for decommissioning.	
OLF 093 Guidelines for waste handling in the offshore sector (Norwegian Oil and Gas Association)	IOGP	This document was reviewed for "Handling of oil-based drilling mud cuttings" and is not repeated here.	
Various Dutch legislation	NOGEPA	This provides a range of relevant legislation from the Netherlands. This has not been reviewed in detail, but includes e.g. implementation of requirements under OSPAR, etc.	

Candidate Guidance	Provided by	Overview	Use in BREF?
Other	IADC	IADC noted: Cuttings handling takes place in accordance with the Operators discharge permit. Best practice is to only permit to discharge cuttings from the first sections of the well where there is no reservoir hydrocarbons and the fluids adhering to cuttings are approved for discharge The drilling contractor obligation will be limited to minimising impacts in terms of having a high capacity for reception, cleaning, storage and facilitating back load of contaminated cuttings for safe disposal onshore	
Other	IOGP	IOGP noted: This is a legacy issue and will be addressed when facilities are decommissioned	

Guidance Identified	
• Title, link, etc	Mediterranean Action Plan (MAP) Study on International Best Practises, 2014 http://goo.gl/8AWMro *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Review of global best practices for use in preliminary preparation phase for the drafting of the Marine Action Plan for implementation of the Offshore Protocol (OP) of the Barcelona Convention (covering the Mediterranean). Includes references to various guidance that could (in principle) be applied across the EU. Offshore Protocol entered into force in 2011 but is in a developmental phase in that an action plan is currently being developed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Does not provide details in relation to cuttings piles.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	MAP study and Barcelona Convention are publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	MAP study is current (2014) and reviews relevant best practices from elsewhere in the EU and globally. It is linked to the Barcelona Convention, which does not include specific provisions on cuttings piles (but does include provisions on drill cuttings)..
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include performance standards or specify techniques. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care, section 9.4 (cuttings disposal) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNV GL, IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide. Agreed standard (developed by Norwegian petroleum industry; intended, as far as possible, to replace oil company specifications and serve as references in the authorities' regulations.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Applicable to new developments, modifications and tie-in projects. Refers to the BAT definition in the IPPC/IED directive. Refers to the UKOOA Drill Cuttings Initiative, Final Report, Feb. 2002 concluding that in general, to leave the piles undisturbed or cover the drill cuttings piles for protection are considered to have the lowest environmental impact and should therefore be aimed at. Covering may be required if the piles continue to be a source of new contamination in the area. Other possible options are covered, which were considered less attractive. Addresses the environmental medium (seabed). Addresses routine releases (for this environmental issue).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Last updated 2005. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Includes guidance on approaches to avoiding environmental impacts from oil-contaminated drill cuttings piles on the seabed. Does not include quantified performance standards. Specifies other techniques (than leaving in-situ / covering) that could be considered on a case-by-case basis. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	The Norwegian Oil Industry Association, Guidelines for characterisation of offshore drill cuttings piles http://www.norskoljeoggass.no/no/Publikasjoner/MIljorapporter/Guidelines-for-characterisation-/ *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide. Is already referred to in OSPAR Recommendation 2006/5. Agreed guidelines standard (developed by Norwegian petroleum industry; intended, as far as possible, to replace oil company specifications and serve as references in the authorities' regulations.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides sampling strategies, analysis discussions and method descriptions for cuttings piles. Provides detailed descriptions of approaches to screening, field sampling, cuttings pile characterisation, hydrocarbon leaching rate assessment and persistence of contaminants. Clarifies that it relates primarily to historical piles remaining through historical disposal practices.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from 2003. No conclusion drawn on whether it reflects present day techniques. Is considered to remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include performance standards per se, as the document is about characterisation (rather than management) of cuttings piles. Specifies available techniques for characterisation. Overall, could potentially be useful for the BREF depending on the significance of the issue (including potential future significance) across the European Union. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Environmental monitoring of petroleum activities on the Norwegian continental shelf, 2015, M-408 http://www.miljodirektoratet.no/Documents/publikasjoner/M408/M408.pdf *Provided by: DNV GL, Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance outlines the recommended techniques for monitoring. These guidelines are a result of the cooperation between the Norwegian Environment Agency, an expert advisory group appointed by the Agency, oil and gas companies and consultancy firms. The guidelines serve as a template for how the more general regulatory requirements can be fulfilled. They cover the expected scope of monitoring activities, which parameters should be analysed and which methods should be used, necessary accreditation and template for reporting. Only mention of cuttings relates to sediment appearance on sampling (contaminated sediment characteristics may include the presence of drill cuttings).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current (2015) but not directly relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Useful only regarding informing types of monitoring for seabed. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Guideline: Monitoring of drilling activities- areas with cold water corals. Norwegian Oil and Gas. http://www.norskoljeoggass.no/no/Publikasjoner/MIljorapporter/Monitoring-of-drilling-activities/ *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide. Report intended to be used as guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guideline which summarises the most relevant matters regarding drilling activities in areas with presence of cold water corals. Presents specified requirements on coral mapping and mitigating measures to avoid negative impact on corals. Is specific to corals and identifies relevant issues (e.g. burial, excessive particle loads, exposure to toxic components). Refers to OSPAR Recommendation 2010/9 as providing guiding acceptance criteria. Includes approaches to risk assessment for coral, monitoring of drilling, etc. Includes pros and cons of different mitigation measures.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance is from 2013. Is considered to remain relevant and up-to-date.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not specifically include performance standards for avoiding adverse environmental effects from drill cuttings pile material. Provides details of a range of techniques, primarily related to avoidance of drill cuttings piles, but some information in relation to existing piles. Overall provides useful guidance in relation to measures to avoid impacts from drill cuttings. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	OSPAR Recommendation 2010/10 on furthering the protection and restoration of deep-sea sponge aggregations in the OSPAR Maritime Area OSPAR 10/23/1-E, Annex 32 http://www.ospar.org/documents?d=32855 *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Could not access. Link on OSPAR website gives the incorrect Recommendation (2010/01) (http://www.ospar.org/convention/agreements?q=2010%2F10&t=32283&a=&s=)
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	OSPAR Recommendation 2006/5 on a Management Regime for Offshore Cuttings Piles http://www.ospar.org/documents?d=32375 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Recommendation of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Purpose is to reduce to a level that is not significant the impacts of pollution by oil and/or other substances from cuttings piles. Covers: Screening of all cuttings piles; assessing rate of oil loss and persistence from cuttings piles; comparison against thresholds (rate of oil loss 10 tonnes/yr; persistence over the area of seabed contaminated 500 km2yr). Thresholds trigger stage 2 BAT/BEP study including consideration of Onshore treatment and reuse; Onshore treatment and disposal; Offshore injection; Bioremediation in situ; Covering in situ; Natural degradation in situ. Gives considerations for assessment of disposal options. Refers to Norwegian guidelines on Characterisation of Offshore Drill Cuttings Piles for undertaking the assessment. Addresses ongoing, but unplanned releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Recommendation is from 2006. Considered likely to remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Recommendation includes performance standards of a sort – thresholds for further investigation and identification of BAT/BEP. Provides examples of techniques that can be used without specifying the use of any particular technique (to be identified following site-specific analysis). Overall guidance is deemed relevant and up-to-date in terms of approach. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Drill Cuttings: Key control and mitigation measures, Oil and Gas UK http://oilandgasuk.co.uk/knowledgecentre/cuttings.cfm *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Extensive report (in 3 parts) on a Joint Industry Programme on cuttings piles. Recognises that historical discharge of OBM drill cuttings can create piles with potential for smothering (the major effect) and water column contamination. A range of potential management options for cuttings piles, ranging from removal to leaving in place were identified and that the best option would be decided on a case by case basis following detailed assessment at the time of decommissioning of the installation. Covers the relevant environmental media. Phase III involved detailed investigation of selected cuttings piles, and subsequent analysis up to 2009 concluded that existing piles were not of immediate concern and that appropriate management strategies for individual piles could be determined at the time of decommissioning of the installation. Addresses ongoing, but unplanned releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge. (Note that link to “Phase II” report does not work)
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	JIP ran from 1999-2005, with subsequent investigations up to 2009. Reflects a range of available options for dealing with cuttings piles, without specifying a particular course of action. Overall remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	As with OSPAR 2006/5, reports include performance standards of a sort – thresholds for further investigation and identification of BAT/BEP (rate of oil loss 10 tonnes/yr; persistence over the area of seabed contaminated 500 km2yr). Specifies techniques that can be used and concludes for the UK that the recommended technique is to leave in-situ until decommissioning. Overall report is deemed relevant and up-to-date in terms of approach. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	OSPAR: Assessment of the possible effects of releases of oil and chemicals from any disturbance of cuttings piles http://qsr2010.ospar.org/media/assessments/p00337_OA_2_update2009.pdf *Provided by: UK, Oil & Gas UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Relates to investigations in UK and Norway. A report rather than guidance.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses impacts from disturbance of cuttings piles. Covers the relevant environmental media. Addresses old cuttings piles which may contain organic-phase drilling fluids and which could be possible sources of hydrocarbon releases due to remobilisation of residues of oil and natural leaching into the water column. Addresses ongoing, but unplanned releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from 2009. Considered to remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The document does not include performance standards and is not guidance per se. The document concludes that “The information available to date suggests that disturbance of cuttings piles does not appear to lead to increased impacts on the marine environment. It can be concluded that no OSPAR measure on this subject should be developed at this time. However, OSPAR Contracting Parties should reassess the situation in the meeting cycle 2013/2014, in the light of the results of further post-decommissioning environmental surveys. This is an important consideration for the TWG subgroup in determining whether exchange of information should take place for this issue. <u>Use in BREF: Refer to directly</u>

Discharges to sea	• **Handling of residual chemical additives/hydrocarbons (planned/accidental releases to sea)**

Summary

There exists a large range of EU and international legislation that governs the use of chemicals, including for the offshore oil and gas industry. Of particular relevance is the REACH regulation which requires a chemical safety assessment for all chemicals, specific to their uses (and relevant generic exposure scenarios have been developed by the industry for this use). The O&G industry will generally be 'downstream users' of chemicals, and hence required to implement risk management measures as specified by the supplier of the chemicals. It is of note that REACH does not include specific guidance for the offshore sector on techniques to avoid/minimise discharges of chemicals to water; nor does it include requirements for monitoring and reporting of chemical discharges.

Conclusions drawn for the EU Biocides Regulation are similar to those for REACH.

The four international (offshore) conventions relevant to Europe all consider chemicals to different degrees:

- Under HELCOM, there are requirements to avoid discharges of chemicals and require permits for releases for discharges (in exceptional cases). Discharge of red and black list chemicals is prohibited.
- Under OSPAR, there are requirements for operators to control chemicals taking into account BAT/BEP. It includes a principle of substitution for the most hazardous chemicals, as well as an approach to support authorities with permitting the use of individual chemicals (or requiring substitution). It identifies substances which pose little or no risk, and also includes a ranking process for other chemicals, falling between the two extremes. There is guidance on toxicity testing of chemicals and, more recently, an approach to management that is integrated with REACH.
- The Barcelona Convention prohibits discharges of substances in Annex I and requires permits for discharges of Annex II substances and other 'harmful or noxious substances and materials'. It is clear (from a 2014 review) that there are gaps in parties' implementation of the existing requirements, with several member states not having implemented requirements related to chemicals. Work to further develop actions in this area is ongoing.
- No information on the Bucharest Convention (Black Sea) was provided for the gap analysis.

There are a number of existing guidance documents which include important recommendations on the control of discharges of chemicals, including under NORSOK S-003 which provides various 'functional requirements' for avoidance of releases; and the World Bank / IFC Guidelines which cover various aspects related to chemicals (as well as including a number of existing performance standards). There are also numerous ISO, API and other standards related to design of equipment, specification of fluids, etc. all of which are relevant to the gap analysis (though not all have been reviewed in detail). However, in terms of guidance on actual techniques available/recommended to reduce discharges, these are limited in terms of geographical coverage and level of detail to actually support with determining appropriate permit conditions.

OSPAR and REACH provide a basis for selecting chemicals that are of lower hazard/risk. The guidance available does not include guidance on measures that could be implemented in permits to reduce/avoid discharges of chemicals to the marine environment (either planned or unplanned). Nor does the guidance include any performance standards on e.g. discharge consents for chemicals released to the marine environment. Whilst these provide an extensive regime for addressing hazards and risks of chemicals

Summary

used offshore, there may be a gap in guidance that would aid in setting of permit conditions related to releases (by authorities) and identifying techniques capable of achieving those permit conditions (by industry and authorities).

While there is a range of relevant information on BAT/BARM it is scattered across a multitude of different sources, each of which contains elements, but none of which constitutes a standalone reference.

Overall, the main areas where potential gaps have been identified, and where the sub-group should consider the added value of exchange of information are:

- **Approaches for chemical selection vary across the EU**: The partial EU coverage of guidance and differing approaches under the different international conventions (HELCOM, OSPAR, Barcelona, etc.) is a potential gap. In particular, this applies to the process of chemical selection and approval in permits by national authorities, where approaches differ amongst countries, and are clearly less stringent in some areas (e.g. Barcelona, Bucharest conventions).
- **Lack of a consolidated reference containing performance standards**: The lack of an EU reference for relevant performance standards related to chemical releases (e.g. some are included in HELCOM and OSPAR, while the World Bank guidance provides performance indicators for a range of different parameters). Clearly others have found it possible to develop certain performance standards for chemicals, and an EU-level guidance document on such standards (and techniques to consider in meeting these standards) would aid consistency in information available for permitting.
- **General lack of information on available techniques**: There is relatively little information/guidance to assist operators and permitting authorities on identifying specific techniques to prevent/minimise discharges to sea, and information to assess the merits and applicability of those techniques. The guidance available is largely **limited in geographical coverage** (e.g. to a single country) and it is not clear that authorities and industry across the EU will have guidance available to support with permitting. Examples include response to chemical spills (which is covered by a HELCOM Manual but seeming not other multi-country guidance).
- **Lack of guidance to support with setting discharge limits:** The lack of EU-level guidance on setting of discharge limits in permits, and the apparent lack of an EU reference document to assist authorities / operators to identify options to meet discharge limits. Note that national-level systems exist, such as that in the UK reviewed below.

Candidate Guidance	Provided by	Overview	Use in BREF?
OSPAR: Harmonised Mandatory Control System for Chemicals • OSPAR Decision 2000/2 on a Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals (as amended by OSPAR Decision 2005/1) • Common Interpretation on which Chemicals are Covered and not Covered by the Harmonised Mandatory Control System under OSPAR Decision 2000/2	EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom	Provides the framework for OSPAR's approach to control of chemicals. Includes requirements for authorities to control chemicals taking into account the precautionary principle; the polluter pays principle; and BAT/BEP. It includes a principle of substitution of hazardous substances; a requirement to avoid emissions, discharges and losses of new hazardous substances; encouragement of development of less hazardous substances, etc. The ranking process includes quantified risk quotients for individual chemicals. These are not performance standards. Specifies approaches to (a) ranking of chemicals – using the CHARM method); (b) management decisions on chemicals depending on screening/ranking. Overall this Decision, along with various associated documentation, provides an important basis for management of chemicals offshore in the OSPAR region.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
OSPAR: Harmonised Offshore Chemical Notification Format • OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF) OSPAR Guidelines for Completing the Harmonised Offshore Chemical Notification Format (HOCNF) Update 2015	EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom	The format and guidelines for completing it represent a process to allow authorities to determine whether to permit use of individual chemicals. Each OSPAR country has its own system of regulation, based on the principles set out in the overarching OSPAR Decisions, Recommendations and Guidelines. Format and Guidelines specify which information should be used in applying for permission for use from national authorities. Overall, this format and guidelines are highly relevant to demonstrating the existing level of control for chemicals used offshore.	Refer to directly
OSPAR: Screening of chemicals • Recommendation 2010/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals • List of Chemicals for Priority Action; • OSPAR Recommendation 2006/3 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that Are, or Which Contain Substances Identified as Candidates for Substitution • OSPAR Recommendation 2005/2 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that Are, or Contain Added Substances, Listed in the OSPAR 2004 List of Chemicals for Priority Action • OSPAR list of substances of possible concern OSPAR List of Substances Used and Discharged Offshore which Are Considered to Pose Little or No Risk to the Environment (PLONOR) (OSPAR Agreement 2013-06)	EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom	The OSPAR screening process provides a hazard-based approach to deciding on requirements for substitution of the most hazardous chemicals used offshore, largely permitting use of those substances of lowest risk and assessment of other substances based on a ranking of hazardous properties / risk quotients. The approach relates to chemical selection, rather than any specific techniques to avoid releases to the environment. Overall this is an important process for managing risks associated with use of chemicals offshore. It has been developed over many years; has complex linkages with EU legislation such as REACH; and is well established in the OSPAR countries. It does not include provisions for the avoidance of chemical discharge to water.	Refer to directly
OSPAR – Guidance on toxicity testing of chemicals • OSPAR Guidelines for Toxicity Testing of Substances and Preparations Used and Discharged Offshore • OSPAR Protocols on Methods for the Testing of Chemicals used in the Offshore Oil Industry Further Guidance on the Assessment of the Toxicity of Substances under the Harmonised Pre-Screening Scheme of OSPAR Recommendation 2000/4	EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom	Guidance relates to toxicity testing of chemicals. It does not include performance standards but rather approaches to obtaining data on toxicity of chemicals. Specifies methods for testing (note this is not methods/techniques for avoidance of environmental impacts).	Background material

Candidate Guidance	Provided by	Overview	Use in BREF?
OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry	IOGP	Does not address any specific issues but rather provides a general requirement for operators to implement EMS. Does not provide guidance or include performance standards.	Background material
The HELCOM Manual on Co-operation in Response to Marine Pollution – Volume 2 dealing specifically with co-operation in case of spillages of chemicals	Denmark	Provides guidance on understanding chemical behaviour in the environment following accidental release. It is therefore intended for use after an accident, rather than providing guidance on how accidents can be prevented. Specifies techniques and approaches for dealing with accidents. Assuming that the BREF is not intended to cover dealing with consequences of accidents after the event, this is useful background material but not directly relevant to the BREF.	Background material
HELCOM Recommendation 18/2*) on offshore activities, 1997	Denmark	Provides general requirements to avoid discharges of chemicals and require permits for releases for discharges (in exceptional cases). Overall HELCOM provides a requirement for avoiding/minimising discharges of chemicals. It does not provide details of techniques that can be used.	Refer to directly
HELCOM Baltic Sea Action Plan	Denmark	Includes a zero discharge concept and a requirement to cease discharges of all “black” and “red” list chemicals by 2010.	Refer to directly
Mediterranean Action Plan (MAP) Study on International Best Practises, 2014 (Note specifically addresses Barcelona Convention)	Denmark	Document includes a review of provisions under the Barcelona Convention on chemicals, and review of those under other regimes (e.g. OSPAR). Does not include guidance or performance standards. Identifies gaps amongst Contracting Parties in terms of implementation of various provisions on chemicals (Article 9) and identified a need for development of guidance documents on chemical use approval and discharge permits (for development under the MAP).	Background material
NORSOK S-003 Environmental Care	DNV GL	Provides functional requirements for avoidance of releases of chemicals to water. Does not set quantitative performance standards (other than e.g. “zero harmful discharge”. Provides lists of which techniques can be used for a range of different activities undertaken offshore. Useful reference document. Provides a standard applicable in Norway. but overall is considered to provide examples of (potential) BAT to reduce discharges of chemicals to water.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
OLF 093 Guidelines for waste handling in the offshore sector (Norwegian Oil and Gas Association)	DNV GL	Provides a shared industry waste management standard. Provides suggested (non-prescriptive) waste management actions e.g. related to chemical composition effects on waste classification and handling. Does not include performance standards. Provides examples of techniques that can be used. Overall it provides examples of techniques that can be considered but is not considered comprehensive guidance.	Background material
DNV Offshore Standard DNV-OS-E201 Oil and gas processing systems,	DNV GL	Standard which specifies various design requirements for different elements of O&G processing systems. Specifies techniques which should be used in certain defined areas (of relevance to the current environmental issue is the section on chemical injection systems).	Refer to directly
Environmental monitoring of petroleum activities on the Norwegian continental shelf	DNV GL, Norway	Guidance outlines the recommended techniques for monitoring. Guidance does not include Performance Standards. It relates to monitoring of the environment, which includes monitoring for discharged chemicals. Specifies types of approaches that can be applied to monitoring of the environment.	Refer to directly
World Bank Group/ IFC: Environmental, Health and Safety Guidelines Offshore Oil and Gas Development June 2015	IOGP	Guidance includes measureable performance standards for various parameters. For chemicals, this includes e.g. effluent toxicity of completion and well work-over fluids, as well as chemical content of discharged oil-based and water-based drill cuttings. Provides examples of techniques that can be used without specifying any particular technique. Overall considered to be a useful reference and an example of where performance standards have been consolidated in a single source.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
REACH Regulation (Regulation (EC) No 1907/2006) (and various associated guidance)	Oil & Gas UK, EOSCA	REACH itself does not include performance standards (other than a requirement to demonstrate safe use, generally on the basis of a PEC/PNEC ratio for the marine environment, as well as PBT/vPvB assessment. Depending on the supplier, eSDS may specify the amount of a substance estimated to be released during activities (including offshore) e.g. as a fraction of the amount used. REACH does not specify which techniques can/should be used. Depending on the supplier (REACH registrant), the eSDS may provide guidance on specific techniques (risk management measures) that should be implemented. Overall, REACH is considered to be highly relevant to addressing the risks related to discharge of chemicals from the offshore industry. It is already recognised and links made within e.g. the OSPAR Recommendations/Guidelines for HCMS. It does not provide EU-level requirements in terms of emission levels of chemicals (for onshore sources, these are often set e.g. through discharge consents under other legislation). The existence of REACH is not in itself sufficient justification to conclude that there are no gaps in the approaches for discharges of chemicals to water (hence e.g. the continued need for controls on chemicals under OSPAR). Potential gaps include: • REACH does not include specific guidance on techniques for the offshore sector to avoid/minimise discharges of chemicals to water. • REACH does not include requirements for monitoring and reporting of chemical discharges.	Refer to directly
ARPEL Environmental Guideline # 4 - 2005 Treatment and Disposal of Exploration and Production Drilling Wastes	IOGP	Guidance is developed for Latin America and Caribbean. Contains some performance standards (e.g. concentrations of mercury and cadmium in drilling muds discharged), but not specifically related to chemicals. Specifies at a high level some techniques that can be used.	Background material
Others not reviewed in detail			

Candidate Guidance	Provided by	Overview	Use in BREF?
NORSOK P-002 Process System Design, section 20.3 (Drip trays and drainage), 28.1 (open drain)		This NORSOK standard provides requirements for the following aspects of topside process piping and equipment design on offshore production facilities: design pressure and temperature; safety instrumented secondary pressure protection systems; line sizing; system and equipment isolation; insulation and heat tracing. Not reviewed in detail as it relates to detailed equipment design which is outside the scope of the BREF.	Background material
DNV Rules for Classification of Ships, Environmental Class for newbuildings, section C400 (Ballast water), C500 (Bilge water), C700 (Sewage), C800 (grey water) (http://rules.dnvgl.com/docs/pdf/DNV/rulesship/2015-07/ts612.pdf).	DNV GL	Not assessed as this relates to requirements for ships which will not be covered by the BREF.	Background material
Other legislation on chemicals (examples of associated guidance also provided): • Environmental Impact Assessment (EIA) Directive (2014/52/EU) • European Pollutant Release and Transfer Register (E-PRTR), Regulation (EC) No. 166/2006 • Persistent Organic Pollutants (POPs) Regulation (850/2004) (as amended) • Regulation 1078/2014 amending Annex 1 to Regulation (EU) 649/2012 on the export and import of hazardous chemicals • Directive 96/59/EC on the disposal of polychlorinated biphenyls and polychlorinated terphenyls • Regulation 528/2012 on the making available on the market and use of biocidal products repealed regulation 98/8/EC)	Various	These are pieces of legislation relevant to chemicals which might potentially be used offshore (or may historically have been), or related to processes relevant to offshore industry (e.g. the EIA directive). While these are all relevant, they do not address the key aspect of this gap analysis which is on whether there is a need for exchange of information on BAT for control of discharges of chemicals to the marine environment. If this issue is covered in the BREF following the gap analysis, the BREF should fully reflect the existence of such legislations.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
ISO International Standards • ISO 13500 : 2008 – Drilling fluid material , Specification and test • ISO 13501 :2005 – Drilling fluids Processing systems evaluation • ISO 10414-1:2008 Field testing of drilling fluids -- Part 1: Water-based fluids • ISO 10414-2:2011 Field testing of drilling fluids -- Part 2: Oil-based fluids • ISO 13503 3: Part 3 Testing of heavy brines • ISO 13503 4: Part 4 Procedures for measuring stimulation and gravel-pack fluid leak-off under static conditions	IOGP	These cover e.g. physical properties and test procedures for materials manufactured for use in oil- and gas-well drilling fluids; performance of solids control equipment systems; procedures for determining the following characteristics; etc. While these are obviously important standards, they do not include guidance on techniques to address the environmental issue in question (though obviously the composition etc. of fluids will affect potential environmental impacts). If this issue is covered in the BREF following the gap analysis, the BREF should fully reflect the existence of such standards.	Refer to directly
API standards/guidance: • Subsurface Salt Water Injection and Disposal (Book 3 in the Vocational Training Series) • API E5 Environmental Guidance Document: Waste Management in Exploration and Production Operations • Guidelines for Commercial Exploration and Production Waste Management • API TR 17TR5 Avoidance of Blockages in Subsea Production Control and Chemical Injection Systems • API RP 13C Recommended Practice on Drilling Fluid Processing Systems Evaluation	IOGP	These are all relevant and important standards. However, they are not freely available and so have not been reviewed in detail here. If this issue is covered in the BREF following the gap analysis, the BREF should fully reflect the existence of such standards.	Refer to directly

Guidance Identified	
• Title, link, etc	**OSPAR: Harmonised Mandatory Control System for Chemicals** OSPAR Decision 2000/2 on a Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals (as amended by OSPAR Decision 2005/1) http://www.ospar.org/documents?d=32742 Common Interpretation on which Chemicals are Covered and not Covered by the Harmonised Mandatory Control System under OSPAR Decision 2000/2 www.ospar.org/documents?d=32731 *Provided by: EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Decision of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides the framework for OSPAR's approach to control of chemicals. Includes requirements for authorities to control chemicals taking into account the precautionary principle; the polluter pays principle; and BAT/BEP. It includes a principle of substitution of hazardous substances; a requirement to avoid emissions, discharges and losses of new hazardous substances; encouragement of development of less hazardous substances, etc. Use and discharge are subject to a 4-step process: 1. Submission of information to authorities using Harmonised Offshore Chemical Notification Format (HOCNF) 2. Pre-screening to identify the most hazardous substances (including those on the OSPAR List of Chemicals for Priority Action; those of equivalent concern; persistent/toxic substances). These are to be substituted where possible. All substances not meeting the screening criteria for substitution are ranked (unless on the PLONOR list). 3. The ranking of chemicals involves comparison of their risk quotient (PEC/PNEC ratio). 4. Management decisions on the basis of the above to include: permission, substitution, temporary permission or refusal of permission. This is the over-arching framework. Guidance is considered in subsequent pages.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from 2000 but there are various linked recommendations and guidance documents (see later). Considered to remain relevant. Process to integrate with REACH is ongoing.

Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The ranking process includes quantified risk quotients for individual chemicals. These are not performance standards. Specifies approaches to (a) ranking of chemicals – using the CHARM method); (b) management decisions on chemicals depending on screening/ranking. Overall this Decision, along with various associated documentation, provides an important basis for management of chemicals offshore in the OSPAR region. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	**OSPAR: Harmonised Offshore Chemical Notification Format** OSPAR Recommendation 2010/3 on a Harmonised Offshore Chemical Notification Format (HOCNF) http://www.ospar.org/documents?d=33027 OSPAR Guidelines for Completing the Harmonised Offshore Chemical Notification Format (HOCNF) Update 2015 www.ospar.org/documents?d=33043 *Provided by: EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Recommendation and Guidelines of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The purpose of the Harmonised Offshore Chemical Notification Format is to provide authorities with data and information about chemicals to be used and discharged offshore, to enable the authorities to take the appropriate regulatory action in accordance with the scope of OSPAR. The Recommendation includes a prescribed format covering in detail e.g. use and discharge in different phases of activity (drilling, cementing, completion, stimulation, production, utility, other); fate; composition; physical properties; ecotox information; partitioning/bioaccumulation potential; biodegradation; and aquatic toxicity. The Guidelines provide details on completion of the format. It includes e.g. which ecotoxicological data are acceptable, definitions and approach to harmonisation with REACH.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidelines were most recently updated 2015. The approach under OSPAR is largely a “hazard-based” one, with substitution required (where possible) for the most hazardous substances; and a light-touch approach for PLONOR substances. Overall this approach remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The format and guidelines for completing it represent a process to allow authorities to determine whether to permit use of individual chemicals. Each OSPAR country has its own system of regulation, based on the principles set out in the overarching OSPAR Decisions, Recommendations and Guidelines. Format and Guidelines specify which information should be used in applying for permission for use from national authorities. Overall, this format and guidelines are highly relevant to demonstrating the existing level of control for chemicals used offshore. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	**OSPAR: Screening of chemicals** Recommendation 2010/4 on a Harmonised Pre-screening Scheme for Offshore Chemicals http://www.ospar.org/documents?d=32819 List of Chemicals for Priority Action; http://www.ospar.org/documents?d=32745 OSPAR Recommendation 2006/3 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that Are, or Which Contain Substances Identified as Candidates for Substitution http://www.ospar.org/documents?d=32369 OSPAR Recommendation 2005/2 on Environmental Goals for the Discharge by the Offshore Industry of Chemicals that Are, or Contain Added Substances, Listed in the OSPAR 2004 List of Chemicals for Priority Action http://www.ospar.org/documents?d=32772 OSPAR list of substances of possible concern http://www.ospar.org/work-areas/hasec/chemicals/possible-concern/list OSPAR List of Substances Used and Discharged Offshore which Are Considered to Pose Little or No Risk to the Environment (PLONOR) (OSPAR Agreement 2013-06) http://www.ospar.org/documents?d=32939 *Provided by: EOSCA, IOGP, Netherlands, Norway, Oil & Gas UK, United Kingdom*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Recommendations of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The above Recommendations provide (in conjunction with the HOCNF described previously) a basis for decision-making on the use of chemicals used offshore. It substantively takes into account the provisions of REACH. Key elements include (simplified): • REACH-relevant substances that have not met the Registration requirements should be refused permission. • Low hazard substances (OSPAR PLONOR list – above, or REACH Annex IV/V) are decided upon for permission on the basis of expert judgement. • Substances that have been prioritised (OSPAR 'priority action' and 'possible concern', as well as those subject to REACH authorisation/restriction) are subject to substitution (or temporary permission/refusal of permission). • Inorganic substances have a simplified procedure with the more toxic ones being subject to substitution and less toxic ones decided upon using expert judgement. • Organic substances are subject to substitution (or temporary/refused permission) if they persistent, bioaccumulative

	and/or toxic). Otherwise they are ranked and subject to management decision on the ranking. • Note also that substances that are 'candidates for substitution' will need to be substituted by 2017 unless it can be demonstrated that no alternatives exist. The Recommendations and other documents cover a detailed process for permission to use substances based on their hazard (and risk quotients). It covers the relevant environmental media (water) through the ranking process. Does not address releases per se, but through 'management decisions' for HOCNF submissions the relevant activities and associated potential for release are considered.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Harmonised pre-screening approach dates from 2010. Other documents are more recent (e.g. PLONOR list dates from 2013). Overall, the approach remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The OSPAR screening process provides a hazard-based approach to deciding on requirements for substitution of the most hazardous chemicals used offshore, largely permitting use of those substances of lowest risk and assessment of other substances based on a ranking of hazardous properties / risk quotients. The approach relates to chemical selection, rather than any specific techniques to avoid releases to the environment. Overall this is an important process for managing risks associated with use of chemicals offshore. It has been developed over many years; has complex linkages with EU legislation such as REACH; and is well established in the OSPAR countries. It does not include provisions for the avoidance of chemical discharge to water. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	**OSPAR – Guidance on toxicity testing of chemicals** OSPAR Guidelines for Toxicity Testing of Substances and Preparations Used and Discharged Offshore http://www.ospar.org/documents?d=32611 OSPAR Protocols on Methods for the Testing of Chemicals used in the Offshore Oil Industry http://www.ospar.org/documents?d=32652 Further Guidance on the Assessment of the Toxicity of Substances under the Harmonised Pre-Screening Scheme of OSPAR Recommendation 2000/4 http://www.ospar.org/documents?d=32730 *Provided by:*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Guidelines/Methods of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses approaches for toxicity testing of chemicals under the HOCNF. Does not relate to specific media except insofar as it covers testing for effects on marine biota. Not specifically related to releases or their control.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from 2002-5. Subsequent guidance under OSPAR clarifies the link with toxicity testing data available under REACH. Remains relevant but pre-dates REACH.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance relates to toxicity testing of chemicals. It does not include performance standards but rather approaches to obtaining data on toxicity of chemicals. Specifies methods for testing (note this is not methods/techniques for avoidance of environmental impacts). Use in BREF: Reference material

Guidance Identified	
• Title, link, etc	OSPAR Recommendation 2003/5 to Promote the Use and Implementation of Environmental Management Systems by the Offshore Industry http://www.ospar.org/documents?d=32720 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Recommendation of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Intended to promote use of environmental management mechanisms designed to achieve the environmental goals of the Offshore Strategy. Goal was for all operators to have in place EMS that are in accordance with the principles of internationally recognised standards. EMS should be designed to achieve prevention and elimination of pollution from offshore sources and of the protection and conservation of the maritime area against other adverse effects of offshore activities; as well as continual improvement in environmental performance. Does not address any specific media, or the environmental issue (discharge of chemicals).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from2003. Considered to remain relevant
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not address any specific issues but rather provides a general requirement for operators to implement EMS. Does not provide guidance or include performance standards. Use in BREF: Reference material

Guidance Identified	
• Title, link, etc	The HELCOM Manual on Co-operation in Response to Marine Pollution – Volume 2 dealing specifically with co-operation in case of spillages of chemicals http://www.helcom.fi/action-areas/response-to-spills/manuals-and-guidelines *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is the Baltic Sea. Could in principle be applied to all EU areas. It is agreed and being implemented by the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Manual is to be used as guidance when two or more Contracting Parties participate in joint action responding to spillages of oil or chemicals. Volume 2 covers: predicting the drift and spread of chemicals; monitoring and body protection; sampling; techniques for corrective response to accidents. Guidance is intended for use after an accidental release, rather than to prevent accidental release in the first place.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Volume 2 (chemicals) dates from 2002. Wider guidance has been regularly updated (e.g. Volume 1 in 2015). Overall remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Provides guidance on understanding chemical behaviour in the environment following accidental release. It is therefore intended for use after an accident, rather than providing guidance on how accidents can be prevented. Specifies techniques and approaches for dealing with accidents. Assuming that the BREF is not intended to cover dealing with consequences of accidents after the event, this is useful background material but not directly relevant to the BREF. <u>Use in BREF: Reference material</u>

Guidance Identified	
• Title, link, etc	HELCOM Recommendation 18/2*) on offshore activities, 1997 http://www.helcom.fi/Recommendations/Rec%2018-2.pdf *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is the Baltic Sea. Could in principle be applied to all EU areas. It is agreed and being implemented by the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Covers the main issues as described in the Convention itself (Annex VI) (see above). Requires all chemicals to be taken ashore and only discharged exceptionally. If discharged, a permit is required for each specific discharge category. Also includes requirements for toxicity testing of water-based drilling muds. Document provides an over-arching requirement. It prescribes requirements for assessing the environmental sensitivity around the installation. It does not include guidance on techniques to be used in avoiding/minimising discharges. The guidance covers relevant media (marine waters). Addresses routine releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Adopted in 1997. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Provides general requirements to avoid discharges of chemicals and require permits for releases for discharges (in exceptional cases). Overall HELCOM provides a requirement for avoiding/minimising discharges of chemicals. It does not provide details of techniques that can be used. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	HELCOM Baltic Sea Action Plan http://helcom.fi/documents/baltic%20sea%20action%20plan/bsap_final.pdf *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is the Baltic Sea. Could in principle be applied to all EU areas. It is agreed and being implemented by the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Includes a "zero-discharge" principle for the offshore platforms in the Baltic Sea starting from 1 January 2010. For chemicals, by 2008 all operators had to cease discharges of all "black" chemicals and cease discharges of "red" chemicals by 2010.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Adopted in 2007. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Includes a zero discharge concept and a requirement to cease discharges of all "black" and "red" list chemicals by 2010.. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Mediterranean Action Plan (MAP) Study on International Best Practises, 2014 (Note specifically addresses Barcelona Convention) http://goo.gl/8AWMro *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Review of global best practices for use in preliminary preparation phase for the drafting of the Marine Action Plan for implementation of the Offshore Protocol (OP) of the Barcelona Convention (covering the Mediterranean). Includes references to various guidance that could (in principle) be applied across the EU. Offshore Protocol entered into force in 2011 but is in a developmental phase in that an action plan is currently being developed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Reviews requirements of the Barcelona Convention which include (Article 9): • Prohibition on discharges of substances in Annex I • Special permits required for discharges of Annex II substances and permits for other 'harmful or noxious substances and materials'. Annex III of the Barcelona Convention includes factors to be considered for the issue of permits, including: characteristics and composition of the waste; characteristics of harmfulness of constituents; characteristics of the site/environment; availability of waste technologies; potential impairment of marine ecosystem and seawater uses. The Convention Indicates that contracting parties may regulate, limit or prohibit use of chemicals in accordance with guidelines (no guidelines have been identified, and it is understood that the provisions of the Convention will be reviewed as part of the Action Plan. Document provides a review of provisions under OSPAR for chemicals, as well implementation by selected parties (UK, Norway, Netherlands). Also references the REACH and CLP Regulations, as well as the Kuwait Convention, US Gulf of Mexico and Canada. Document concludes that there are main regional gaps in relation to specific provisions of the Convention on chemicals (30-40% of countries are non-compliant with different provisions). Report includes recommendations under the MAP for further development e.g. on chemical use approval, discharge permits. Identifies a need for guidance documents in these areas. Does not specify which techniques can be used.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	MAP study and Barcelona Convention are publicly available and accessible without charge.
Age of guidance	
• How old is the guidance?	MAP study is current (2014) and reviews relevant best practices from elsewhere in the EU and globally. It is linked to the Barcelona Convention. This is a relevant source of information for the BREF.

• Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document includes a review of provisions under the Barcelona Convention on chemicals, and review of those under other regimes (e.g. OSPAR). Does not include guidance or performance standards. Identifies gaps amongst Contracting Parties in terms of implementation of various provisions on chemicals (Article 9) and identified a need for development of guidance documents on chemical use approval and discharge permits (for development under the MAP). Use in BREF: Background material* (Note that this is very useful background material)

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide (subject to possible need for cuttings discharge in some member states).. Agreed standard (developed by Norwegian petroleum industry; intended, as far as possible, to replace oil company specifications and serve as references in the authorities' regulations.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Applicable to new developments, modifications and tie-in projects. Refers to the BAT definition in the IPPC/IED directive. Recognises 'zero discharge concept' as a goal. Relevant sections include: 6.3 (drain), 6.5 (from drilling and well), 6.7 (produced sand), 6.8 (chemicals), 6.9 (sanitary), 6.12 (sampling and monitoring), 6.14 (pipelines), appendix C5 (mud and cuttings), appendix C7 (cementing), appendix C9 (drain system), appendix C10 (oily/bilge water). These include various 'functional requirements' with various provisions under each heading specifying techniques/approaches to avoiding discharges of chemicals to the marine environment. Addresses the environmental medium (water). Addresses routine releases and accidental spills.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Last updated 2005. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Provides functional requirements for avoidance of releases of chemicals to water. Does not set quantitative performance standards (other than e.g. "zero harmful discharge". Provides lists of which techniques can be used for a range of different activities undertaken offshore. Useful reference document. Provides a standard applicable in Norway. but overall is considered to provide examples of (potential) BAT to reduce discharges of chemicals to water.. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	OLF 093 Guidelines for waste handling in the offshore sector (Norwegian Oil and Gas Association) https://www.norskoljeoggass.no/en/Publica/Guidelines/Enviornment/093-Recommended-guidelines-for-Waste-Management-in-the-offshore-industry-NEW-REVISION-PR-21022013-/ *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Could potentially be applied more widely. Agreed guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides a shared industry waste management standard. Provides suggested (non-prescriptive) waste management actions e.g. related to chemical composition effects on waste classification and handling. Covers the relevant environmental media (water). Does not provide suggestions/guidance on what should be used but options for consideration (e.g. “change to chemicals with less environmental impact”). Addresses routine operations.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Latest revision 2013. Remains relevant but does not provide specific guidance on techniques considered BAT.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include performance standards. Provides examples of techniques that can be used. Overall it provides examples of techniques that can be considered but is not considered comprehensive guidance. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	DNV Offshore Standard DNV-OS-E201 Oil and gas processing systems, Ch2-sec2G – 103 (p26) (chemical injection system) (http://rules.dnvgl.com/docs/pdf/DNV/codes/docs/2015-07/OS-E201.pdf). Note actual link is at: http://rules.dnvgl.com/docs/pdf/dnvgl/OS/2015-07/DNVGL-OS-E201.pdf *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Written for general worldwide application. Agreed standard.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Specifies numerous criteria, technical requirements and guidance on design, construction and commissioning of offshore hydrocarbon production plants and associated equipment. Coverage of discharges of chemicals to sea includes e.g. a section on chemical injection systems, including requirements on e.g. use of bunded areas for storage of chemicals, design requirements for pumps, valves, piping. Addresses elements of design, some of which are relevant for this environmental issue (releases of chemicals to water). Criteria on design/construction partially address potential for accidental releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Last updated July 2015. Considered to remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standard which specifies various design requirements for different elements of O&G processing systems. Specifies techniques which should be used in certain defined areas (of relevance to the current environmental issue is the section on chemical injection systems). <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Environmental monitoring of petroleum activities on the Norwegian continental shelf, 2015, M-408 http://www.miljodirektoratet.no/Documents/publikasjoner/M408/M408.pdf *Provided by: DNV GL, Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance outlines the recommended techniques for monitoring. These guidelines are a result of the cooperation between the Norwegian Environment Agency, an expert advisory group appointed by the Agency, oil and gas companies and consultancy firms. The guidelines serve as a template for how the more general regulatory requirements can be fulfilled. They cover the expected scope of monitoring activities, which parameters should be analysed and which methods should be used, necessary accreditation and template for reporting. Includes guidance on environmental monitoring, including for chemicals.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current (2015).
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. It relates to monitoring of the environment, which includes monitoring for discharged chemicals. Specifies types of approaches that can be applied to monitoring of the environment. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	World Bank Group/ IFC: Environmental, Health and Safety Guidelines Offshore Oil and Gas Development June 2015 http://goo.gl/3w4rQp *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Potentially worldwide. Agreed guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Covers various impacts, amongst others: Options for treatment of residual chemicals in PW; control measures for chemical additives in hydrostatic testing water; cooling water; completion fluids. For hazardous materials management, includes reference to OSPAR for chemical selection. Also includes performance indicators for various parameters.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from June 2015. Remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance includes measureable performance standards for various parameters. For chemicals, this includes e.g. effluent toxicity of completion and well work-over fluids, as well as chemical content of discharged oil-based and water-based drill cuttings. Provides examples of techniques that can be used without specifying any particular technique. Overall considered to be a useful reference and an example of where performance standards have been consolidated in a single source. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	REACH Regulation (Regulation (EC) No 1907/2006) http://echa.europa.eu/web/guest/regulations/reach/legislation Supplemented with various guidance at EU level (ECHA - http://echa.europa.eu/en/support/guidance) and national level, including for the offshore industry e.g. REACH Guidance Document for the Offshore Industry, DECC/CEFAS/EOSCA/O&G UK, November 2015 https://goo.gl/3RbCGq *Provided by: Oil & Gas UK, EOSCA*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies across the EU. Agreed Regulation with extensive guidance. UK guidance: Could potentially be applied to other EU areas; agreed guidance (regularly updated).
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Requires e.g. chemical safety assessment of (most) chemicals used offshore. Oil and gas industry are mostly 'downstream users' of chemicals who are required to apply appropriate risk management measures to control (inter alia) releases to the environment. Restrictions or an authorisation requirement are applied to various chemicals (e.g. use offshore of a chemical included on Annex XIV would need to authorised by the European Commission and an application submitted to ECHA). REACH covers foreseen uses. 'Generic exposure scenarios' have been developed for various offshore uses (e.g. by EOSCA) for use in REACH chemical safety assessments. Exposure scenarios are also being developed for hydraulic fracturing. There is various guidance on assessing risks associated with REACH-relevant chemicals and risk management measures need to demonstrate safe use. The assessments need to cover releases to all environmental media, including marine water. Risk management measures are specified to downstream users (e.g. offshore O&G operators) through (extended) safety data sheets. REACH addresses routine releases and does not cover accidental releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	ECHA guidance on REACH and e.g. UK offshore industry guidance is public accessible and available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	ECHA REACH Guidance updated regularly. UK offshore REACH guidance last updated November 2015.
Overall Conclusion	

• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	REACH itself does not include performance standards (other than a requirement to demonstrate safe use, generally on the basis of a PEC/PNEC ratio for the marine environment, as well as PBT/vPvB assessment. Depending on the supplier, eSDS may specify the amount of a substance estimated to be released during activities (including offshore) e.g. as a fraction of the amount used. REACH does not specify which techniques can/should be used. Depending on the supplier (REACH registrant), the eSDS may provide guidance on specific techniques (risk management measures) that should be implemented. Overall, REACH is considered to be highly relevant to addressing the risks related to discharge of chemicals from the offshore industry. It is already recognised and links made within e.g. the OSPAR Recommendations/Guidelines for HCMS. It does not provide EU-level requirements in terms of emission levels of chemicals (for onshore sources, these are often set e.g. through discharge consents under other legislation). The existence of REACH is not in itself sufficient justification to conclude that there are no gaps in the approaches for discharges of chemicals to water (hence e.g. the continued need for controls on chemicals under OSPAR). Potential gaps include: • REACH does not include specific guidance on techniques for the offshore sector to avoid/minimise discharges of chemicals to water. • REACH does not include requirements for monitoring and reporting of chemical discharges. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	ARPEL Environmental Guideline # 4 - 2005 Treatment and Disposal of Exploration and Production Drilling Wastes https://arpel.org/library/publication/209/ *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Latin America and Caribbean Could potentially be applied to EU areas. Agreed guidance.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses various aspects related to potential chemical discharge and provides requirements for e.g. maintaining chemical inventories, avoidance of chemicals in waste.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from 2005.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance is developed for Latin America and Caribbean. Contains some performance standards (e.g. concentrations of mercury and cadmium in drilling muds discharged), but not specifically related to chemicals. Specifies at a high level some techniques that can be used. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	UK Offshore Chemicals Regulations – As an example of implementation of key elements of OSPAR Guidance notes on the offshore chemicals regulations 2002 (as amended 2011) https://goo.gl/sKptCv *Provided by:*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	United Kingdom. All OSPAR parties have their own national implementation of the requirements of OSPAR. The UK's approach is summarised here, as an example of what is required in terms of permitting for chemicals. It also includes useful information on permitted discharges. Agreed UK guidance.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The UK's approach under the 2011 regulations covers both use and discharge of chemicals. Operators are required to apply for a permit including a forecast of chemical use and/or discharge covering a three year period. Permits are required for (a) production/storage/unloading; (b) drilling; (c) pipeline operations; (d) commissioning/decommissioning; (e) well intervention/workover; (f) suspension/abandonment, etc. Permit applications must include details of techniques used to prevent/minimise use and discharge of chemicals; monitoring of discharges; and a site-specific risk assessment. The risk assessment will typically be done using a model such as CHARM, and involves calculating risk quotients (PEC:PNEC ratio) for each substance. Permits also cover the selection of chemicals, in line with the OSPAR approach. The UK's regulations also require notification of accidental discharges of chemicals using the "PON1" notice.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance dates from 2011. Remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include performance standards but requires e.g. quantitative assessments in the form of a risk quotient, to demonstrate that risks are minimised. Justifications are required for use of chemicals with a RQ>1 or OSPAR priority lists (CfS, priority action). Requires quantitative information on use and discharge of chemicals and notification to the authorities if there is a deviation from this. Guidance does not specify which techniques can be used to avoid emissions. However, it does specify techniques (typically CHARM) for assessment of risks associated with each substance at the specific location.

	Overall the guidance is relevant as it demonstrates national implementation of OSPAR requirements on chemicals. It also illustrates areas where national provisions supplement OSPAR (e.g. in terms of requirements specifying what risk management measures are used, as well as requirements for permitted quantities of chemicals discharged). Use in BREF: Background material

Examples of potential discharges of chemicals to sea:

Loss of containment of toxic chemicals from drill rig transport or supply vessels (e.g. OBM, drilling chemicals)

Residual chemical additives/hydrocarbons to sea (planned release) from drilling e.g.
- Mud additives in cuttings
- Drainage water containing quantities of hydrocarbons
- Sewage water released
- Ballast discharge released containing contaminants

Accidental release to sea during cementing of cement and associated chemical additives.

Contaminated waste water to sea from well clean-up.

Accidental discharge to sea of completion fluids e.g. corrosion inhibitor, biocide, oxygen scavenger) resulting from loss of containment.

Unplanned loss of hydraulic fluid from piling equipment

Accidental release to sea of production chemicals e.g. methanol, scale inhibitor, corrosion inhibitor, demulsifier, asphaltene inhibitor)

Discharge of hydraulic fluids from subsea production system (containing MEG and other chemicals) e.g. due to valve actuation

Discharge of treated PW containing residual hydrocarbons, production chemicals and reservoir contaminants (planned or accidental release).

Accidental loss of containment of chemical/hydrocarbon storage e.g. from ship collision; equipment/structural failure; human error

Seawater cooling of process and utility systems – unplanned discharge of e.g. residual antifoulant

Well plug and abandonment – release of chemicals used/encountered during decommissioning process

Discharges to sea	• **Activities with potential for accidental hydrocarbon spills, e.g. Well blowout (Tier 3)** • **Activities with potential for accidental hydrocarbon spills, e.g. In-field riser/flowline rupture, topsides vessel / heat exchanger rupture, fuel tank loss of containment, topsides drainage system failure (Tier 2)** • **Activities with potential for accidental hydrocarbon spills, e.g. Bunker hose failure, dropped tote tank, small-hole riser leak, helideck fuel spills (Tier 1)**

Summary

A review of guidance applicable for all accidental spills was performed, regardless of size of spill.

Guidance is reviewed under the following categories:

- Prevention/Detection – Any guidance aimed at measures for preventing releases in the first place. Includes having suitably engineered systems. Means of becoming aware that a release has occurred at the earliest opportunity.
- Control/Mitigation/Emergency Response – Any guidance aimed at measures for realising and reducing the size of the release once a loss of containment is in progress. Any measures related to the cleanup and remediation of spills.
- Candidate BARM – Any guidance of a general or all-encompassing nature, considered to be a candidate for review as BARM within the mandate of the BREF.

Generally an abundance of guidance is available regarding ensuring the engineering integrity of equipment and systems in terms of minimum requirements on how these systems should be designed, and to what Standards. The supplied guidance would need to be screened in detail to determine the extent to which Performance Standards and techniques within that guidance may be referenced by the BREF. Environmental management is, however, largely now past the era of being able to take credit only for correctly designed facilities, and more concerned with continual improvement in environmental performance. Little guidance is available, for example for operations, where in general a clear gap exists related to human involvement in spills, other than a few documents relating to training and competence.

<u>Prevention/Detection</u>

This category included all documents associated with the engineering integrity of systems, and operator competence - key documents as follows:

- NORSOK S-003 Environmental Care
- NORSOK D-001 Drilling Facilities
- NORSOK H-003 HVAC, section 5.4.6 (helideck)
- NORSOK P-002 Process System Design, section 30.3 (diesel oil),
- DNV-RP-F302 Selection and Use of Subsea Leak Detection Systems. Sections 4, 5, 6 and 7.
- Recommended guidelines for assessing remote measurement solutions
- DNV Offshore Standard DNV-OS-E201 Processing systems.
- DNV Rules for Classification of Ships, Environmental Class for newbuildings
- DNV Offshore Standard DNV-OS-F101 Submarine Pipeline Systems,
- IOGP 476 training standards (e.g. as applied by WellSharp).
- International Safety Guide for Oil Tankers and Terminals by International Chamber of Shipping, OCIMF
- ISO STANDARDS – DRILLING AND WELLS - Equipment, Systems and Procedures
- ISO STANDARDS – PRODUCTION INSTALLATIONS AND SUBSEA PIPELINES - Equipment, Systems and Procedures
- API STANDARDS – DRILLING AND WELLS - Equipment, Systems and Procedures
- API STANDARDS – PRODUCTION INSTALLATIONS AND SUBSEA PIPEINES Equipment, Systems and Procedures
- ISO/TS 17969:2015 Guidelines on competency for personnel
- API RP 14J Recommended Practice for Design and Hazards Analysis for Offshore Production Facilities
- Oil Companies International Marine Forum (OCIMF) Guidance:

Summary

- Guidelines for well-operators on well examination – Issue 1 – November 2011 – Oil & Gas UK
- Guidelines on competency for wells personnel – Issue 1 – January 2012 – Oil & Gas UK
- Guidelines on BOP systems for offshore wells – Issue 2 – May 2014 – Oil & Gas UK
- Well life cycle integrity guidelines – Issue 2 – June 2014 – Oil & Gas UK
- Guidelines for the management of flexible hose assemblies

Control/Mitigation/Emergency Response

This category included all documents associated with the oil spill response - key documents as follows:

- NORSOK S-003 Environmental Care
- IPIECA good practice guideline: Oil spill risk assessment and response planning for offshore installations
- NOROG guideline for estimation of blowout rates (in Norwegian only)
- Guideline for environmental based oil spill contingency assessment. Veiledning for miljørettede beredskapsanalyser (in Norwegian only).
- HELCOM Response to accidents at sea involving spills of hazardous substances and loss of packaged dangerous goods - Volume 2
- HELCOM Manual on Co-operation in Response to Marine Pollution within the framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention)
- Volume 3
- API Well Control Standards
- IADC North Sea Chapter - Oil Pollution Emergency Plan Template for Non-Production Mobile Offshore Drilling Units, issued June 2015
- IOGP/IPIECA Good practice guides to oil spill preparedness and response
- ISO 15544 : 2009 – Offshore production installations – requirements and guidelines for emergency response

Candidate BARM

The following documents were identified as risk management systems not specific to the issue, but which could be reviewed by the BREF as candidate BARM – key documents as follows:

- NORSOK Z-013 Risk and Emergency Preparedness Assessment
- DNVGL-RP-G104 Identification and management of environmental barriers.
- IADC HSE Case Guidelines for MODUs
- The guideline for health and safety cases (Danish Edition).
- Safety Case Guidelines (Ireland)
- ISO 14001 Certification
- API RP 75 Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities
- ISO 17776 : 2000 - Guidelines on tools and techniques for hazard identification and risk assessment

REVIEW FINDINGS

Findings of this review are summarised for each category as follows:

Prevention/Detection

- Very little guidance was supplied on best available techniques (BAT) in terms of particular technologies or equipment that are at the leading edge of design (e.g. for drilling, well construction, offshore processing, and systems which could potentially initiate Tier 1/2 spills), or are equipment known to represent an environmentally favorable solutions. **This represents a gap determined by the analysis.**
- Although guidance on operator competence exists, very little guidance, and no best practice information, was provided for offshore activities around operator awareness of unfolding incidents and the ways in which operators make judgments and deal with these in order to prevent spills. This includes the domain of offshore drilling, for which guidance appears to be non-existent. It is assumed therefore that very little information exists in the public domain. **This represents a gap determined by the analysis.**
- The Offshore Directive regulates Environmental Critical Elements (ECEs) for the first time, although little guidance is available (DNVGL, very recently is one) which explains to operators how they should identify and manage their ECEs in order to minimise the risk of discharges to sea. **This represents a gap determined by the analysis.**

Control/Mitigation/EER

Summary

- Most of the guidance provided relates to offshore spill response. Guidance is largely region specific, indicating that no common European guidance exists on this issue. **This represents a gap determined by the analysis.**
- Guidance provided focuses primarily on two aspects: preparedness (having a plan in place for a spill); and cleanup (acting following a spill). Very little is provided on best available techniques (BAT) known to address the problem of a Tier 3 spill from the perspective of Control/Mitigation. For example, no industry guidance appears to exist on the matter of stopping losses of containment that are in progress, from smaller spills up to large well blowouts. The techniques and means available to do so should be made more salient to operators and to the public in the form of guidance. For example, last resort options such as the use of well capping devices, relief wells, etc must be explained as part of common European guidance, and verbose emergency response planning documentation (national and regional plans, etc) needs to be systematically distilled into a set of clear BAT. **This represents a gap determined by the analysis.**

Guidance Identified	
• Title, link, etc	NORSOK Z-013 Risk and Emergency Preparedness Assessment http://www.standard.no/en/sectors/energi-og-klima/Petroleum/NORSOK-Standard-Categories/Z-Risk-analyses/Z-0132/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies to Norway. In principle, the approach could be applied to all EU areas as it represents a generic risk management approach.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This Standard covers methods in risk assessment for safety and environmental risk. The Standard is generic, and is an ideal candidate for review within the BARM process. While the Standard covers risk management for accidental spills, it is not specific to them. In summary the Standard details an approach for reducing the risk of a loss of containment and other incidents likely to have a major impact on safety and the environment. The Standard does not specifically contain information on BAT, although it could be used as a reference for particular BAT that may be discussed in the BREF.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available, charged for by NORSOK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included. Specific management and mitigation measures provided, although not specifically BAT measures. Geographically limited to Norway. Standard is considered a credible reference and a candidate for review by the BARM process. In terms of BAT specifically for large accidental spills, this document contains elements but is not a comprehensive reference. It could be directly referred to by the BREF as one of several key BARM documents, but Performance Standards and BAT would still need to be summarised and reported in the BREF for this specific issue. <u>Use in BREF: refer to directly</u>

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care Section 6.6 (risk of acute discharge) Section 6.13 (subsea systems) Section 6.15 (tanks) Section 8 (spill prevention) Appendix C11 (acute discharge and barriers) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Standard could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standard addresses the environmental issue. Covers the relevant media. Covers a range of measures for prevention, detection , control, mitigation and emergency response. Standard addresses routine and accidental events.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard considered sufficiently current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standard does not include Performance Standards. Standard addresses specific techniques, but these are not addressed in detail. It is also not clear whether the list of techniques provided is complete. It is considered that other techniques likely applicable are not listed here. Limitations to the Standard are geographical (designed for Norway). The BREF could refer directly to this document, but it would need to be one of several references, with additional supplemental information contained in the BREF itself. Yet to be determined whether techniques exist that fall outside the Guidance – in other words should Standard be supplemented in the BREF with additional information, either new, or referenced from other sources? Use in BREF: Refer to directly Verify whether Standard is sufficiently complete in terms of the issue.

Guidance Identified	
• Title, link, etc	NORSOK D-001 Drilling Facilities Section 6.18.2 (Hydraulic power) Section 6.19.2 (Drilling support module) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/d-drilling/d-0012/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Standard could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This document is a Standard for offshore drilling systems. It specifies requirements for these systems. A correctly designed system will result in a reduced risk of a loss of containment in the first place, and hence the Standard demonstrates the rigour which is expected. It can be considered as guidance on these aspects – specifically Prevention category for hydrocarbon releases. The Standard is not intended to offer guidance on best available techniques (BAT). Nor is it all encompassing regarding hydrocarbon releases, it only deals with one element of the issue. The Standard is not written from the point of view of managing environmental impacts, or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by NORSOK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered sufficiently current, but not entirely relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Standard, like any other Standard, demonstrates that norms exist for the engineering of a number of offshore key systems such as drilling. It therefore covers the requirement that such systems must be correctly designed in the first place. Although it fulfils this aspect, the Standard does not constitute either a Performance Standard or BAT reference. It is not environmental Guidance, nor do they have this as its remit. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	NORSOK H-003 HVAC, section 5.4.6 (helideck) http://www.standard.no/en/sectors/energi-og-klima/Petroleum/NORSOK-Standard-Categories/H-HVAC/H-0031/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Standard could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This document is a Standard for HVAC systems. The referenced section 5.4.6 considers the requirement for facility drainage system to accept firewater in the event of a helideck fire being fought. It is questionable whether this also refers to the system being able to accept helifuel in the event of a leak. In any case this represents a single potential design measure for what would amount to a Tier 1 (small) hydrocarbon spill. It could be considered design guidance within the Prevention category. The Standard is not intended to offer guidance on best available techniques (BAT). Nor is it all encompassing regarding hydrocarbon releases, it only deals with one element of the issue. The Standard is not written from the point of view of managing environmental impacts, or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by NORSOK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered sufficiently current, but not entirely relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Standard provides a single piece of guidance for one element of design. Like other design Standards, it therefore covers the requirement that such systems must be correctly designed in the first place. Although it fulfils this aspect, the Standard does not constitute either a Performance Standard or BAT reference. It is not environmental Guidance, nor do they have this as its remit. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	NORSOK P-002 Process System Design, section 30.3 (diesel oil), https://www.standard.no/en/nyheter/nyhetsarkiv/petroleum/2014/p-002-process-system-design-edition-1-august-2014/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Standard could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This document is a Standard for Process systems. The referenced section considers the requirement for facility diesel oil storage. In any case this represents a single potential design measure for what would amount to a Tier 1 (small) hydrocarbon spill. It could be considered design guidance within the Prevention category. The Standard is not intended to offer guidance on best available techniques (BAT). Nor is it all encompassing regarding hydrocarbon releases, it only deals with one element of the issue. The Standard is not written from the point of view of managing environmental impacts, or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by NORSOK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered sufficiently current, but not entirely relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Standard provides a single piece of guidance for one element of design. Like other design Standards, it therefore covers the requirement that such systems must be correctly designed in the first place. Although it fulfils this aspect, the Standard does not constitute either a Performance Standard or BAT reference. It is not environmental guidance, nor do they have this as its remit. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IPIECA good practice guideline: Oil spill risk assessment and response planning for offshore installations http://www.ipieca.org/publication/oil-spill-risk-assessment-and-response-planning-offshore-installations *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	IPIECA Guidance, could be assumed as worldwide and hence EU.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This Guidance covers methods in risk assessment for safety and environmental risk. The Guidance is generic, and is an ideal candidate for review within the BARM process. The Guidance covers risk management for accidental spills. In summary the Guidance details an approach for reducing the risk of a loss of containment and other incidents likely to have a major impact on safety and the environment. The Guidance sets out some practical details on how to manage spills at the level of Emergency Response The Standard does not specifically contain information on BAT, although it could be used as a reference for particular BAT that may be discussed in the BREF.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered current and relevant. 2013.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included. Specific management and mitigation measures provided, although not specifically BAT measures. Standard is considered a credible reference and a candidate for review by the BARM process. In terms of BAT specifically for large accidental spills, this document contains elements that need to be reviewed in further detail. It could be directly referred to by the BREF as one of several key BARM documents, but Performance Standards and BAT would still need to be summarised and reported in the BREF for this specific issue. Use in BREF: refer to directly
Guidance Identified	

• Title, link, etc	DEVELOPMENT OF METHODOLOGY FOR CALCULATIONS OF ENVIRONMENTAL RISK FOR THE MARGINAL ICE ZONE - A JOINT PROJECT BETWEEN AKVAPLAN-NIVA AND DNV GL http://www.norskoljeoggass.no/no/Publikasjoner/Mlljorapporter/Environmental-risk-methodology-MIRA/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies to Norway. Largely not applicable in a large proportion of EU areas as it is specific to Arctic waters.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The document is really a single study of the extent of environmental impacts from generic spills in Arctic waters. While it does address the environmental issue, it is not guidance.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available via Norsk Oil and Gas, no charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document considered current but not entirely relevant as guidance. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included. No specific management measures or BAT. Geographically limited to Norway, and more specifically to Arctic waters. Independence questionable as study was commissioned by oil and gas operators, all of whom have vested interests in this region. Does not constitute environmental guidance. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	NOROG guideline for estimation of blowout rates (in Norwegian only) http://www.norskoljeoggass.no/no/Publikasjoner/Mlljorapporter/Retningslinjer-for-beregning-av-utblasningsrater/ The document is in Norwegian only. Assumptions regarding the content have been made based on the title. *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies to Norway. Possibly applicable in EU areas but would need to review content and determine level of regional specificity.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The document is assumed to provide technical information for estimating the size of well blowouts and hence, resulting spills. If correct, this could be useful as one element of guidance specifically relating to the Control/Mitigation/Emergency Response aspect only. It is expected that the document does not address the environmental impact of spills directly. Well blowouts are an accidental event and hence the document is assumed to address accidental events.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available via Norsk Oil and Gas, no charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document assumed to still be current and relevant for the elements of the issue it addresses. 2007.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards are assumed included. No specific management measures or BAT are assumed included. Geographically limited to Norway. Guidance could be useful as a reference for the aspects of management measures relating to spills once they occur. Could be useful as part of the risk management process. However, document is clearly very specific. As it is in Norwegian it would need to be translated. Not considered suitable as a substitute for any information that would be contained in the BREF. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guideline for environmental based oil spill contingency assessment. Veiledning for miljørettede beredskapsanalyser (in Norwegian only). http://www.norskoljeoggass.no/no/Publikasjoner/Mlljorapporter/Veiledning-for-miljorettede-beredskapsanalyser1/ The document is in Norwegian only. Assumptions regarding the content have been made based on the title. *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies to Norway. Possibly applicable in EU areas but would need to review content and determine level of regional specificity.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The document is assumed to provide technical information for estimating the size of spills and the most effective way to control/mitigate/respond to them. If correct, this could be useful as one element of guidance specifically relating to the Control/Mitigation/Emergency Response aspect only. It is expected that the document does not address the environmental impact of spills directly. Spills are an accidental event and hence the document is assumed to address accidental events.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publically available via Norsk Oil and Gas, no charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document assumed to still be current and relevant for the elements of the issue it addresses. 2007.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards are assumed included. No specific management measures or BAT are assumed included. Geographically limited to Norway. Guidance could be useful as a reference for the aspects of management measures relating to spills. Could be useful as part of the risk management process. However, document is clearly very specific. As it is in Norwegian it would need to be translated. Not considered suitable as a substitute for any information that would be contained in the BREF. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	DNVGL-RP-G104 Identification and management of environmental barriers. https://www.dnvgl.com/oilgas/offshore-safety-directive/recommended-practice-dnvgl-rp-g104.html *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies to areas covered by the Offshore Directive, ie. EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This Guidance covers methods for the identification and management of environmental barriers, those systems termed as Safety Critical Elements /Environmental Critical Elements (SECEs) in the Offshore Directive. The fact that this document was produced at all is evidence of the fact that the Offshore Directive itself does not contain guidance or techniques in this area - precisely the reason for this supporting text. The Guidance is generic in terms of identification and risk management, and is an ideal candidate for review within the BARM process, for this aspect. While the Guidance implicitly covers risk management for accidental spills, it is not specific to them. It describes all barriers to an environmental incident. In summary the Guidance details an approach for reducing the risk of a loss of containment and other incidents likely to have a major impact on safety and the environment, through implementation of SCEs/ECEs. The Standard does not specifically contain information on BAT, although it could be used as a reference for particular BAT that may be discussed in the BREF.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, via DNVGL.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/	No Performance Standards included. Specific management and mitigation measures provided, although not specifically BAT measures. Geographically limited to Norway. Standard is considered a credible reference and a candidate for review by the BARM process.

technique concerned?	In terms of BAT specifically for large accidental spills, this document contains elements but is not a comprehensive reference. It could be directly referred to by the BREF as one of several key BARM documents, but Performance Standards and BAT would still need to be summarised and reported in the BREF for this specific issue. Use in BREF: refer to directly

Guidance Identified	
• Title, link, etc	DNV-RP-F302 Selection and Use of Subsea Leak Detection Systems. Sections 4, 5, 6 and 7. http://rules.dnvgl.com/docs/pdf/dnv/codes/docs/2010-04/rp-f302.pdf *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	*The objective of this best practice is to summarize industry experiences and knowledge with relevance to selection and use of detectors for a subsea leak detection system. The intent is that this document can be used as a technical and practical guideline and reference for operators, suppliers, regulators and decision makers in the field of subsea leak detection. The referencing of this document will not substitute the development of a field specific leak detection strategy, but can rather be an element in one.* The document is relevant to the environmental issue insofar as it deals with the Detection category for subsea releases of hydrocarbons. This is one level of management, for one type of release that could occur. The document provides guidance on a number of best available techniques (BAT).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, via DNVGL.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Sufficiently current, and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are not included. Specific techniques are included, making it a possible BAT reference. However it should be remembered that this document provides guidance for one offshore system element only, importantly relating to leak detection. It would therefore need to be referenced by the BREF in conjunction with other guidance to cover other system elements. The BREF would still require a section on this issue since it is not clear that the recommended practice document captures all possible BAT. It is not environmental guidance, nor do they have this as its remit. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	100 – Norwegian Oil and Gas Recommended guidelines for assessing remote measurement solutions http://www.norskoljeoggass.no/en/Publica/Guidelines/Enviornment/100-Recommended-guidelines-for-assessing-remote-measurement-solutions-26062013/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. These guidelines are recommended by the Norwegian Oil and Gas technical network for environmental risk and oil spill preparedness, and by the Norwegian Oil and Gas committee for the environment. It
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document is specifically concerned with fulfilling a Norwegian regulatory requirement of operators to shall establish a remote measuring system that provides sufficient information to ensure that acute pollution from the facility is quickly discovered and mapped so that the amount and spread can be determined. The document is relevant to the environmental issue insofar as it deals with the Detection category for releases of hydrocarbons, more specifically remote measurement. This is one level of management, potentially applicable to all release types. The document provides guidance on a number of best available techniques (BAT).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, via Norwegian Oil and Gas.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Sufficiently current, and relevant. 2004. Any techniques described should be scrutinised and compared with regard to latest technology.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document contains a Performance Standard for this specific element. Document contains specific techniques, making it a possible BAT reference. However it should be remembered that this document provides guidance for one offshore system element only, relating to remote measurement. Given that the document is for Norway only, however, it could not be a substitute reference for information contained in the BREF. It would therefore need to be referenced by the BREF in conjunction with other guidance to cover other system elements. The principles could be used to develop Performance Standards and BAT within the BREF. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	DNV Offshore Standard DNV-OS-E201 Processing systems. Ch2-sec2G – 102 (p26) (drainage system), Section 12 – 109-111-112 (p57) (crude offloading). http://rules.dnvgl.com/docs/pdf/DNV/codes/docs/2015-07/OS-E201.pdf) *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Standard could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This document is an Offshore Standard for processing systems. It specifies requirements for these systems. A correctly designed system will result in a reduced risk of a loss of containment in the first place, and hence the Standard demonstrates the rigour which is expected. It can be considered as guidance on these aspects – specifically Prevention/Detection category for hydrocarbon releases. The Standard offers guidance on best practice in design. The Standard is not written from the point of view of managing environmental impacts, or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available at no charge, from DNVGL.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered sufficiently current, and relevant for the environmental issue in terms of offshore design. 2015
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Standard, like any other Standard, demonstrates that norms exist for the engineering of a number of offshore key systems such as drainage and offloading. It therefore covers the requirement that such systems must be correctly designed in the first place. Although it fulfils this aspect, the Standard does not constitute a Performance Standard or BAT reference. It is not environmental Guidance, nor do they have this as its remit. The document does contain specific techniques which could be referenced by the BREF for specific aspects. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	DNV Rules for Classification of Ships, Environmental Class for newbuildings Section C300 (Oil bunkering), Section D100 (Tank protection). http://rules.dnvgl.com/docs/pdf/DNV/rulesship/2015-07/ts612.pdf *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Standard could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This vessel Class document specifies requirements for marine systems. A correctly designed system will result in a reduced risk of a loss of containment in the first place, and hence the Class demonstrates the rigour which is expected. It can be considered as guidance on these aspects – specifically Prevention/Detection category for hydrocarbon releases. The Class document offers guidance on best practice in design. The document is not written from the point of view of managing environmental impacts, or how to minimise them. This, however, would be one of the results if the document requirements are implemented.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available at no charge, from DNVGL.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered sufficiently current, and relevant for the environmental issue in terms of offshore design for marine Class. 2015
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Class document demonstrates that requirements exist for the engineering of a number of marine systems such as drainage and offloading. As a Classification Society, DNV would regularly ensure that vessels conform to these requirements. It therefore covers the requirement that such systems must be correctly designed in the first place. The referenced sections could be said to constitute Performance Standards for their specific area of concern. The document also contains specific techniques which could be referenced by the BREF for specific aspects. The environmental issue is, however, only addressed in part by this document, for the areas concerning bunkering and tank protection. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	DNV Offshore Standard DNV-OS-F101 Submarine Pipeline Systems, App.F (Requirements for Shore Approach and Onshore Sections), Table F https://rules.dnvgl.com/docs/pdf/DNV/codes/docs/2012-08/Os-F101.pdf *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Standard ce could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	*This standard gives criteria and recommendations on concept development, design, construction, operation and abandonment of Submarine Pipeline Systems.* This document is an Standard for subsea pipeline systems. It specifies requirements for these systems. A correctly designed system will result in a reduced risk of a loss of containment in the first place, and hence the Standard demonstrates the rigour which is expected. It can be considered as guidance on these aspects – specifically Prevention/Detection category for hydrocarbon releases. The Standard offers guidance on best practice in design. The Standard is not written from the point of view of managing environmental impacts, or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, via DNVGL.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Sufficiently current, and relevant for the engineering design aspects it covers. 2012.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are included, these should be reviewed and potentially included in the BREF for this specific aspect. Specific techniques are included, making it a possible BAT reference. However it should be remembered that this document provides guidance for one offshore system element only, importantly relating to pipeline design. It would therefore need to be referenced by the BREF in conjunction with other guidance to cover other system elements. The BREF would still require a section on this issue since it is not clear that the recommended practice document captures all possible BAT. It is not environmental guidance, nor do they have this as its remit. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	HELCOM Response to accidents at sea involving spills of hazardous substances and loss of packaged dangerous goods - Volume 2 http://www.helcom.fi/action-areas/response-to-spills/manuals-and-guidelines/ *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Marine Environment of the Baltic Sea Area. Some of the principles contained in the Standard could be applied Europe wide. Others will be specific to the Baltic Sea area, and the particular oceanographic and meteorological conditions of that area, e.g. for spill fate.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	*The aim of this Manual is to provide information to support proper decisions when responding to accidents in the marine environment involving chemicals and dangerous goods.* The manual can be considered as guidance in the Mitigation/Emergency Response category for hydrocarbon discharges to sea.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available at no charge, via HELCOM.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Not particularly current - 2002. Many of the techniques described wil still apply. It is also envisaged new technologies will have emerged that are not covered. Relevant for the Mitigation/Emergency Response category.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are not included. Specific techniques are included, making it a possible BAT reference. However, the age of the guidance is questionable regarding latest techniques and should be reviewed closely. This document provides guidance for one category relating to offshore accidental discharges, that of mitigation and emergency response. It contains no information in the prevention/detection/control category and hence cannot be considered a standalone reference. The document therefore needs to be referenced by the BREF in conjunction with other guidance to cover other system elements. Geographically limited to Baltic Sea areas – see comment above. The BREF would still require a section on this issue since it is not clear that the recommended practice document captures all possible BAT. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	HELCOM Manual on Co-operation in Response to Marine Pollution within the framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki Convention) Volume 3 http://www.helcom.fi/action-areas/response-to-spills/manuals-and-guidelines/ *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Marine Environment of the Baltic Sea Area. Not applicable EU wide as this manual refers to international cooperation between states in this area. Some of the principles may be adaptable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	*This Volume III of the HELCOM Response Manual is part of the Manual referred to in Helsinki Convention Annex VII Reg. 11 and covers international cooperation on combating spillages of oil and other harmful substances on the shore.* The manual can be considered as guidance in the Mitigation/Emergency Response category for hydrocarbon discharges to sea – if and when these spillages reach the shoreline.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available at no charge, via HELCOM.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Sufficiently current 2013. Relevant for the Mitigation/Emergency Response category.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Key focus of this document is around spill response logistics at the shore line, and how states cooperate on that. Techniques are of a planning and communication nature, rather than a technical nature. These are a component of addressing the scenario. Specific “techniques” are not included. Although the whole piece around an international collaboration mechanism could be cited in the BREF as a technique. This document provides guidance for one category relating to offshore accidental discharges, that of mitigation and emergency response. It contains no information in the prevention/detection/control category and hence cannot be considered a standalone reference. The document therefore needs to be referenced by the BREF in conjunction with other guidance to cover other system elements. Geographically limited to Baltic Sea areas – see comment above. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	EU Directive 2013/30 (Offshore Directive) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:178:0066:0106:en:PDF As implemented by the The Offshore Installations (Offshore Safety Directive)(Safety Case etc.) Regulations 2015 http://www.hse.gov.uk/offshore/assets/pdfs/safety-case-regs.pdf *Provided by: Denmark / IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Offshore Directive applies to EU member states. Intended EU wide. Safety Case 2015 applies to UK waters and implements the Offshore Directive.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Part of the remit of the Offshore Directive is to address the issue of environmental incidents. The Directive does not, and is not supposed to, provide guidance on management measures implemented to minimise the likelihood or impact of such incidents. The Offshore Directive 2013 introduces, for the first time, the notion of Environmental Critical Elements: parts of an installation that are critical for ensuring the prevention of a major environmental incident, or that would result in an environmental incident upon failure. It does not set out Guidance for identifying and managing these, however. Similarly, requirements for Reporting and Environmental Management Systems are included, but no specific Guidance provided on how these should be undertaken. In a similar manner, the UK Safety Case Regulations 2015 state requirements but do not provide Guidance on BAT or BARM. Reference to either of the above regulatory instruments is therefore not considered credible for the purposes of addressing this issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	EU Directive 2015/30 and Offshore Directive 2013 are only relevant insofar as it they are overarching instruments. Not relevant, however, in the case of addressing this environmental issue. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included, and not intended to provide management and mitigation measures. Not considered a credible reference for this issue. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Commission decision C 18/07 2012 on setting up the EU Offshore Authorities Group http://euoag.jrc.ec.europa.eu/?q=system/files/public/page/euoagdecision.pdf *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies to EU member states. Intended EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Its objectives include the prioritisation and supervision of the development of guidelines on best practices, sharing of best practices - both industry and regulatory - and rapid exchange of information on incidents. It facilitates exchange of information on the application of national and Union legislation and it promotes application of best practices and high safety standards in offshore oil and gas operations worldwide. This is not Guidance, it concerns setting up of the group.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2012. Not relevant as guidance.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not guidance. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IADC HSE Case Guidelines for MODUs http://www.iadc.org/reader/modu-hse-guidelines/index.html *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. May be applied to EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The HSE Case demonstrates how a drilling contractors organisation applies a systematic risk management approach Heavy focus on safety as opposed to environment. Could be considered for review as part of BARM within the BREF. Not specific to this issue. Applicable in the Prevention category for this issue
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015. Relevant to this issue but not specifically.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance contains some information on techniques. Could be used as part of BARM review, not specific to this issue. Not specific to environmental Use in BREF: Refer to directly Use in review of BARM as example of a risk management system

Guidance Identified	
• Title, link, etc	The guideline for health and safety cases (Danish Edition). http://engelsk.arbejdstilsynet.dk/en/offshore/health-safety-case.aspx *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Denmark. May be applied to EU areas. Note that the document is Danish.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The HSE Case demonstrates how offshore operators must apply a systematic risk management approach Heavy focus on safety as opposed to environment. Could be considered for review as part of BARM within the BREF. Not specific to this issue. Guidance provides Minimum Requirements for Safety and Health reports: • A detailed description of the offshore installation and its operating conditions. • A detailed description of the management system for safety and health. • An identification of the risks of major hazards and adverse impact on the working environment by staying at the facility. • An assessment of risks and evidence that these risks are reduced as much as is reasonably practicable (ALARP). • Documentation of that evacuation to a safe place can take place in an efficient and controlled manner in critical situations Applicable in the Prevention category for this issue
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015. Relevant to this issue but not specifically.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance contains some information on techniques. Could be used as part of BARM review, not specific to this issue. Not specific to environmental Use in BREF: Refer to directly Use in review of BARM as example of a risk management system

Guidance Identified	
• Title, link, etc	Safety Permit Application Guidelines (Ireland) http://www.cer.ie/docs/000028/CER14142.PDF Safety Case Guidelines (Ireland) http://www.cer.ie/docs/000290/CER14145.PDF ALARP Guidance (Ireland) http://www.cer.ie/docs/000662/CER13282%20ALARP%20Guidance%20Document%20%281%29.pdf *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Ireland. May be applied to EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Safety Case demonstrates how offshore operators must apply a systematic risk management approach Heavy focus on safety as opposed to environment. Could be considered for review as part of BARM within the BREF. Similar focus to UK Safety Case requirements, and those cited for Danish sector. Applicable in the Prevention category for this issue
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2013/14. Relevant to this issue but not specifically.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance contains some information on techniques. Could be used as part of BARM review, not specific to this issue. Not specific to environmental Use in BREF: Refer to directly Use in review of BARM as example of a risk management system

Guidance Identified	
• Title, link, etc	ISO 14001 Certification http://www.iso.org/iso/catalogue_detail?csnumber=60857 *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	ISO14001 is a generic environmental management system standard. Covers generally environmental management. Not specific to this issue. Does not specifically address events. Could be considered for review as part of BARM within the BREF. Applicable in the Prevention category for this issue
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available, charged for access by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015. Relevant to this issue but not specifically.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not contain information on techniques or BAT. Could be used as part of BARM review, not specific to this issue. Use in BREF: Refer to directly Use in review of BARM as example of a risk management system

Guidance Identified	
• Title, link, etc	IOGP 476 training standards (e.g. as applied by WellSharp). http://www.ogp.org.uk/pubs/476.pdf *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Covers well control training, which is a key barrier against a loss of well control that may arise from an operator perspective. This document specifically deals with enhancements to training programmes, it does not go into specifics regarding operator requirements. Covers the relevant media, albeit indirectly. Driller competence is a significant barrier to incidents involving wells. Applicable in the Prevention/Detection/Control categories for this issue
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, no charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2012. Relevant to this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not contain information on techniques or BAT. Useful background material for the issue of operator competence, but does not close the gap regarding specific techniques that operators must use in order to ensure well control barriers are maintained. Specific additional guidance is sought on this aspect. Use in BREF: Background material Further guidance required on actual well control techniques

Guidance Identified	
• Title, link, etc	API S 53 Blowout Prevention Equipment Systems for Drilling Wells http://mycommittees.api.org/standards/techinterp/epequip/Shared%20Documents/53ti.pdf API 16D Specification for Control Systems for Drilling Well Control Equipment and Control Systems for Diverter Equipment http://www.api.org/~/media/Files/Publications/Addenda-and-Errata/purchasing/16D_PGH_2009.pdf?la=en API RP 64 Recommended Practice for Diverter Systems Equipment and Operations https://global.ihs.com/doc_detail.cfm?document_name=API%20RP%2064 *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Covers engineering specifications for the Blowout Preventer, which is a key barrier against a loss of well control in the event of a blowout. Standards ensure engineering integrity of this equipment. Covers the relevant media. Blow Out Prevention equipment is designed and maintained in accordance with API S 53, API 16D and API RP 64. This section should apply solely to operational deployment (e.g. pressure testing casing or cement plugs) not blow out prevention. (Preliminary statement 5 applies) Further requirements by the original equipment manufacturer are imposed for the assurance of fit-for-purpose equipment. Blowout preventers represent a Control/Mitigation barrier.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available, charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	API S 53 Current 2012. Relevant to this issue. API 16D Current 2004. Relevant to this issue. API RP 64 Current 2001. Relevant to this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not contain information on techniques or BAT. Useful material for the engineering behind a barrier which is fundamental in the event of a blowout. Could not replace a section in the BREF, as these documents deal only with one barrier related to Control/Mitigation. BREF could reference these documents, however, with respect to engineering requirements. Use in BREF: refer to directly

Guidance Identified	
• Title, link, etc	IADC North Sea Chapter - Oil Pollution Emergency Plan Template for Non-Production Mobile Offshore Drilling Units, issued June 2015 http://www.iadc.org/north-sea-chapter/useful-links/ *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North Sea. Not applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	To ensure consistency of approach it is recommended for use by IADC NSC members when producing their Non-Production Installation Oil Pollution Emergency Plan (OPEP) for individual mobile drilling units. The template contains information and operational instructions required by regulations and associated guidance laid out by the Competent Authority ("CA"); and has been based on the major accident risk assessment undertaken in preparation of the UK Safety Case. Having an emergency response plan in place covers the Emergency Response component of this issue. More broadly, the guidance constitutes risk management for the prevention of oil spills.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015 and relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not contain information on techniques or BAT. Guidance is a template for how to produce an oil pollution emergency plan. Could not replace a section in the BREF, as these documents deal only with one barrier related to Emergency Response. Other documents cited in this list provide a more complete overview of the management of oil spill emergency response. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	International Safety Guide for Oil Tankers and Terminals by International Chamber of Shipping, OCIMF http://www.idgca.org/doc/app2_290115.pdf *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This guide makes recommendations for tanker and terminal personnel on the safe carriage and handling of crude oil and petroleum products on tankers and at terminals. Contains information on handling of cargo and ballast including loading and discharge hoses, etc. Covers various aspects of the issue including prevention, detection, control, mitigation and emergency response.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Somewhat dated, would need to be reviewed and scrutinised. 1996. Relevant in terms of particular techniques.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance contains information on techniques, and potentially BAT, although this would need to be reviewed based on document age. Relevance is to tankers and terminals, this will have some crossover to offshore facilities, but it should be noted that the document was not specifically produced for the offshore hydrocarbons industry. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	ISO STANDARDS – DRILLING AND WELLS - Equipment, Systems and Procedures for Prevention/Detection ISO/TR 12489:2013 Reliability modelling and calculation of safety systems ISO 13500:2008 Drilling fluid materials -- Specifications and tests ISO 14224:2006 Collection and exchange of reliability and maintenance data for equipment ISO/TS 16530-2:2014 Part 2: Well integrity for the operational phase ISO 13533:2001 Drilling and production equipment -- Drill-through equipment ISO 13678:2010 Evaluation and testing of thread compounds for use with casing, tubing, line pipe and drill stem elements ISO 15463:2003 Field inspection of new casing, tubing and plain-end drill pipe ISO 20312 :2011 Design and operating limits of drill strings with aluminium alloy components ISO 27647 :2014 Aluminium alloy drill pipe thread connection gauging ISO 17348 : Material selection for high content CO2 environment for casings, tubings, and downhole equipment ISO 15156 : Materials for use in H2S containing environments in oil and gas production Part 1 General principle for selection of cracking-resistant material ISO 13085: 2014 Aluminium alloy pipe for use as tubing for wells ISO 15546 ; 2011 Aluminium Alloy drill pipes ISO – 16070 : 2005 Lock mandrels and landing nipples ISO 17078 1 : 2010 Part 1 Side pocket Mandrels ISO 17824 : 2009 Sand control screens ISO 10417: 2004 Design, Installation and Operation of Subsurface safety valves systems ISO 10432: 2004 Downhole equipment Subsurface safety valve equipment ISO 28781 : 2010 Subsurface barrier and related equipment ISO 10424 :2009 Drilling and production equipment. Wellhead and Christmas trees equipment ISO 13533: 2001 Drilling and production equipment -- Drill-through equipment ISO 10426-1:2009 Petroleum and natural gas industries -- Cements and materials for well cementing -- Part 1: Specifications 10426: 2003 - Part 2 Testing of well cement 10426: 2003 – Part 3 Testing of deep water well cement formulation 10426: 2004 – Part 4 Preparation and testing of foamed cement slurries at atmosphere pressure 10426: 2004 – Part 5 Test methods for determination of shrinkage and expansion of well cement formulations at atmospheric pressure 10426: 2008 – Part 6 Methods for determining the static gel strength of cement formulation ISO 10427 1: 2001 - Part 1 – Casing bow spring centralizers ISO 10427 2: 2004 - Part 2 – Centralizers placement and stop-collar testing ISO 10427 3: 2003 - Part 3 – Performance testing of cementing float equipment ISO 13625 : 2002 Marine Drilling riser couplings ISO 13626 : 2003 Drilling and well service servicing structure ISO 13679 : 2002 Procedures for testing casing and tubing connections ISO 15463 : 2003 – Field inspection of new casing, tubing and plain end drill pipe ISO 24817 :2015 – Composite repairs for pipework –qualification and design, installation testing and inspection ISO 28781 : 2010 Subsurface barrier valves and related equipment *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU	Worldwide. Applicable to other EU areas.

areas? • Is it agreed or only in a developmental phase?	
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These documents are design and test Standards used by engineers designing and testing equipment and systems relating to drilling and wells. The Standards are not specifically related to the environmental issue, but may be considered as demonstrating integrity of the engineering of key technical barriers.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Age of Standards varies but most can be considered current and relevant for the systems they address.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Some of the guidance includes Performance Standards and techniques on particular engineering aspects. All fall into the category of Prevention/Detection systems as they relate to ensuring that the likelihood of failure of underlying engineering is minimised, thereby preventing an environmental incident in the first place. They are too specific to particular aspects to replace guidance that may be presented in the BREF. The BREF could, however, refer to individual Standards directly and/or use the Standards as background material, depending on which particular technique was being discussed. A more in depth review of each of these Standards is required in order to determine the extent to which particular techniques could be referenced in this way. It should be noted that such standards are for technical assurance of engineering as opposed to environmental protection, which is a related but nevertheless secondary objective. Many Standards are not publicly available. Use in BREF: Refer to directly/Background material Standards require more in depth review to determine relevance

Guidance Identified	
• Title, link, etc	ISO STANDARDS – PRODUCTION INSTALLATIONS AND SUBSEA PIPELINES - Equipment, Systems and Procedures for Prevention/Detection ISO 10418 : 2003 – Offshore production installation Analysis design, installation and testing of basic surface process safety systems ISO 14723 :2009 – Pipeline transportation systems – subsea pipeline valves ISO 10418 : 2003 – Offshore production installation ISO 13703 : 2002 - Design and Installation of piping systems on offshore production platforms ISO 21457 :2010 - Material selection and corrosion control for oil and gas systems ISO 23251 :2008 - Pressure relieving and de pressuring systems ISO 15156 2: 2015 – H2S Cracking- resistant carbon and low-alloy steels, and the use of cast irons ISO 15156 3: 2015 – H2S Cracking-Resistant CRAs (corrosion resistant alloys) and other alloys. ISO 17349 : Guidelines for offshore platforms handling streams with high content of CO2 at high pressure ISO 18796 : Internal coating and lining of carbon steel process vessels ISO 18797 1 : External corrosion protection of risers by coatings and linings Part 1 Elastomeric coating systems ISO 21457 :2010 - Materials selection and corrosion for oil and gas production systems ISO 23936 Non-metallic materials in contact with media related to oil and gas production, Part 1: Thermoplastics, Part 2 Elastomers ISO 10423: 2009 - Specifications for Wellhead and Christmas Tree Equipment ISO 10424 :2009 - Drilling and production equipment. Wellhead and Christmas trees equipment ISO 13628 1 : 2005 - Part 1: Part 1 General requirements and recommendations ISO 13628 4 : 2010 - Part 4: Subsea wellhead and tree equipment ISO 13628 6 : 2006 - Part 6 : Subsea production control systems ISO 13628 7 : 2005 - Part 7: Completion/ workover riser systems ISO 13628 10 : 2005 - Part 10: Specification for bonded flexible pipes ISO 13628 11 : 2008 - Part 11: Flexible pipe systems for subsea and marine applications ISO 15547 1: 2005 Part 1 Plate type heat exhangers – Plate and frame heat exchangers ISO 15547 2: 2005 Part 2 Plate type heat exhangers – Brazed aluminium Plate fin heat exchangers ISO 16812 :2007 Shell and tubes heat exchangers *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant	These documents are design and test Standards used by engineers designing and testing equipment and systems relating to production installations and pipelines. The Standards are not specifically related to the environmental issue, but may be considered as demonstrating integrity of the engineering of key technical barriers.

aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Age of Standards varies but most can be considered current and relevant for the systems they address.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Some of the guidance includes Performance Standards and techniques on particular engineering aspects. All fall into the category of Prevention/Detection systems as they relate to ensuring that the likelihood of failure of underlying engineering is minimised, thereby preventing an environmental incident in the first place. They are too specific to particular aspects to replace guidance that may be presented in the BREF. The BREF could, however, refer to individual Standards directly and/or use the Standards as background material, depending on which particular technique was being discussed. A more in depth review of each of these Standards is required in order to determine the extent to which particular techniques could be referenced in this way. It should be noted that such standards are for technical assurance of engineering as opposed to environmental protection, which is a related but nevertheless secondary objective. Many Standards are not publicly available. Use in BREF: Refer to directly/Background material Standards require more in depth review to determine relevance

Guidance Identified	
• Title, link, etc	API STANDARDS – DRILLING AND WELLS Equipment, Systems and Procedures for Prevention/Detection API Spec 16A Specification for Drill Through Equipment API RP 96 Deepwater Well Design and Construction API RP 14C Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms API STD 65-2 Isolating Potential Flow Zones During Well Construction API Spec 16F Specifications for Marine Drilling Riser Equipment API RP 7G Recommended Practice for Drill Stem Design and Operating Limits API Spec 4F Specifications for Drilling and Well Servicing Structures API RP 4G Operation, Inspection, Maintenance, and Repair of Drilling and Well Servicing Structures API TR 10TR1 Cement Sheath Evaluation API TR 10TR2 Shrinkage and Expansion in Oilwell Cements API RP 96 RP 96 Deepwater Well Design and Construction API TR 1PER15K-1 Protocol for Verification and Validation of High-Pressure High-Temperature Equipment API RP 90 Annular Casing Pressure Management for Offshore Wells API Spec 17F Standard for Subsea Production Control Systems API Spec 7K Drilling and Well Servicing Equipment API 16Q Recommended Practice for Design, Selection, Operation of Marine drilling riser systems API Spec 16R Specification for Marine Drilling Riser Couplings API RP16ST Coiled Tubing Well control Equipment systems API RP 7L Procedures for Inspection, Maintenance, Repair, and Remanufacture of Drilling Equipment API Spec 17K Specification for bonded flexible pipes API Spec 16K Specification for choke and kill lines API Spec 7K Specification for high pressure mud and cement hoses Equipment, Systems and Procedures for Control/Mitigation API STD 53 Blowout Prevention Equipment Systems for Drilling Wells API Spec 16C Specifications for Choke and Kill Systems API Spec 16D Specification for Control Systems for Drilling Well Control Equipment and Control Systems for Diverter Equipment API Spec 14A Specifications for Subsurface Safety Valve Equipment API RP 59 Recommended Practice for Well control operations *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These documents are design and test Standards used by engineers designing and testing equipment and systems relating to drilling and wells. The Standards are not specifically related to the environmental issue, but may be considered as demonstrating integrity of the engineering of key technical barriers.
Accessibility	

• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Age of Standards varies but most can be considered current and relevant for the systems they address.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Some of the guidance includes Performance Standards and techniques on particular engineering aspects. All fall into the category of Prevention/Detection/Control/Mitigation systems as they relate to ensuring that the likelihood of failure of underlying engineering is minimised, thereby preventing an environmental incident in the first place. They are too specific to particular aspects to replace guidance that may be presented in the BREF. The BREF could, however, refer to individual Standards directly and/or use the Standards as background material, depending on which particular technique was being discussed. A more in depth review of each of these Standards is required in order to determine the extent to which particular techniques could be referenced in this way. It should be noted that such standards are for technical assurance of engineering as opposed to environmental protection, which is a related but nevertheless secondary objective. Many Standards are not publicly available. Use in BREF: Refer to directly/Background material Standards require more in depth review to determine relevance

Guidance Identified	
• Title, link, etc	API STANDARDS – PRODUCTION INSTALLATIONS AND SUBSEA PIPEINES Equipment, Systems and Procedures for Prevention/Detection API RP 14C Analysis, Design, Installation, and Testing of Basic Surface Safety Systems for Offshore Production Platforms API RP 14J Recommended practice for Design and Hazards Analysis for Offshore Production Facilities API STD 2510 (R2011) Design and Construction of Liquefied Petroleum Gas Installations (LPG) API RP 2SIM Structural Integrity Management of Fixed Offshore Structures API Spec 12J Specification for Oil and Gas Separators API Spec 12K Specification for Indirect Type Oilfield Heaters API Spec 12L Specification for Vertical and Horizontal Emulsion Treaters API RP 49 Recommended Practice for Drilling and Well Service Operations Involving Hydrogen Sulfide API RP 14E Recommended Practice for Design and Installation of Offshore Production Platform Piping Systems API Std 6AV2 Installation, Maintenance and Repair of Surface Safety Valves and Underwater Safety Valves API Std 2RD Dynamic Risers for Floating Production Systems API RP 17B Recommended Practice for Flexible Pipe API RP 17O Recommended Practice for Subsea High Integrity Pressure Protection Systems (HIPPS) API Spec 6AV1 Specification for Validation of Wellhead Surface Safety Valves and Underwater Safety Valves for Offshore Service API Spec 6D Specification for Pipeline and Piping Valves API Spec 6DSS Specification for Subsea Pipeline Valves *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These documents are design and test Standards used by engineers designing and testing equipment and systems relating to production installations and pipelines. The Standards are not specifically related to the environmental issue, but may be considered as demonstrating integrity of the engineering of key technical barriers.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Age of Standards varies but most can be considered current and relevant for the systems they address.

Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Some of the guidance includes Performance Standards and techniques on particular engineering aspects. All fall into the category of Prevention/Detection systems as they relate to ensuring that the likelihood of failure of underlying engineering is minimised, thereby preventing an environmental incident in the first place. They are too specific to particular aspects to replace guidance that may be presented in the BREF. The BREF could, however, refer to individual Standards directly and/or use the Standards as background material, depending on which particular technique was being discussed. A more in depth review of each of these Standards is required in order to determine the extent to which particular techniques could be referenced in this way. It should be noted that such standards are for technical assurance of engineering as opposed to environmental protection, which is a related but nevertheless secondary objective. Many Standards are not publicly available. Use in BREF: Refer to directly/Background material Standards require more in depth review to determine relevance

Guidance Identified	
• Title, link, etc	API document: Achieving Common Sense Environmental Regulation: Oil and Gas Exploration & Production http://datasheets.globalspec.com/ps/5943/AmericanPetroleumInstitute/90B4782A-61C2-4428-B8E7-944AA46FFBBA *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Americas. It seems unlikely that this reference has EU applicability.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This is a general reference – a book – produced by the industry itself. Unable to access this reference.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Not current 1996. Not considered relevant insofar as this is not an independent reference, not specific to the environmental issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not considered relevant insofar as this is not an independent reference, and not specific to the environmental issue. Not considered guidance. This reference could not be accessed. If those citing the reference are able to provide information within the reference that constitutes either guidance or Performance Standards that would still be relevant, these can be reviewed and considered for inclusion as background material in the BREF. It appears unlikely that this reference could be a substitute for the BREF. Not considered directly applicable to EU. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	API document : Exploration and Production: Protecting the Environment http://datasheets.globalspec.com/ps/5943/AmericanPetroleumInstitute/44159333-73A2-4A34-BA21-B597BAEC5DD4 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Americas. It seems unlikely that this reference has EU applicability.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This is a Standard that it is thought deals with aspects of environmental impact assessment. Unable to access this reference. Title seems like deceptive rhetoric, appearing to imply that exploration and production activities are performed for the purposes of protecting the environment.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Not current 1997. Not considered relevant insofar as this is not an independent reference, not specific to the environmental issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not considered relevant insofar as this is not an independent reference, and not specific to the environmental issue. Not considered guidance. Not considered directly applicable to EU. This reference could not be accessed. If those citing the reference are able to provide information within the reference that constitutes either guidance or Performance Standards that would still be relevant, these can be reviewed and considered for inclusion as background material in the BREF. It appears unlikely that this reference could be a substitute for the BREF. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	ISO/TS 17969:2015 Guidelines on competency for personnel http://www.iso.org/iso/catalogue_detail.htm?csnumber=61167 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standard deals with personnel competency requirements. Trained personnel are an important barrier against operations that may lead to a loss of containment event. Hence this Standard is relevant. Does not specifically cover environmental issues but is an important risk management barrier.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015. Relevant specifically for the issue of personnel competence.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included in the document. No specific techniques included, but the Standard does discuss setting up and management a Competency Management System. BREF could refer to this document directly around the issue of personnel competence – this is part of the Prevention category for this issue. Performance Standards and techniques/BAT would need to be developed and expanded in the BREF itself. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	API RP 75 Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities https://global.ihs.com/doc_detail.cfm?document_name=API%20RP%2075 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Americas. Possible EU applicability.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This Standard covers methods in risk assessment for safety and environmental risk. The Standard is generic, and is an ideal candidate for review within the BARM process. While the Standard would in principle cover risk management for accidental spills, it is not specific to them. The Standard does not specifically contain information on BAT. The Standard is very light on detail considering it is supposed to be recommended practice.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available, charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered current and relevant. 2013.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included. Geographical applicability to be determined. In principle API Standards can be applied worldwide, although it is not certain that this would be true of this specific document. Standard is considered a credible reference and a candidate for review by the BARM process. In terms of BAT specifically for large accidental spills, this document contains none. It could be directly referred to by the BREF as one of several BARM documents, but Performance Standards and BAT would still need to be summarised and reported in the BREF for this specific issue. Use in BREF: refer to directly

Guidance Identified	
• Title, link, etc	API RP 14J Recommended Practice for Design and Hazards Analysis for Offshore Production Facilities https://global.ihs.com/doc_detail.cfm?document_name=API%20RP%2014J *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This document is a design Standard. It is used by engineers designing offshore facilities. As a whole, the Standard is applicable in terms of demonstrating the rigour with which designing the system is expected to be performed. It can be considered as Guidance on this aspect only. The Standard is not specific in any way to environmental impacts.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard is considered sufficiently current, relevant to one aspect fo the issue. 2013.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Standard, like any other design Standard, demonstrates that norms exist for the engineering of offshore systems. It therefore covers the basic requirement that systems must be correctly designed in the first place. Standard contains some information on techniques, and would need to be reviewed in more detail in order to elucidate these. Standard is relevant to part of the environmental issue, relating to management of hazards with respect to engineering integrity. Is specific to design, does not cover operations. It relates to Prevention/Detection/Control aspects of this issue. Standard could not be a substitute for information contained in the BREF, but could be referred to the BREF directly for particular techniques that may be of relevance to engineering integrity. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	API RP T-2 Recommended Practice for Qualification Programs for Offshore Production Personnel Who Work with Safety Devices http://www.api.org/~/media/files/oil-and-natural-gas/exploration/offshore/api-standards-for-safe-offshore-operations-brochure.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide, but developed for the Americas. Possibly applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Note that this refers to a Training Program. It is not guidance. Can be considered relevant in the same way as *ISO/TS 17969:2015 Guidelines on competency for personnel* Please refer to this review
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Not guidance.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Please refer to review for *ISO/TS 17969:2015 Guidelines on competency for personnel* Use in BREF: Background material

Guidance Identified	
• Title, link, etc	ISO 17776 : 2000 - Guidelines on tools and techniques for hazard identification and risk assessment http://www.iso.org/iso/catalogue_detail.htm?csnumber=31534 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This Standard covers methods in risk assessment for safety and environmental risk. The Standard is generic, and is an ideal candidate for review within the BARM process. While the Standard would in principle cover risk management for accidental spills, it is not specific to them. The Standard does not specifically contain information on BAT.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Sufficiently current and relevant. 2002.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included. Geographical applicability EU Standard is considered a credible reference and a candidate for review by the BARM process. In terms of BAT specifically for large accidental spills, this document contains none. It could be directly referred to by the BREF as one of several BARM documents, but Performance Standards and BAT would still need to be summarised and reported in the BREF for this specific issue. Use in BREF: refer to directly

Guidance Identified	
• Title, link, etc	IOGP Report 486 Reliability of offshore structures - Current design and potential inconsistencies http://www.ogp.org.uk/pubs/486.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document concerns structural reliability, integrity in engineering of offshore structures. This is not guidance, it is the summary of an industry event involving a number of participants from the offshore oil and gas community to discuss issues around structural reliability. The document does not address environmental issues per se, although it is relevant from the point of view that, if a loss of integrity were to occur, it could result in an environmental incident. Relevant in the Prevention category
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document is current and relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document does not contain Performance Standards. Document discusses techniques, but is not a reference for BAT. Structural integrity is a barrier to the occurrence of incidents, and from this perspective, the document is relevant as background. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IOGP/IPIECA Good practice guides to oil spill preparedness and response http://www.ipieca.org/library?tid[]=8&tid_1[]=12 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Covers the environmental issue in the category of Mitigation/ Emergency Response. This is a series of guides detailing oil spill contingency planning and cleanup, e.g. preparedness plans, use of dispersants on spilt oil. etc
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current (varying ages) and relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance contains techniques and possibly Performance Standard information. Individual documents need to be screened to determine the extent to which guidance provided can be considered BAT. Addresses one category relevant to the environmental issue, that is mitigation and emergency response, particularly with regard to spill planning and remedition. Documents need to be screened to determine EU wide applicability. Not independent guidance as produced by hydrocarbon industry body. Guidance is considered by the publisher to reflect good practice. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Oil Companies International Marine Forum (OCIMF) Guidance: Guide to Manufacturing and Purchasing Hoses for offshore mooring Guidelines for the Design, Operation and Maintenance of Multi Buoy moorings Offshore Loading Safety Guidelines with special relevance to harsh weather zones 1999 Prevention of Oil spillage through Pump room Sea valves 1991 SPM Hose System Design 1993 http://www.ocimf.org/library/publications/ *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document concerns structural reliability, integrity in engineering of offshore structures. Documents may be used by designers and operators of offshore facilities. Applicable in terms of demonstrating the rigour with which designing the system is expected to be performed, and carrying out offshore work. Guidance deals with aspects specific to moorings, spillages, etc. Relevant primarily in the Prevention category
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered somewhat dated, 1990s publications. For many engineering aspects, however, this will still be current. Relevant for the aspects they cover.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance is relevant although given the age, unlikely to be a substitute for the BREF. Key relevance relates to the Prevention perspective brought about by ensuring integrity in engineering. Guidance is not considered to constitute BAT, although techniques are mentioned. BREF could refer to particular aspects of this guidance for specific techniques. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	ISO 13702:2015 Control and mitigation of fires and explosions on offshore production installations -- Requirements and guidelines http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=57416 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standard is related to loss of containment followed by ignition which may either be immediate (resulting in potential fire) or delayed (resulting in potential explosion). Standard is not specific to environment, but in the event of a loss of containment environmental impact is also possible, hence the event scenarios are related. Although relevant in the Prevention/Detection/Control and Mitigation categories, and a potential candidate for BARM, this guidance is not ideal since it is primarily concerned with fire hazards.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015 and relevant, although primarily a fires/explosions reference.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not contain Performance Standards. Guidance contains techniques. Guidance would need to be reviewed in further detail to determine the extent to which listed techniques were directly applicable to the environmental issue. Guidance not considered best reference as it is primarily related to fires and explosions. Could refer to directly only if specific techniques are identified that would not be found in a more generally applicable guidance. Geographic scope could be EU wide. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	ISO 15544 : 2009 – Offshore production installations – requirements and guidelines for emergency response http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=27091 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standard briefly covers emergency response from the perspective of spill response. Information provided is too brief to be considered as addressing the environmental issue in full.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2010. Not relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standard briefly covers emergency response from the perspective of spill response. Information provided is too brief to be considered as addressing the environmental issue in full. No techniques described. No Performance Standards described. BREF could include as background material but Standard appears to lack the substance required for it to be used as a direct reference. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidelines for well-operators on well examination – Issue 1 – November 2011 – Oil & Gas UK http://oilandgasuk.co.uk/product/guidelines-for-well-operators-on-well-examination-and-guidelines-for-well-operators-on-competency-of-well-examiners-issue-1-november-2011/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides guidance on how to create and implement a Well Examination Scheme as required by Regulation 18 of the Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996. By having an independent competent person examine well designs and well operations programmes for the complete lifecycle of the well, the Well Examiner aids in the prevention and mitigation of a well blowout. Guidance falls under the category of Prevention of incidents.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Charged for access by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance is current 2011. Relevant for the part of the issue it addresses.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance is relevant for addressing the environmental issue in terms of assuring well integrity. Well integrity is a key aspect for maintaining a barrier to potential large scale spills. Guidance is relevant for addressing the environmental issue in terms of assuring well operator competence. Well operators are also a barrier to potential large scale spills. Guidance is currently limited to UK only. Applicability elsewhere would need to be explored further. Guidance could not be read as it is not publicly available. From the description, however it - Does not address the entire environmental issue (Well operator competence, well integrity) - Is only relevant in the Prevention category for the part of the issue it addresses It could therefore not substitute for the BREF, but could become background material for it. If upon reading, techniques are found that could be referenced by the BREF, it could be referred to directly.

	Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidelines on competency for wells personnel – Issue 1 – January 2012 – Oil & Gas UK http://oilandgasuk.co.uk/product/guidelines-on-competency-for-wells-personnel-including-example/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides guidance on how companies involved in well operations can develop a competency system to aid in ensuring that the relevant personnel within their organisations have been assessed as competent for their role, be it onshore or offshore. Having competent staff involved in the design and execution of well operations is key in preventing and mitigating a well blowout. Guidance deals with personnel competency requirements. Trained personnel are an important barrier against operations that may lead to a loss of containment event. Does not specifically cover environmental issues but is an important risk management barrier.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Charged for access by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance assumed current. Relevant as described.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Unable to access guidance. Assumed not to include Performance Standards or specific techniques. BREF could refer to this document as background material around the issue of personnel competence – this is part of the Prevention category for this issue. Performance Standards and techniques/BAT would need to be developed and expanded in the BREF itself. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Example competency profiles for wells personnel – January 2012 – Oil & Gas UK http://oilandgasuk.co.uk/product/guidelines-on-competency-for-wells-personnel-including-example/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Please refer to *Guidelines on competency for wells personnel – Issue 1 – January 2012 – Oil & Gas UK*
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Details examples of competency profiles for well operations personnel, thereby aiding companies engaged in well operations in implementing a competency system for their personnel. The profiles can be used as templates when companies draft their own competency profiles. Having competent staff involved in the design and execution of well operations is key in preventing and mitigating a well blowout.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Charged for access by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance assumed current. Relevant as described.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Please refer to *Guidelines on competency for wells personnel – Issue 1 – January 2012 – Oil & Gas UK*

Guidance Identified	
• Title, link, etc	Guidelines on BOP systems for offshore wells – Issue 2 – May 2014 – Oil & Gas UK http://oilandgasuk.co.uk/product/guidelines-on-bop-systems-for-offshore-wells/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The blowout preventer is one of the key pieces of equipment when controlling a well that has an influx in it, thereby preventing a well blowout. This guidance describes good practice for subsea and offshore surface Blowout Preventer (BOP) operations. The aim is to aid drilling contractors and well operators with good practice on BOP selection, maintenance and operation. Relevant in the Control category for this environmental issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Charged for access by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance assumed current. Relevant as described.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Unable to access guidance. Assumed not to include Performance Standards or specific techniques. BREF could refer to this document as background material around the issue of blowout prevention – this is part of the Control category for this issue. Performance Standards and techniques/BAT would need to be developed and expanded in the BREF itself. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Well life cycle integrity guidelines – Issue 2 – June 2014 – Oil & Gas UK http://oilandgasuk.co.uk/product/well-life-cycle-integrity-guidelines-issue-2-june-2014/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These guidelines focus on establishing well barriers, their acceptance criteria, their use and the monitoring of integrity during the well's life cycle. These guidelines describe what is believed to be current good industry practice in the UK. The aim of the guidelines is to aid well operators in assuring the integrity of their wells. Well integrity will aid in preventing a blowout and enable it to be brought under control if an influx is taken. Relevant in the Control category for this environmental issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Charged for access by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance assumed current. Relevant as described.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Unable to access guidance. Assumed not to include Performance Standards or specific techniques. BREF could refer to this document as background material around the issue of blowout prevention – this is part of the Control category for this issue. Performance Standards and techniques/BAT would need to be developed and expanded in the BREF itself. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	A guide to the well aspects of the Offshore Installations and Wells (Design and Construction, etc.) Regulations 1996. Guidance on Regulations L84 (Second edition) HSE Books 2008 www.hse.gov.uk/pubns/books/l84.htm *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicability to other EU areas unknown.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This book gives guidance on the well aspects of the Offshore Installations and Wells (Design and Construction, etc) Regulations (SI 1996/913) (DCR), which came into force in 1996. This publication was prepared following widespread consultation with representatives of the Confederation of British Industry and industry associations representing offshore operators and contractors, the Trades Union Congress and offshore unions, other interested organisations, and government departments. The well provisions of the Offshore Installations and Wells (Design and Construction, etc) Regulations 1996 (referred to as 'the Regulations' in this guidance) are concerned with the safety of wells both onshore and offshore. Guidance is not specific to environmental issues. Guidance describes the DCR 1996 Regs, and how to approach them. Regs relate to installation and well integrity and are hence in the Prevention category for this issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance is sufficiently current. 2008. Guidance not relevant to the environmental issue. Guidance describes the regulations line by line.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No Performance Standards included. No techniques included. Not guidance relating to the environmental issue. DCR 1996 are regulations relating to installation and well design and construction, ensuring that the engineering of these systems is of high integrity for UK waters. Geographically limited to UK only. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidelines on relief well planning for offshore wells – Issue 2 – March 2013 – Oil & Gas UK http://oilandgasuk.co.uk/product/guidelines-on-relief-well-planning-issue-2-2013/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicability to other EU areas unknown.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The purpose of these guidelines is to help well operators comply with their duties under the Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 (OPRC) for offshore installations involved in exploration, appraisal, production and decommissioning activities. Well operators may need to prepare a relief well plan as part of their Oil Pollution Emergency Plan (OPEP). An OPEP is an emergency plan setting out arrangements for responding to incidents which cause or may cause marine pollution by oil, with a view to preventing pollution or reducing and minimising its effect. Drilling a relief well may be one of the planned contingencies that could minimise pollution in the event of a well incident. Falls into the Emergency Response category for this issue. Concerns drilling a relief well, i.e. additional environmental impact, as a measure for addressing the problem of a loss of well integrity.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Charged for access by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance assumed current. Relevant as described.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Unable to access guidance. Assumed not to include Performance Standards or specific techniques. BREF could refer to this document as background material around the issue of oil spill – this is part of the Emergency Response category for this issue. Performance Standards and techniques/BAT would need to be developed and expanded in the BREF itself. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidelines for the management of flexible hose assemblies – 2nd edition - February 2011 – Energy Institute http://publishing.energyinst.org/publication/ei-technical-publications/installation-integrity/guidelines-for-the-management-of-flexible-hose-assemblies *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Loss of flexible hose assembly (FHA) integrity can result in the release of hazardous substances which compromises safety and potentially leads to major hazards. Assists operators of offshore installations, drilling facilities and onshore plants with the management of FHAs, ensuring continuing integrity throughout the FHA lifecycle from design through to decommissioning.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Bulk hose best practice guidelines – 2009 – Step Change In Safety https://www.stepchangeinsafety.net/safety-resources/publications/bulk-hoses-best-practice *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Not applicable elsewhere.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Step Change in Safety is an industry initiative not specifically related to environment. Maintaining hoses falls into the Prevention category for this environmental issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance is not publicly available. Only available to Step Change members.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance is current. Relevant to the category for this issue that it covers.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not contain Performance Standards. Guidance does contain techniques. BREF could reference techniques in this guidance. Note that geographical applicability is UK only. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Guidelines for the Management of Flexible Hose Assemblies – 2011 – Oil & Gas UK http://oilandgasuk.co.uk/product/guidelines-for-the-management-of-flexible-hose-assemblies/ *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Applicable to other EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Guidelines for the Management of Flexible Hose Assemblies supersede the 2003 Flexible Hose Management Guidelines. The purpose of the new guidance is to assist operators of offshore installations, drilling facilities and onshore plants with the management of flexible hose assemblies (FHAs) through provision of controls and procedures that are necessary to ensure continued integrity through their lifecycle from manufacture through to decommissioning. Maintaining hoses falls into the Prevention category for this environmental issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance is not publicly available. Charged for by OGUK.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance is current. Relevant to the category for this issue that it covers.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not contain Performance Standards. Guidance does contain techniques. BREF could reference techniques in this guidance. Note that geographical applicability is UK only. Use in BREF: Refer to directly

Discharges to sea • **Handling of oil-based drilling mud cuttings**

Summary

A number of guidelines exist on handling of oil-based drilling mud cuttings, with different performance standards / requirements.

Where discharge is prevented in certain jurisdictions (e.g. the HELCOM region), there is perhaps less need for any guidance to assist permitting authorities / operators. Where reinjection is considered, the 2001 OSPAR report provides background on relevant environmental and safety considerations.

Where treatment of cuttings prior to discharge is allowed, OSPAR decision/recommendation provide a quantitative performance standard. The performance standard under the Barcelona Convention is different (higher) and there is no such performance standard identified for the Black Sea. Specific techniques available to meet the performance standards for cuttings discharge are not identified in the guidance reviewed for the gap analysis.

The main potential gaps identified that we recommend be considered by the sub-group are:

- The partial EU coverage of the guidance and whether a gap exists in exchange of information on best available techniques across the EU. (This is a general issue across various environmental issues.)
- Whether any more recent information on techniques for and consideration of cuttings reinjection exists that would merit an exchange of information (compared to the 2001 OSPAR document).
- Whether there is a need for further exchange of information on performance standards for OPF/NADL on drill cuttings discharged to sea, reflecting the current variability in such standards (ranging from no guidance in some sea areas, 10% dry weight, 1% or total prevention of discharge).
- Whether further exchange of information is warranted on specific techniques (options) available to meet discharge performance standards e.g. OBM separation, treatment and recycling; use of thermal cuttings cleaning (TCC).
- Whether there is merit in exchange of information on treatment of water-based mud contaminated cuttings, in line with the Norwegian approach.

Candidate Guidance	Provided by	Overview	Use in BREF?
HELCOM Convention Annex VI on prevention of pollution from offshore activities	Denmark	Prevents discharge of OBM to marine waters rather than setting a quantitative performance standard. Does not specify which techniques can be used. Overall HELCOM provides a requirement for appropriate treatment of OBM cuttings. OBM/cuttings and avoidance of discharge to marine waters. It does not provide details of techniques that can be used.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
HELCOM Recommendation 18/2*) on offshore activities, 1997	Denmark	Prevents discharge of OBM to marine waters rather than setting a quantitative performance standard. Does not specify which techniques can be used. Overall HELCOM provides a requirement for appropriate treatment of OBM cuttings. OBM/cuttings and avoidance of discharge to marine waters. It does not provide details of techniques that can be used.	Refer to directly
Mediterranean Action Plan (MAP) Study on International Best Practises, 2014	Denmark	Includes reference to measureable performance standards for NADF content in cuttings (OSPAR, Barcelona Convention and elsewhere) and limit values for other parameters (Hg, Cd). Techniques are not specified, although the document indicates that e.g. OSPAR "does not provide a comprehensive set of standards or guidelines for drilling fluid and cuttings discharges. No test protocols or methodologies are specified, as these are either specified elsewhere or are to be developed by the competent authorities within individual OSPAR nations." Also "The limitation on NADF retention on cuttings (1%) is much lower than the limit specified in the Offshore Protocol (10%). Although cuttings cleaning technology exists to reach this target in the offshore environment, it apparently has not been widely implemented in the OSPAR region, based on the small reported quantities of NADF cuttings discharges in Europe"	Background material
NORSOK S-003 Environmental Care, appendix C6 (cuttings disposal)	DNV GL	Prevents discharge of OBM to marine waters rather than setting a quantitative performance standard. Provides lists of which techniques can be used. Useful reference document. Provides a standard applicable in Norway. May not be applicable to some other member states where cuttings disposal is still required/allowed.	Refer to directly
OLF 093 Guidelines for waste handling in the offshore sector (Norwegian Oil and Gas Association)	IADC	Does not include performance standards. Provides examples of techniques that can be used. Overall it provides examples of techniques that can be considered but is not considered comprehensive guidance.	Background material
OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings	IOGP, Netherlands, Norway, UK	Includes a quantitative performance standard for OPF in discharged drill cuttings. Provides examples of techniques that can be used in general, but seemingly not for achieving the OPF in discharged cuttings performance standard. Provides a useful reference for examples of techniques and achievable performance standards.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
OSPAR Agreement 2002-08 Guidelines for the Consideration of the Best Environmental Option for the Management of OPF-Contaminated Cuttings Residue	IOGP, Netherlands, Norway, UK	Refers to the 1% OPF on cuttings in OSPAR Decision 2000/3 and provides further elaboration on this. Refers to techniques e.g. disposal ashore and provides reference to techniques/considerations for reinjection. Does not refer to techniques to achieve the above performance standard.	Refer to directly
OSPAR, Environmental aspects of on and off-site injection of drill cuttings and produced water (2001)	IOGP	Does not include performance standards but provides reference material for consideration of injection of drill cuttings. Does not specify which techniques should be used but provides recommendations on investigation and avoidance of contamination from injection of cuttings.	Background material
Norwegian Government, Håndtering av kaks i sårbare områder (Handling of cuttings in vulnerable areas)	Norway	Does not include performance standards. Refers to the prohibition of discharge of OBM cuttings. Indicates a 500m separation distance for discharge of WBM cuttings from vulnerable benthic fauna. Also requirement for zero discharge if operator cannot demonstrate avoidance of damage to sponge. Specifies techniques that can be used for WBM, rather than OBM-containing cuttings. Overall consider whether there is merit in exchange of information on handling of WBM cuttings.	Refer to directly

Guidance Identified	
• Title, link, etc	HELCOM Convention Annex VI on prevention of pollution from offshore activities http://www.helcom.fi/about-us/convention/annexes/annex-vi *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is the Baltic Sea. Could in principle be applied to all EU areas. It is agreed and being implemented by the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Covers the main issues involved with prescriptive requirements e.g. • Restricts use of OBM to cases where strictly necessary and authorised by national authority (with "appropriate measures/installations" to prevent discharge into the marine environment. • Restricts/prohibits discharge of OBM and cuttings into Baltic Sea Area and requires them to be taken ashore for final treatment or disposal. • Also includes provisions for WBM/cuttings. This document does not include any guidance on techniques to be used to achieve the above (e.g. OBM separation, treatment and recycling; thermal cuttings cleaning). The guidance covers relevant media (marine waters). Addresses routine releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	1992 convention entered into force in 2000 and latest amendment entered into force in 2008. Remains relevant and is supplemented with specific recommendations. Overall considered sufficiently current and relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Prevents discharge of OBM to marine waters rather than setting a quantitative performance standard. Does not specify which techniques can be used. Overall HELCOM provides a requirement for appropriate treatment of OBM cuttings. OBM/cuttings and avoidance of discharge to marine waters. It does not provide details of techniques that can be used. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	HELCOM Recommendation 18/2*) on offshore activities, 1997 http://www.helcom.fi/Recommendations/Rec%2018-2.pdf *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is the Baltic Sea. Could in principle be applied to all EU areas. It is agreed and being implemented by the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Covers the main issues as described in the Convention itself (Annex VI) (see above). Also specifies that the use of diesel oil-based muds should be prohibited except for work-over operations, well stimulation/completion and emergency operations (and then requires disposal onshore). This document does not include any guidance on techniques to be used The guidance covers relevant media (marine waters). Addresses routine releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Adopted in 1997. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Prevents discharge of OBM to marine waters rather than setting a quantitative performance standard. Does not specify which techniques can be used. Overall HELCOM provides a requirement for appropriate treatment of OBM cuttings. OBM/cuttings and avoidance of discharge to marine waters. It does not provide details of techniques that can be used. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Mediterranean Action Plan (MAP) Study on International Best Practises, 2014 http://goo.gl/8AWMro *Provided by: Denmark*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Review of global best practices for use in preliminary preparation phase for the drafting of the Marine Action Plan for implementation of the Offshore Protocol (OP) of the Barcelona Convention (covering the Mediterranean). Includes references to various guidance that could (in principle) be applied across the EU. Offshore Protocol entered into force in 2011 but is in a developmental phase in that an action plan is currently being developed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides a comparison of requirements in different regions for key parameters e.g. retention of non-aqueous drilling fluids (NADF) on cuttings categorised into e.g. • No discharge (e.g. under HELCOM) • 1% limit (e.g. under OSPAR) • 10% limit (under Barcelona Convention Annex IV. Covers releavant environmental media (water). Note HELCOM and OSPAR considered separately, so focusing on Barcelona Convention Annex IV, this includes e.g. (a) general requirements for "sufficiently low toxicity" of OB fluids; (b) prohibition on disposal of fluids to sea; (c) disposal of cuttings to sea with "efficient solids control equipment" and oil content <100g/kg (10%). Reference is also made to other guidelines (e.g. World Bank Group / IFC, US EPA, including limit values for Cd, Hg, free oil, etc. in WBF discharges and SBF cuttings. ICF includes requirements for NADF to be shipped-to-shore or reinjected (no discharge) and limits on drilled cuttings discharge (limit values for oil, Cd, Hg). Does not specify which techniques can be used.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	MAP study and Barcelona Convention are publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	MAP study is current (2014) and reviews relevant best practices from elsewhere in the EU and globally. It is linked to the Barcelona Convention, the provisions of which may be considered out of date and less protective than e.g. OSPAR/HELCOM provisions on OBM/cuttings. This is a relevant source of information for the BREF.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative)	Includes reference to measureable performance standards for NADF content in cuttings (OSPAR, Barcelona Convention and elsewhere) and limit values for other parameters (Hg, Cd).

performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Techniques are not specified, although the document indicates that e.g. OSPAR "does not provide a comprehensive set of standards or guidelines for drilling fluid and cuttings discharges. No test protocols or methodologies are specified, as these are either specified elsewhere or are to be developed by the competent authorities within individual OSPAR nations." Also "The limitation on NADF retention on cuttings (1%) is much lower than the limit specified in the Offshore Protocol (10%). Although cuttings cleaning technology exists to reach this target in the offshore environment, it apparently has not been widely implemented in the OSPAR region, based on the small reported quantities of NADF cuttings discharges in Europe" Use in BREF: Background material* (Note that this is very useful background material)

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care, appendix C6 (cuttings disposal) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide (subject to possible need for cuttings discharge in some member states).. Agreed standard (developed by Norwegian petroleum industry; intended, as far as possible, to replace oil company specifications and serve as references in the authorities' regulations.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Applicable to new developments, modifications and tie-in projects. Refers to the BAT definition in the IPPC/IED directive. Recognises 'zero discharge concept' as a goal. Includes functional requirements for drill cuttings. Lists examples of technologies that can be used (section 6.5) e.g. injection of drill cuttings/mud, reuse of drilling mud. Annex C includes lists of "possible environmental requirements" (to be selected depending on location), including for mud and cuttings handling systems (C5) and cuttings disposal (C6), with the latter recommending either reinjection or transport ashore for OBM drilling cuttings. Does not cover OBM cuttings separation/cleaning (presumably due to requirement to avoid discharge). Addresses the environmental medium (water). Addresses routine releases (for this environmental issue).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Last updated 2005. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Prevents discharge of OBM to marine waters rather than setting a quantitative performance standard. Provides lists of which techniques can be used. Useful reference document. Provides a standard applicable in Norway. May not be applicable to some other member states where cuttings disposal is still required/allowed. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	OLF 093 Guidelines for waste handling in the offshore sector (Norwegian Oil and Gas Association) https://www.norskoljeoggass.no/en/Publica/Guidelines/Enviornment/093-Recommended-guidelines-for-Waste-Management-in-the-offshore-industry-NEW-REVISION-PR-21022013-/ *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Could potentially be applied more widely. Agreed guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides a shared industry waste management standard. Provides suggested (non-prescriptive) waste management actions e.g. being conscious of waste reduction and establishment processes in design/engineering phase for cuttings; evaluating pros and cons of slurrification for cuttings; maybe evaluating new technologies for transfer to ships; evaluate well design e.g. “slimhole” drilling to reduce amount of cuttings. Covers the relevant environmental media (water). Does not provide suggestions/guidance on what should be used but options for consideration. Addresses routine operations.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Latest revision 2013. Remains relevant but does not provide specific guidance on techniques considered BAT.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include performance standards. Provides examples of techniques that can be used. Overall it provides examples of techniques that can be considered but is not considered comprehensive guidance. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OSPAR Decision 2000/3 on the Use of Organic-phase Drilling Fluids (OPF) and the Discharge of OPF-contaminated Cuttings http://www.ospar.org/documents?d=32321 *Provided by: IOGP, Netherlands, Norway, UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed Decision of the Contracting Parties.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses links to OSPAR provisions on chemicals, BAT/BEP and waste management hierarchy. Prohibits use of diesel-oil-based fluids. Prohibits discharge of organic-phase drilling fluids and prevents discharge of contaminated cuttings at >1% OPF dry weight. Provides examples (lists) of techniques to reduce, reuse, recycle, etc. and avoid residue disposal. Refers e.g. to offshore treatment of cuttings, but without specifying techniques. Addresses routine operations.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Decision is from 2000. Remains relevant but does not specify techniques available to achieve certain requirements.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Includes a quantitative performance standard for OPF in discharged drill cuttings. Provides examples of techniques that can be used in general, but seemingly not for achieving the OPF in discharged cuttings performance standard. Provides a useful reference for examples of techniques and achievable performance standards. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	OSPAR Agreement 2002-08 Guidelines for the Consideration of the Best Environmental Option for the Management of OPF-Contaminated Cuttings Residue http://www.ospar.org/documents?d=32616 *Provided by: IOGP, Netherlands, Norway, UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Agreed guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides further elaboration to supplement OSPAR Decision 2000/3 including options which can be assessed on a case-by-case basis by the national competent authority. Covers the main environmental media (water). Highlights the need for case-by-case assessment of best environmental option. Highlights the need to balance different types of environmental effects and risk to humans in selecting option for cuttings disposal. Highlights the options available, to be selected taking into account inter alia economic feasibility: (a) transport of cuttings to shore, (b) reinjection (referring to "Environmental aspects of on and off-site injection of drill cuttings and produced water" – see below, (c) offshore treatment to meet 1% OPF dry weight. Addresses routine releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidelines date from 2002. Technologies are not specified but principles are considered to remain up-to-date. Overall remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Refers to the 1% OPF on cuttings in OSPAR Decision 2000/3 and provides further elaboration on this. Refers to techniques e.g. disposal ashore and provides reference to techniques/considerations for reinjection. Does not refer to techniques to achieve the above performance standard. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	OSPAR, Environmental aspects of on and off-site injection of drill cuttings and produced water (2001) http://www.ospar.org/documents?d=6916 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide. Is a reference report, rather than guidelines per se.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides a review of the environmental impacts associated with various elements of injection of drill cuttings. Examples potential problems with injection and provides recommendations. Does not consider discharge to sea in detail. Addresses routine releases and potential accidental events e.g. contamination due to induced fractures, well integrity.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Reference dates from 2001. Is not strictly considered guidance but is useful background material. Overall appears to remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include performance standards but provides reference material for consideration of injection of drill cuttings. Does not specify which techniques should be used but provides recommendations on investigation and avoidance of contamination from injection of cuttings. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Håndtering av kaks i sårbare områder (Handling of cuttings in vulnerable areas) *Provided by: Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Could potentially be applied more widely. Agreed guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The report describes existing knowledge on benthic fauna that are assumed to be vulnerable, and how this fauna is effected by discharge of drill cuttings. The report also include an assessment of available technology for handling drill cuttings. Purpose was to assess alternative technological possibilities for handling cuttings in vulnerable areas and assess opportunities for strengthened requirements. Guidance relates primarily to handling of water-based mud cuttings, describing techniques such as: subsea bags for collection of drill cuttings; riserless mud recovery; drill cuttings transfer systems; and monitoring of discharges. Addresses a related environmental issue (handling of water-based mud cuttings). Does not specifically address OBM cuttings handling. Addresses routine releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from 2012. Is considered to remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include performance standards. Refers to the prohibition of discharge of OBM cuttings. Indicates a 500m separation distance for discharge of WBM cuttings from vulnerable benthic fauna. Also requirement for zero discharge if operator cannot demonstrate avoidance of damage to sponge. Specifies techniques that can be used for WBM, rather than OBM-containing cuttings. Overall consider whether there is merit in exchange of information on handling of WBM cuttings. <u>Use in BREF: Refer to directly</u>

Discharges to sea	• **Planned liquid hydrocarbon discharge (drop-out) to sea surface and;** • **Treatment of produced water**

Summary

The issue of treatment of produced water is covered to a varying degree in relation to the materials submitted by subgroup members. The issue of planned hydrocarbon discharge is generally not covered by the materials submitted. This is explained in relation to the reflect OSPAR conclusion on this matter that considered that little material existed in relation to the issue and that, in effect, the issue in hand was of less environmental importance than those already examined under OSPAR in some detail.

Subgroup members highlighted that the provisions under international conventions e.g. HELCOM, OSPAR, Barcelona that set minimum standards in relation to hydrocarbons released following the treatment of produced water. These standards demonstrate some variation in the levels expected to be respected:

- HELCOM - oil content of less than 15mg/l) unless not achievable through the application of BEP and BAT where a higher level (40mg/l) may be applied);
- OSPAR - no individual offshore installation should exceed a performance standard for dispersed oil of 30 mg/L for produced water discharged into the sea;
- Barcelona - For production water, a maximum oil content of 40 mg per litre as an average in any calendar month; the content shall not at any time exceed 100 mg per litre;
- USEPA NPDES general permit number GMG290000 (USEPA, 2012a) - Produced water must meet both a daily maximum limit of 42 mg/L and a monthly average limit of 29 mg/L for oil and grease.
- Canada's offshore waste treatment guidelines specify a performance target for produced water discharges of 30 mg/L (30-day volume weighted average) and 44 mg/L (24-hour average, as calculated at least twice per day).
- Baltic Sea Action Plan - from 1 January 2008 operators must comply with a limit value for dispersed oil of 15 mg/l, in production water discharged into the sea, measured as volume-weighted monthly average; from 1 January 2010 any discharge of oil-containing water shall be prohibited.
- The average concentration across the UKCS is currently 19.78 mg/l.

However, in addressing the actual techniques that can be applied to reach the performance levels identified above there are surprisingly few documents that go into any detail. The exception to this is OSPAR Commission Background Document concerning Techniques for the Management of Produced Water from Offshore Installations that effectively describes techniques is a significant level of detail, albeit that the material does not appear to be applied across the entire EU (but rather in keeping with its background, is applied in the OSPAR area).
Furthermore, risk assessment methods are identified in some detail that provide some detail with regard to determining site specific measures for handling produced water that are likely to be useful in determining BAT.

With regard to planned liquid hydrocarbon discharge (drop-out) – Attempts have been made to address this issue with little success to date. The ability of the TWG to address this issue requires further discussion although it is recommended to not take this issue any further.

With regard to **produced water the following gaps** are considered to exist:

• **Lack of EU-wide guidance on techniques**: The techniques listed under the OSPAR guidance listed above are comprehensive in nature. However, their application outside of the OSPAR area is unclear and there appears to be value in ensuring that similar guidance exists for the entire EU.

• **An EU wide acceptable level of performance in relation to oil content in discharged water**: Whilst a number of the multi-lateral agreements presented by subgroup members have developed performance standards on the basis of the application of BAT, the performance across the different agreement areas appears to vary to a relatively large extent with little rationale provided as to such variation.

Candidate Guidance	Provided by	Overview	Use in BREF?
HELCOM Recommendation http://www.helcom.fi/Recommendations/Rec%2018-2.pdf	DK	This Recommendation includes potential Performance Standards but does not Specify the techniques to be applied other than referring to BAT and BEP. Whilst the recommendation provides a helpful performance marker, it does not assist operators or competent authorities in being able to judge the techniques that might be applied to prevent and minimise emissions.	Background material
HELCOM Convention Annexes II and VI – BAT/BEP and Prevention of Pollution from Offshore Activities	DK	Annex VI includes Performance Standards and measurement approaches. It does not specify the techniques to be used, only the principles to be used in determining techniques. Whilst Annex VI provides a helpful performance marker, it does not assist operators or competent authorities in being able to judge the techniques that might be applied to prevent and minimise emissions. Annex II does not provide a measureable performance standard but rather states a set of principles in relation to determining BAT. These principles remain valid but do not constitute BAT in the context of the work foreseen by the TWG.	Background material
Baltic Sea Action Plan	DK	The Action Plan includes limits only. It does not specify the techniques to be used. Whilst it provides a helpful performance marker, it does not assist operators or competent authorities in being able to judge the techniques that might be applied to prevent and minimise emissions.	Background material
Barcelona Convention Protocol for the protection of the Mediterrenean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and it's subsoil	DK	The text provided does include performance Standards but little information on the techniques that constitute BAT.	Background material
Barcelona Convention MAP - Study on International Best Practices	DK	The report examined best practices stemming from EU and wider international legislation, national legislation and industry standards. The findings, therefore, are relevant across the EU. The guidance includes measurable performance standards and how to measure compliance against such standards. However, it does not specify or describe any techniques that can be applied to achieve those performance standards.	Background material

Candidate Guidance	Provided by	Overview	Use in BREF?
Norsok Standard S-003 – Environmental Care	DNV-GL	Performance Standards are not provided and techniques are named but not further specified. Overall the standard is helpful in identifying potential techniques that might be applied to tackle planned discharges to sea. However, further detail on the techniques and their applicability and costs and performance would be more commensurate with what is expected in the context of the work of the TWG.	Background material
NOROG 084 Recommended guidelines - EIF Computational Guidelines - A Manual for Standardised Modelling and Determination of the Environmental Impact Factor (EIF).	DNV-GL	Performance Standards are not provided and mitigation techniques are not specified. This document is an effective way of measuring potential impacts from offshore activities but does not offer specific guidance to operators or competent authorities in relation to techniques that may be applied to minimise such impacts.	Background material
NOROG O85 – Norwegian Oil and Gas recommended guidelines for sampling and analysis of produced water.	DNV-GL	Quality Performance Standards are described and techniques for sampling and analysis are specified. This document is an effective piece of guidance concerning monitoring impacts from offshore activities and is likely to represent BAT for aspects of such sampling and analysis. Its application beyond Norwegian activities is unknown.	Refer to directly
OSPAR Commission Background Document concerning Techniques for the Management of Produced Water from Offshore Installations (original and revised versions)	IOGP	The techniques concerned are likely to BAT and for the OSPAR region indicate that no gap exists. Its application elsewhere is unknown at this point in time.	Refer to directly
OSPAR Recommendation 2001/1 on the management of produced water OSPAR Recommendation 2006/4 Amending OSPAR Recommendation 2001/1 on the Management of Produced Water; and OSPAR Recommendation 2011/8 amending OSPAR Recommendation 2001/1 for the Management of		The performance standards may constitute BAT although it should be noted that the performance values provided are somewhat different to those provided through HELCOM (see in particular the 15mg target). The 30mg minimum standard does not, therefore, represent the best performance likely to be achievable through the application of BAT as demonstrated by the UK performance values that are considerably lower. Furthermore, there is no description of the actual techniques themselves in this recommendation.	Background material

Candidate Guidance	Provided by	Overview	Use in BREF?
Produced Water from Offshore Installations as amended.			
OSPAR Recommendation 2012/5 for a risk-based approach to the management of produced water discharges from offshore installations and OSPAR Guidelines in support of Recommendation 2012/5 for a Risk-based Approach to the Management of Produced Water Discharges from Offshore Installations	IOGP	The documentation does not contain performance standards. However, it provides some detail as to how to undertake a risk assessment and characterisation exercise. It may be helpful in the process of developing guidance and may be referred to with regard to characterising risks and constitute BAT for such assessment. However, it does not provide either a list of BAT or a set of performance standards against which actual installation level action can be assessed.	Refer to directly
A variety of NL guidance and legislation including: - Emissiebepaling en Rapportage – Water (Dutch only) - Mining act - Mining Decree - Mining Regulations - Decree Generic rules Mining Environment - Act Prevention of Pollution from Ships - REACH Regulation	NL	Translation of the legislation indicates that techniques are not described although emissions to water are clearly within the scope of the legislation concerned. The legislation appears to address both routine and accidental events. The documentation provided is normally of a NL legislative context. The applicability outside of the NL is unclear and the fact that material is generally available in Dutch potentially restricts the use of the materials outside of the NL.	Background material

Guidance Identified	
• Title, link, etc	HELCOM Recommendation http://www.helcom.fi/Recommendations/Rec%2018-2.pdf *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Baltic Sea Area. Could potentially be applied elsewhere subject to location / environmental constraints. Agreed by Parties to the Convention.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	With regard to planned / routine discharges of production water and displacement water the recommendation sets a discharge level to be complied with (oil content of less than 15mg/l) unless not achievable through the application of BEP and BAT where a higher level (40mg/l) may be applied). Monitoring requirements are specified and a pro forma provided. However, no description of the techniques that may be used to comply with the levels (BAT or BEP) are provided.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	It is publicly available and free of charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The recommendation was made adopted in 1997 and due to be updated in 1999. No updated version was provided. It is likely that further experience in the last 18 years will mean that this recommendation may longer represent the levels of emissions expected through the application of present day BAT.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does includes potential Performance Standards. Does not specify the techniques to be applied other than referring to BAT and BEP. Whilst the recommendation provides a helpful performance marker, it does not assist operators or competent authorities in being able to judge the techniques that might be applied to prevent and minimise emissions.

Guidance Identified	
• Title, link, etc	HELCOM Convention Annexes II and VI – BAT/BEP and Prevention of Pollution from Offshore Activities http://www.helcom.fi/about-us/convention/annexes/annex-vi *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Baltic Sea Area. Could potentially be applied elsewhere subject to location / environmental constraints. Agreed by Parties to the HELCOM Convention.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Annex VI sets a number of general principles in regulations including Regulation 2 requiring contracting parties to undertake to prevent and eliminate pollution from offshore activities by using the principles of BAT and BEP defined in Annex II. Annex II effectively describes the characteristics of what constitutes BAT and BEP without actually describing any techniques themselves. Regulation 5 of the Annex states that the planned discharge of production water and displacement water is prohibited unless its oil content is proven to be less than 15 mg/l measured by the methods of analysis and sampling to be adopted by the Commission; if compliance with this limit value cannot be achieved by the use of Best Environmental Practice and Best Available Technology the appropriate national authority may require adequate additional measures to prevent possible pollution of the marine environment of the Baltic Sea Area and allow, if necessary, a higher limit value which shall, however, be as low as possible and in no case exceed 40 mg/l; the permitted discharge shall not, in any case, create any unacceptable effects on the marine environment.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Annexes II and VI of the Convention remain unchanged since the Convention entered into force on 17 January 2000. Given the time that has passed since entry into force more recent developments in techniques may prove to improve environmental performance in comparison to the values provided in Annex VI.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Annex VI includes Performance Standards and measurement approaches. It does not specify the techniques to be used, only the principles to be used in determining techniques. Whilst Annex VI provides a helpful performance marker, it does not assist operators or competent authorities in being able to judge the techniques that might be applied to prevent and minimise emissions. Annex II does not provide a measureable performance standard but rather states a set of principles in relation to determining BAT. These principles remain valid but do not constitute BAT in the context of the work foreseen by the TWG.

Guidance Identified	
• Title, link, etc	Baltic Sea Action Plan http://helcom.fi/documents/baltic%20sea%20action%20plan/bsap_final.pdf *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Baltic Sea Area. Could potentially be applied elsewhere subject to location / environmental constraints. The Action Plan was adopted in 2007.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Action Plan provides a specific set of actions with regard to Offshore activities. With regard to planned discharges of oil: - All operators shall apply the "zero-discharge" principle for polluted substances and materials not later than 1 January 2010, which means that: - from 1 January 2008 operators must comply with a limit value for dispersed oil of 15 mg/l, in production water discharged into the sea, measured as volume-weighted monthly average; - from 1 January 2010 any discharge of oil-containing water shall be prohibited
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The Action plan was adopted in 2007. It does not reflect on the techniques to be applied but rather specifies limits only.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The Action Plan includes limits only. It does not specify the techniques to be used. Whilst it provides a helpful performance marker, it does not assist operators or competent authorities in being able to judge the techniques that might be applied to prevent and minimise emissions.

Guidance Identified	
• Title, link, etc	Barcelona Convention Protocol for the protection of the Mediterranean Sea against pollution resulting from exploration and exploitation of the continental shelf and the seabed and it's subsoil http://195.97.36.231/dbases/webdocs/BCP/ProtocolOffshore94_eng.pdf *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	The Mediterranean Sea. Principles could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Article 3 of the Protocol requires parties to take all measures to prevent, abate, combat and control pollution in the Protocol Area resulting from offshore activities amongst other things by ensuring that BAT, environmentally effective and economically appropriate, are used. Furthermore, Parties must ensure that all necessary measures are taken so that activities do not cause pollution. Article 10 requires Parties to formulate and adopt common standards for the disposal of oil and oily mixtures. Such standards are to be formulated in accordance with the provisions of Annex V, A and may not be less restrictive than: (i) For machinery space drainage, a maximum oil content of 15 mg per litre whilst undiluted; (ii) For production water, a maximum oil content of 40 mg per litre as an average in any calendar month; the content shall not at any time exceed 100 mg per litre; Annex V, A sets general principles with regard to the collection and disposal of oil and oily mixtures. The Protocol itself does not specifically address techniques themselves.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The Protocol was originally published in 1994 and entered into force in 2011. Given the Protocol refers to principles only it is not considered that the principles themselves are out-of-date.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and	The text provided does include performance Standards but little information on the techniques that constitute BAT.

in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Barcelona Convention MAP - Study on International Best Practices http://ec.europa.eu/environment/marine/pdf/FLYER%20offshore%20web.pdf *Provided by: DK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	The report examined best practices stemming from EU and wider international legislation, national legislation and industry standards. The findings, therefore, are relevant across the EU.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The study examined existing Best Practices for Oil Content of routine Production Water. The following were identified: - Under Recommendation 2001/1 of the OSPAR Convention as amended, no individual offshore installation should exceed a performance standard for dispersed oil of 30 mg/L for produced water discharged into the sea. The recommendation states that "the quantity of dispersed oil discharged should be based on the results of at least 16 samples per month," taken at equal time intervals. Therefore it is a monthly average; no maximum is specified for individual measurements. The dilution of treated or untreated produced water for the purpose of lowering the average concentration of oil to achieve compliance is prohibited. - USEPA NPDES general permit number GMG290000 (USEPA, 2012a) includes three sets of requirements for produced water: (1) limitations, (2) monitoring requirements, and (3) a produced water characterization study. Produced water generated from the monoethylene glycol (MEG) reclamation processes, including salt slurry generated from the salt centrifuge unit, are regulated as produced water if these wastes are mixed and discharged with the produced water waste stream. Limits. The permit limits the oil and grease content and toxicity of produced water discharges. Produced water must meet both a daily maximum limit of 42 mg/L and a monthly average limit of 29 mg/L for oil and grease. Toxicity is regulated by requiring a bioassay using a mysid shrimp (Mysidopsis bahia) and a fish (Menidia beryllina); the 7-day average minimum and monthly average minimum No Observable Effect Concentration (NOEC) must be equal to or greater than the critical dilution concentration specified in the permit. Detailed testing and reporting methods are specified in the permit. - Canada's offshore waste treatment guidelines specify a performance target for produced water discharges of 30 mg/L (30-day volume weighted average) and 44 mg/L (24-hour average, as calculated at least twice per day) (Canada-Newfoundland and Labrador Offshore Petroleum Board, 2010). However, the study did not actually identify techniques to prevent and minimise emissions – rather it identified limits in place an compliance mechanisms against such limits.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance?	The report is from 2014 and remains relevant.

• Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The guidance includes measurable performance standards and how to measure compliance against such standards. However, it does not specify or describe any techniques that can be applied to achieve those performance standards.

Guidance Identified	
• Title, link, etc	Norsok Standard S-003 – Environmental Care https://govmin.gl/images/stories/petroleum/norsok/S-003_Environmental_care.pdf *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Principles are likely applicable Europe wide. Agreed and published in 2005.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The standard addresses the issue of discharges to sea in detail including produced water and system discharges e.g. foul drainage etc. These issues are encompassed in one section of the standard (Section 6). The guidance addresses the issue in hand, the principles in addressing the issue and the techniques that might be applied. By way of example, for produced water the following techniques are identified: - electrostatic oil/water separation; - emulsion breaking and foam control; - flocculation; - hydrocyclones; - stripping; - extraction; - membrane filtration. No further description of the techniques are provided and no performance standards are provided.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The standard was issued in 2005 and is considered as relevant. However, new techniques and technologies may have been developed in the decade since its publication.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are not provided. Techniques are named but not further specified. Overall the standard is helpful in identifying potential techniques that might be applied to tackle planned discharges to sea. However, further detail on the techniques and their applicability and costs and performance would be more commensurate with what is expected in the context of the work of the TWG.

Guidance Identified	
• Title, link, etc	NOROG 084 Recommended guidelines - EIF Computational Guidelines - A Manual for Standardised Modelling and Determination of the Environmental Impact Factor (EIF). http://www.norskoljeoggass.no/en/Publica/Guidelines/Enviornment/084-Recommended-guidelines---EIF-Computational-Guidelines---A-Manual-for-Standardised-Modelling-and-Determination-of-the-Environmental-Impact-Factor-EIF/ . *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Principles are likely applicable Europe wide. Agreed and published in 2003.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidelines address modelling of the environmental impact of environmental impacts of emissions from offshore activities including discharges to water No description of techniques to minimise emissions are provided and no performance standards are provided.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered relatively current but not relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are not provided. Techniques are not specified. This document is an effective way of measuring potential impacts from offshore activities but does not offer specific guidance to operators or competent authorities in relation to techniques that may be applied to minimise such impacts.

Guidance Identified	
• Title, link, etc	NOROG O85 – Norwegian Oil and Gas recommended guidelines for sampling and analysis of produced water. http://www.norskoljeoggass.no/en/Publica/Guidelines/Enviornment/084-Recommended-guidelines---EIF-Computational-Guidelines---A-Manual-for-Standardised-Modelling-and-Determination-of-the-Environmental-Impact-Factor-EIF/ . *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Principles are likely applicable Europe wide. Agreed and published in December 2012.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidelines address monitoring of discharges from offshore activities including sampling (touching on matters such as location of sampling points, methods of sampling) and analysis (touching on determination of total discharges including calculation methods). The guidelines are quite detailed in reference to monitoring and sampling techniques.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered very current and very relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Quality Performance Standards are described. Techniques for sampling and analysis are specified. This document is an effective piece of guidance concerning monitoring impacts from offshore activities and is likely to represent BAT for aspects of such sampling and analysis. Its application beyond Norwegian activities is unknown.

Guidance Identified	
• Title, link, etc	OSPAR Commission Background Document concerning Techniques for the Management of Produced Water from Offshore Installations http://www.ospar.org/documents?d=6945 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	OSPAR Convention area i.e. North-East Atlantic. Principles are likely applicable Europe wide. Published in 2002.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The background document describes the environmental issues related to discharges of produced water, the techniques that can be applied, their performance, costs and restrictions in terms of applicability and whether they are considered to be BAT or an emerging candidate for BAT.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered somewhat dated (2002) but very relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The techniques concerned are likely to still constitute BAT for a number of techniques listed. However, given the guidance was issued in 2002 a number of the candidate BAT identified should be reassessed to consider whether they are now actually BAT and to update performance standards accordingly.

Guidance Identified	
• Title, link, etc	OSPAR Commission Background Document concerning Techniques for the Management of Produced Water from Offshore Installations http://www.ospar.org/documents?d=7343 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	OSPAR Convention area i.e. North-East Atlantic. Principles are likely applicable Europe wide. Published in 2013. This is essentially an update of the 2002 document.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The background document describes the environmental issues related to discharges of produced water, the techniques that can be applied, their performance, costs and restrictions in terms of applicability and whether they are considered to be BAT or an emerging candidate for BAT.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered somewhat dated (2002) but very relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The techniques concerned are likely to BAT and for the OSPAR region indicate that no gap exists. Its application elsewhere is unknown at this point in time.
Guidance Identified	
• Title, link, etc	OSPAR Commission Background Document concerning Techniques for the Management of Produced Water from Offshore Installations http://www.ospar.org/documents?d=7343 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	OSPAR Convention area i.e. North-East Atlantic. Principles are likely applicable Europe wide. Published in 2013. This is essentially an update of the 2002 document.
Environmental Scope	

• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The background document describes the environmental issues related to discharges of produced water, the techniques that can be applied, their performance, costs and restrictions in terms of applicability and whether they are considered to be BAT or an emerging candidate for BAT.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered somewhat dated (2002) but very relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The techniques concerned are likely to BAT and for the OSPAR region indicate that no gap exists. Its application elsewhere is unknown at this point in time.

Guidance Identified	
• Title, link, etc	OSPAR Recommendation 2001/1 on the management of produced water http://www.ospar.org/documents?d=32591 OSPAR Recommendation 2006/4 Amending OSPAR Recommendation 2001/1 on the Management of Produced Water - http://www.ospar.org/documents?d=32608 ; and OSPAR Recommendation 2011/8 amending OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations as amended – http://www.ospar.org/documents?d=32882 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	OSPAR Convention area i.e. North-East Atlantic. Principles are likely applicable Europe wide. Update to Recommendation 2001/1 published in 2001.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The recommendations included the original OSPAR recommendation 2001/1 and subsequent updates. The most recent update generally includes updates to definitions and little else. Recommendations 2006/4, however, updates the performance standards from the 2001 recommendation. The Recommendation expects individual installations to meet an oil in water concentration limit from routine releases of 30 mg/l. The average concentration across the UKCS is currently 19.78 mg/l.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered recent and relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The performance standards may constitute BAT although it should be noted that the performance values provided are somewhat different to those provided through HELCOM (see in particular the 15mg target). The 30mg minimum standard does not, therefore, represent the best performance likely to be achievable through the application of BAT as demonstrated by the UK performance values that are considerably lower. Furthermore, there is no description of the actual techniques themselves in this recommendation.

Guidance Identified	
• Title, link, etc	OSPAR Recommendation 2012/5 for a risk-based approach to the management of produced water discharges from offshore installations - http://www.ospar.org/documents?d=32930; and OSPAR Guidelines in support of Recommendation 2012/5 for a Risk-based Approach to the Management of Produced Water Discharges from Offshore Installations (OSPAR Agreement: 2012-7, updated by OIC 2014) - http://www.ospar.org/documents?d=32930 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	OSPAR Convention area i.e. North-East Atlantic. Principles are likely applicable Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The recommendation and guidelines effectively describe how to perform a risk assessment for management of produced water. This includes sampling, modelling and taking appropriate measures to reduce risks including: Risk reduction measures (OSPAR Commission publication on the Background Document concerning Techniques for the Management of Produced Water from Offshore Installations) may comprise some or all of the following: • technical measures, such as abatement at the source by redesign of the applied processes (water shut off in the well); • substitution of chemicals; • application of closed systems (e.g. injection of produced water); • end-of-pipe techniques such as separation or clarification techniques to treat produced water prior to discharge, and; • organisational measures such as management systems in place (training, instructions, procedures and reporting). The application of BAT and BEP should be demonstrated as described in Appendix 1 of the OSPAR Convention.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered recent and relevant. It reflects present day techniques for undertaking risk assessment but does not go into detail with regard to the techniques / technologies that might be applied to mitigate such risks.
Overall Conclusion	
• Does the guidance include measurable (not necessarily	The documentation does not contain performance standards. However, it provides some detail as to how to undertake a risk assessment and characterisation exercise. It may be helpful in the process of developing

quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	guidance and may be referred to with regard to characterising risks and constitute BAT for such assessment. However, it does not provide either a list of BAT or a set of performance standards against which actual installation level action can be assessed.

Guidance Identified	
• Title, link, etc	A variety of NL guidance and legislation including: - Emissiebepaling en Rapportage – Water (Dutch only) - Mining act - Mining Decree - Mining Regulations - Decree Generic rules Mining Environment - Act Prevention of Pollution from Ships - REACH Regulation *Provided by: Netherlands*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Operations and activities in NL waters.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	No description of the content of these materials (available in Dutch only) was submitted. A machine translation of the legislation indicates that techniques are not described although emissions to water are clearly within the scope of the legislation concerned. The legislation appears to address both routine and accidental events.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge. The material is available in Dutch only.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The legislation and guidance appears relatively recent albeit that references to techniques and technologies appear limited.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The documentation provided is normally of a NL legislative context. The applicability outside of the NL is unclear and the fact that material is generally available in Dutch potentially restricts the use of the materials outside of the NL.

Guidance Identified	
• Title, link, etc	New facilities – BAT for produced water – note that this document was not yet published (indicative date of publication provided was 1 December 2015). No further analysis was possible. *Provided by: Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Unknown.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Considers BAT technologies on reducing oil content in produced water before discharge to sea for a “green field” operation.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Unknown.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Should be recent considering date of publication.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Unknown.

Discharges to sea	• **Storage and handling of completion fluids (accidental loss of containment and discharge to sea of e.g. corrosion inhibitor, biocide, oxygen scavenger)**

Summary

The issue of accidental loss of containment of chemicals and discharge to sea is covered in a number of the reference documents on "handling of residual chemical additives/hydrocarbons (planned/accidental releases to sea)". The analysis therein is not repeated here, but the same conclusions apply.

In particular, subgroup members highlighted that the provisions under e.g. OSPAR are relevant here e.g. in terms of chemical selection, as this will affect potential environmental impacts following accidental release (as well as intended release). Similarly, national requirements for e.g. reporting of accidental releases of chemicals are relevant here (for example, the UK's system is discussed briefly in the "handling of chemical additives" section.

The main documents identified specifically in relation to accidental loss of containment and discharge to sea are the NORSOK S003 standard and the World Bank / IFC EHS Guidelines. These provide examples of the types of techniques and design principles that can be used to minimise/avoid accidental releases of chemicals. They provide a useful reference source for types of techniques that can/should be considered. However, they do not describe the techniques in detail to support authorities/industry in identifying and selecting appropriate techniques (the descriptions are only at a very high level and there is no information to help determine applicability or feasibility). Moreover the geographical coverage is limited e.g. in the case of NORSOK standards, and applicability to e.g.

The international conventions e.g. OSPAR do not generally cover accidental releases of chemicals in terms of prescribed requirements. However, e.g. data on accidental chemical releases is collected under OSPAR.

The Offshore Safety Directive has been raised as relevant by the sub-group, and addresses major accidents. It does not include guidance (and is not intended to) and does not (directly) address accidental releases that are not considered "major". There is still a need for guidance on how to address accidental releases of chemicals.

Oil & Gas UK indicate "no accidental release" in relation to the potential for setting an environmental performance level.

The main gaps identified include:

- **Lack of EU-wide guidance on techniques to avoid accidental release**: While there are numerous design standards that will serve to reduce the likelihood and magnitude of releases, there are no identified EU guidance documents that set out available techniques/practices, or considerations in their use. The guidance documents identified by the sub-group include a Norwegian Standard and World Bank Guidelines.
- **Gaps in data collection on accidental releases of chemicals**: While data are collected under OSPAR and related national provisions on the number, size and type of accidental chemical releases*, there does not appear to be EU-wide guidance on the reporting of such information (and management action resulting from the data). The provisions under the Barcelona Convention for example are still under development and subject to the MAP.

Summary
* See e.g. http://www.ospar.org/ospar-data/p00635_assessment_report_discharges_offshore_installations_2010_2012.pdf. Note this was not assessed in the tables below as it was not suggested specifically by the sub-group.

Candidate Guidance	Provided by	Overview	Use in BREF?
Note: See also the analysis and guidance reviewed for "handling of residual chemical additives/hydrocarbons (planned/accidental releases to sea" which also applies here. Only guidance specifically referenced against this issue (storage and handling of completion fluids) is described below, but other guidance relevant to chemicals also applies to this issue.			
NORSOK S-003 Environmental Care	DNV GL	Provides functional requirements for avoidance of releases of chemicals to water. Does not set quantitative performance standards (other than e.g. "zero harmful discharge". Provides lists of which techniques can be used for a range of different activities undertaken offshore. Relatively high level i.e. little detail is provided on these techniques. Useful reference document. Provides a standard applicable in Norway, but overall is considered to provide examples of (potential) BAT to reduce discharges of chemicals to water.	Refer to directly
Offshore Safety Directive 2013/30/EC	IADC	Directive 2013/30 provides an over-arching framework for avoidance of major accident hazards. It does not include guidance on identifying techniques to minimise/avoid accidental release of chemicals such as completion fluids. The Directive does not specify which techniques can be used. Overall the OSD is an important consideration for the gap analysis, both in terms of the fact that it considers major accidents (and whether the BREF should seek to cover only non-major accidental releases if the TWG consider that major accidents are already addressed), but also in terms of the potential need for guidance to help permitting authorities identify specific techniques to avoid/minimise accidental release.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
World Bank Group/ IFC: Environmental, Health and Safety Guidelines Offshore Oil and Gas Development June 2015	IOGP	Guidance includes measureable performance standards for various parameters. For chemicals, this includes e.g. effluent toxicity of completion and well work-over fluids, as well as chemical content of discharged oil-based and water-based drill cuttings. No performance standards for accidental releases are included (although there is an underlying 'prevent' expectation. Provides examples of techniques that can be used without specifying any particular technique. Only high-level details are provided on potential techniques. Overall considered to be a useful reference and an example of where different performance standards and other information have been consolidated in a single source.	Refer to directly
Others (not referred to in detail)			
Various design standards in relation to "Installation (accidental release due to loss of containment during exploration, production or storage)"	UK	The UK provided the names of various important guidance documents that e.g. specify how equipment should be designed. While these are obviously important standards, they do not include guidance on techniques to address the environmental issue in question (though obviously the design of equipment should help to minimise the potential for accidental releases) If this issue is covered in the BREF following the gap analysis, the BREF should fully reflect the existence of such standards. The examples provided by the UK have not all been reviewed in detail but are repeated below for completeness: • API STD 598 Valve inspection and testing, ninth edition – September 2009 – API • API Spec 14A – Specification for subsurface safety valve equipment – January 2015 – API • API RP 14B / ISO 10417:2004 Design, installation, repair and operations of subsurface safety valve systems – October 2005 – API • API RP 90 Annular casing pressure management for offshore wells – First edition - August 2006 – API • API RP 17A / ISO 13628-1:2005 Design and operation of subsea production	

Candidate Guidance	Provided by	Overview	Use in BREF?
		systems – general requirements and recommendations – January 2006 – API • API Spec 5CT Specification for casing and tubing – Ninth edition July 2011 – API • API Spec 6A / ISO 10423:2009 – Specification for wellhead and Christmas tree equipment – Twentieth edition - October 2010 – API • API Spec 10A / ISO 10426-1:2009 – Specification for cements and materials for well cementing – API • API Spec 17D / ISO 13628-4 – Design and operation of subsea production systems – subsea wellhead and tree equipment – Second edition - May 2011 – API • BS EN ISO 10432:2004 – Petroleum and natural gas industries – Downhole equipment – Subsurface safety valve equipment – BS / ISO • BS EN ISO 11960:2014 – Petroleum and natural gas industries. Steel pipes for use as casing or tubing for wells – BS / ISO • API Spec 11D1 / ISO 14310:2008 –Packers and bridge plugs – July 2009 – API / BS ISO • BS EN ISO 15156-1:2015 – Petroleum and natural gas industries. Materials for use in H2S-containing environments in oil and gas production. General principles for selection of cracking-resistant materials – BS / ISO • BS EN ISO 15156-2:2015 – Petroleum and natural gas industries. Materials for use in H2S-containing environments in oil and gas production. Cracking-resistant carbon and low alloy steels, and the use of cast irons – BS / ISO • BS EN ISO 15156-3:2015 – Petroleum and natural gas industries. Materials for use in H2S-containing environments in oil and gas production. Cracking-resistant CRAs (corrosion-resistant alloys) and other alloys – BS / ISO • API RP 49 Recommended practice for drilling and well servicing operations involving hydrogen sulphide – Third edition – May 2001 – API • Guidelines for the management of the integrity of bolted joints for pressurised systems 2nd edition – June 2007 – Energy Institute • Mechanical Joint Integrity: Competence Guidance – Step Change in Safety • Guidelines for routine and non-routine subsea operations from floating (drilling) vessels – 1st edition - August 1995 – Energy Institute • Model code of safe practice Part 17, Volume 1: High pressure and high temperature well planning – 1st Edition – April 2009 – Energy Institute • Model Code of Safe Practice Part 17, Volume 2: Well control during the drilling and testing of high pressure, high temperature offshore wells – 2nd	

Candidate Guidance	Provided by	Overview	Use in BREF?
		edition – April 2008 – Energy Institute • Model code of safe practice Part 17, Volume 3: High pressure and high temperature well completions - 1st Edition – April 2009 – Energy Institute • Protocol for verification and validation of high-pressure high-temperature equipment – API technical report – 1PER15K-1 – First edition – March 2013 – API • Guidance on hydrocarbon release reduction plans – September 2012 – Step Change In Safety • Hydrocarbon Release Reduction Toolkit – Step Change In Safety • Asset Integrity Toolkit – Step Change In Safety • Guidelines for the management of integrity of subsea facilities – 1st edition – April 2009 – Energy Institute • Guidelines for the management of obsolescence in subsea facilities – 1st edition – May 2011 – Energy Institute • Guidance on the Management of Ageing and Life Extension for UKCS Oil and Gas Installations - Issue 1 - April 2012 Oil & Gas UK • Guidance on the management of ageing and life extension of offshore structures – Issue 1 – May 2014 – Oil & Gas UK • Guidance on the Management of Ageing and Life Extension for UKCS Floating Production Installations - Issue 1 - May 2014 – Oil & Gas UK • The safe isolation of plant and equipment HSG253 – 2nd edition 2006 – HSE • Guidance on permit-to-work systems: A guide for the petroleum, chemical and allied industries HSG250 – 2005 – HSE • Guidelines for the identification and management of environmentally critical elements – 1st edition – October 2012 – Energy Institute • Guidelines for the management of safety critical elements – 2nd edition – April 2007 – Energy Institute • Gas release hazards from gas-lifted oil wells - /TECH/OSD/46 – HSE • Well Construction Standards - SPC/Technical/General/42 – HSE • Code for the construction and equipment of mobile offshore drilling units (MODU Code) IMO that is applicable to the installation • Fire & Explosion Guidance - 2007 - Oil & Gas UK • ISO Standards – the appropriate section of the ISO19901 Series • Guidelines for ship/Installation Collision Avoidance - Issue 2 - February 2010 - by Oil & Gas UK	

Candidate Guidance	Provided by	Overview	Use in BREF?

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide. Agreed standard (developed by Norwegian petroleum industry; intended, as far as possible, to replace oil company specifications and serve as references in the authorities' regulations.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Applicable to new developments, modifications and tie-in projects. Refers to the BAT definition in the IPPC/IED directive. Relevant section is chapter 6.5 (discharges from drilling and well operations). Functional requirements for: • operations to be planned with solutions that achieve zero discharge (a number of examples of techniques suggested for evaluation, but no further details are given); • use of an environmental risk assessment for drilling fluid selection including options for disposal; • the need for back-up systems to keep e.g. discharges within limits specified in permits; • design of mud and cuttings handling systems to minimise risk of spills, with reference to a list of measures in Table C.1 (including e.g. requirements for double-barriers, etc.). • minimising discharges from cementing, with reference to table C.3 (requirements for cementing system) • minimising discharges from well clean-up and testing (e.g. by equipment on drilling rig, production platform or dedicated vessel, as per section C.8). Addresses the environmental medium (water). Addresses routine releases and accidental spills.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Last updated 2005. Considered to remain relevant as it prevents discharge to marine waters.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/	Provides functional requirements for avoidance of releases of chemicals to water. Does not set quantitative performance standards (other than e.g. "zero harmful discharge". Provides lists of which techniques can be used for a range of different activities undertaken offshore. Relatively high level i.e. little detail is provided on these techniques. Useful reference document. Provides a standard applicable in Norway. but overall is considered to provide examples of (potential) BAT to

technique concerned?	reduce discharges of chemicals to water.. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Offshore Safety Directive 2013/30/EC *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	EU-wide Directive, already agreed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Directive does not (and is not supposed to) provide guidance on management measures implemented to minimise the likelihood or impact of such accidental releases. ADC highlight that completion fluids are routinely stored and transferred in tanks and lines which are covered by a double barrier requirement (blinding/valves/bunding). Where discharge could result in major accident to the environment and arise from a major accident, preventive measures will be based on risk assessment in a report on major hazards ('safety case') pursuant to Directive 2013/30/EU. The Directive addresses accidental events (major accidents).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	EU Directive 2013/30 is only relevant insofar as it is an overarching instrument. Not relevant, however, in the case of addressing this environmental issue through provision of guidance on techniques to prevent accidental releases.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Directive 2013/30 provides an over-arching framework for avoidance of major accident hazards. It does not include guidance on identifying techniques to minimise/avoid accidental release of chemicals such as completion fluids. The Directive does not specify which techniques can be used. Overall the OSD is an important consideration for the gap analysis, both in terms of the fact that it considers major accidents (and whether the BREF should seek to cover only non-major accidental releases if the TWG consider that major accidents are already addressed), but also in terms of the potential need for guidance to help permitting authorities identify specific techniques to avoid/minimise accidental release. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	World Bank Group/ IFC: Environmental, Health and Safety Guidelines Offshore Oil and Gas Development June 2015 http://goo.gl/3w4rQp *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Potentially worldwide. Agreed guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Contain the performance levels and measures that are generally considered to be achievable in new facilities by existing technology at reasonable costs. Covers various impacts, amongst others: • For "Loading, Storage, Processing, and Offloading Operations", indicates that procedures either for consumables (i.e. fuel, drilling fluids, and additives) or for liquid products, should be utilised to minimize spill risks. Pumps, hoses, and valves should be inspected and maintained or replaced as necessary. • Spill prevention – lists various control measures e.g. spill risk assessments; design to avoid risk of major spills; BOP; ensuring adequate corrosion allowance; maintenance, monitoring and leak-detection programmes; use of ESD systems; etc. Includes performance indicators for various parameters (not in relation to accidental releases).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Dates from June 2015. Remains relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance includes measureable performance standards for various parameters. For chemicals, this includes e.g. effluent toxicity of completion and well work-over fluids, as well as chemical content of discharged oil-based and water-based drill cuttings. No performance standards for accidental releases are included (although there is an underlying 'prevent' expectation. Provides examples of techniques that can be used without specifying any particular technique. Only high-level details are provided on potential techniques. Overall considered to be a useful reference and an example of where different performance standards and other information have been consolidated in a single source. <u>Use in BREF: Refer to directly</u>

Discharges to sea	• **Storage and loading of hydrocarbon cargo (accidental loss of containment and discharge to sea)**

Summary

TWG members only provided two references for this key environmental issue. While the reference provided by DNV GL seems comprehensive, it is only applicable to ships. However, the HC BREF should refer directly to the DNV standard where appropriate. The second reference provided by OGUK is also relevant and includes a range of techniques, standards and practices to ensure safe tandem loading. However these are applicable only in the UK.

The main potential gaps identified that we recommend be considered by the sub-group are:

- The partial EU coverage of the guidance and whether a gap exists in exchange of information on best available techniques across the EU. (This is a general issue across various environmental issues.)
- Whether there is a need for further exchange of information on performance standards considering that the only ones referred to are applicable to ships only.

Mitigation and emergency response aspects should be captured under the Accidental discharges section of the gap analysis.

Candidate Guidance	Provided by	Overview	Use in BREF?
DNV Rules for Classification of Ships, Environmental Class for new-buildings, section C200 (Cargo Handling)	DNV GL	Standards and techniques to prevent loss of containment and discharge to sea.	Refer to directly
Oil & Gas UK Tandem Loading Guidelines Volume 1 Revised October 2012, ISBN 1 903 003 67 9	OGUK	Standards and techniques, including staff training, to prevent discharge during tandem loading.	Refer to directly

Guidance Identified	
• Title, link, etc	DNV Rules for Classification of Ships, Environmental Class for newbuildings, section C200 (Cargo Handling) http://rules.dnvgl.com/docs/pdf/DNV/rulesship/2015-07/ts612.pdf *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is international. Principles contained in the guidelines can be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The aim of the standards is to attain a vessel with controlled environmental standards of design and performance. With regards to discharges to sea, the standard includes guidance on recoding of the discharges. It also includes techniques / equipment specification for takers to prevent cargo spillage, specifying minimum dimensions.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	DNV standard include standards / specifications on design and equipment to manage possible impacts from discharges at sea. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Oil & Gas UK Tandem Loading Guidelines Volume 1 Revised October 2012, ISBN 1 903 003 67 9 http://ms.craig-group.com/ms/released/attachments/Tandem%20Loading%20Guidelines%20Volume%201.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Guidelines on loading cargo prepared by Oil and Gas UK. Principles contained in the guidelines could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance provide performance standards and matrix on assessing experience of staff involved in cargo loading. The guidance includes description of responsibilities of the cargo operator, in particular making sure that the discharge risks is reduced to ALARP without exceeding allowable stability or hull structural limits. The guidelines' annexes include specific references.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available but with charge for 2012, 2002 version available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Study considered sufficiently current and relevant. 2012, although only 2002 could be accessed without charge.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards cover training of staff, techniques and procedure to follow including typical values for distance and steps to conduct a tandem load. Geographically applicable to UK duty holders only currently. Use in BREF: Refer to directly

Discharges to sea

- **Well closure / plugging**

Summary

The issue of well closure / plugging is covered to a varying degree in relation to the materials submitted by subgroup members. In general, the materials submitted for assessment reflect on procedural elements for deciding on the characteristics of the measures to be applied without providing detail as to what those measures should constitute.

The exception to these general materials is the OGUK Guidelines for the Abandonment of Wells' Issue 5 July 2015 that goes into a significant detail on not only the general characteristics of barriers to be employed following well closure bur also detailed characteristics of barriers (e.g. materials, lengths) and in terms of verification of barriers sets testing characteristics (e.g. pressure testing psi). This significant amount of detail on well closure and barriers to be employed that are likely to constitute BAT. However, the wider applicability of the guidelines is unknown given that these are UK guidelines only. Furthermore, questions of applicability and cost are not covered in detail in the OGUK guidelines.

The following gaps are, therefore, considered to exist:

- **Lack of EU-wide guidance on techniques**: The techniques listed under the UKOG guidance listed above are comprehensive in nature. However, their application outside of the UK is unclear and there appears to be value in ensuring that similar guidance exists for the entire EU.
- **Lack of information on applicability and cost of techniques**.

Candidate Guidance	Provided by	Overview	Use in BREF?
DNV-GL Guideline Risk-Based Abandonment of Offshore Wells	DNV-GL	The guideline does not include Performance Standards and specifies the desirable characteristics for plugs without describing the techniques themselves. With regard to undertaking a risk based assessment for the abandonment of offshore wells the guideline is considered to be a good reference for BAT.	Background material
NORSOK Standard D-010	DNV-GL	The standard does not include performance measures and the list of techniques provided is somewhat limited in detail. It is likely that the guidance could be helpful in identifying BAT in the context of the work foreseen by the TWG.	Background material
Directive 2013/30/EU on safety of offshore oil and gas operations (OSD) and Directive 1992/92/EEC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres	IADC	Performance standards are not included and no real detail as to techniques to be employed is provided. In general the legislation referred to is insufficient in its description of actual BAT to be employed – this is left to operators / competent authorities to determine as long as the overall aims of the legislation are complied with.	Background material
OGUK Guidelines for the Abandonment of Wells' Issue 5 July 2015	IOGP	The guidelines provide detailed characteristics of barriers (e.g. materials, lengths) and in terms of verification of barriers sets testing characteristics (e.g. pressure testing psi). Overall, the guidelines provide a significant amount of detail on well closure and barriers to be employed that are likely to constitute BAT. The wider applicability of the guidelines is unknown given that these are UK guidelines only.	Refer to directly
API Bull E3 Well Abandonment and Inactive Well Practices for U.S. Exploration and Production Operations, Environmental Guidance Document	IOGP	The guidance document does not include performance standards. It does not go into detail on techniques themselves, relying rather on a description of characteristics to be employed with regard to barriers. In general the guidance appears to be of relatively limited use and application in the EU and is unlikely to constitute present day BAT.	Background material
NOGEPA *Best Practice Well Abandonment (in development)*	NOGEPA	In development / unknown.	Background material

Candidate Guidance	Provided by	Overview	Use in BREF?
API RP 96 Recommended practice deepwater well design and construction – First edition – March 2013 – API	UK	Performance Standards are not provided. Examples of techniques are provided but it is unclear if these are considered as BAT. Overall the document may be of value in defining characteristics of BAT for deep water abandonment and builds upon significant experience of such activities in the US. Its wider applicability is unknown and its lack of detail on techniques themselves and levels of performance would require further detail in order to be in keeping with what is expected for the work of the TWG.	Refer to directly.

Guidance Identified	
• Title, link, etc	DNV-GL Guideline Risk-Based Abandonment of Offshore Wells https://www.dnvgl.com/oilgas/download/dnv-gl-guideline-for-risk-based-abandonment-of-offshore-wells.html *Provided by: DNV-GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Worldwide. The guidance is final and published. It is made clear early in the document that the guideline is not applicable for: - onshore wells - suspended wells - temporarily abandoned wells.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guideline makes reference to the fact that current requirements are prescriptive as to the number and size of permanent well barriers required and the requirements are the same for all types of wells. As an alternative the guideline considers that risk-based methods can be applied to well abandonment design and acceptance criteria which better suits different wells and allow cost-saving benefits to be gained from the least critical wells. The guideline details the alternative risk-based approach, based on functional requirements and risk acceptance criteria to assess abandonment designs. By calculating the risk levels for the proposed solutions and cross-checking them with the risk acceptance criteria, more cost-effective solutions can be identified and implemented. This guideline presents principles and practices for: – establishing site-specific environmental risk acceptance criteria – confirming compliance with safety criteria for the field/installation – determining the functional requirements for permanent well barrier materials – differentiating the environmental risk exposure relative to hydrocarbon composition Effectively, the guideline considers accidental events – the general aim, as laid down in the guideline is to prevent leaks from abandoned wells.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	It is publicly available and free of charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies?	The guideline was published in 2015 and is up-do-date. With regard to risk based assessment of measures to be applied to prevent leaks to the environment the guideline is detailed and considered comprehensive.

• Overall, does it remain relevant?	However, there is little description of the techniques (e.g. barrier types) that constitute BAT – rather the guideline identifies characteristics that are likely to work in different risk situations.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include Performance Standards. Specifies the desirable characteristics for plugs without describing the techniques themselves. With regard to undertaking a risk based assessment for the abandonment of offshore wells the guideline is considered to be a good reference for BAT / risk measures. It would be useful for this material to have been supplemented with an actual list of plugging techniques to be employed that is effectively the largest gap in this document in the context of well closure / plugging.

Guidance Identified	
• Title, link, etc	NORSOK Standard D-010 http://www.standard.no/pagefiles/1315/d-010r3.pdf *Provided by: DNV-GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Norwegian Offshore Activities. Could potentially be applied elsewhere subject to location / environmental constraints.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Standard addresses abandonment (section 9). The Standard identifies that for wells to be permanently abandoned, with several sources of inflow, the usual; one primary and one secondary well barrier, do not suffice. The standard covers all well barriers and the functions they are intended to fulfil which may be necessary in abandonment scenarios. It is acknowledged that the barriers identified in the standard may not be applicable for wells where continued operations are planned, where the wellhead/ well control equipment is utilised and capable, as a secondary well barrier, to cover any source of inflow in the well. The Standard describes a number of characteristics of well plugs that are required, as well as stating characteristics that are not considered appropriate. In the design of the standard there are a number of elements considered when designing a site-specific plug. It is note that the standard states that there shall be at least one well barrier between surface and a potential source of inflow, unless it is a reservoir (contains hydrocarbons and/ or has a flow potential) where two well barriers are required. The Standard has been drafted, in part, to prevent accidental releases from abandoned sites although it covers the entire operational life of wells.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.

Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The Standard was published in August 2004. It may, therefore, not reflect the most recent advances in techniques and technologies in well closure and plugging. The issue in hand remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The standard does not include performance measures and the list of techniques provided is somewhat limited in detail. It is likely that the guidance could be helpful in identifying BAT and risk measures in the context of the work foreseen by the TWG.

Guidance Identified	
• Title, link, etc	Directive 2013/30/EU on safety of offshore oil and gas operations (OSD) and Directive 1992/92/EEC on minimum requirements for improving the safety and health protection of workers potentially at risk from explosive atmospheres *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is EU and the legislation is agreed and in force.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The legislation sets the framework for ensuring the safety of offshore oil and gas operations. It covers all media but does not go into a great deal of detail in terms of scope. The Directives are reliant on transposing legislation to add detail where required to ensure that the legislation is effectively implemented. The legislation generally covers accidental releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The 1992 Directive is now somewhat dated. The OSD is recent and reflects the most up-do-date EU legislation in force. It does not provide details of the techniques and technologies to be employed at offshore installations, instead providing legal obligations in a number of key areas and leaving a certain degree of flexibility to Member States as to how it is implemented in practice.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance standards are not included and no real detail as to techniques to be employed is provided. In general the legislation referred to is insufficient in its description of actual BAT / risk measures to be employed – this is left to operators / competent authorities to determine as long as the legislation is complied with.

Guidance Identified	
• Title, link, etc	OGUK Guidelines for the Abandonment of Wells' Issue 5 July 2015 – ISBN: 1 903 004 50 0 http://oilandgasuk.co.uk/product/op071/ *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas?	The guidelines were developed by OGUK to cover all exploration, appraisal and development wells being permanently abandoned or

• Is it agreed or only in a developmental phase?	suspended. The guidelines were produced by the UK Oil and Gas industry representing the UK offshore industry. However, the guidelines are likely to be equally applicable to non-UK activities (as well as to onshore wells albeit that special regulatory conditions may apply onshore).
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidelines go into a significant level of detail as to how to design and implement measures including determining the number of barriers to be used, the materials to be used, the characteristics of barriers (including position and length) verification of permanent barriers, special considerations for different well types and statutory notifications, approvals and record keeping (Note – these are for UK regulatory purposes only).
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible subject to a fee.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The guidelines were originally developed in 1994. The fifth iteration, issued in 2015 are very recent and reflect the most up-to-date techniques and technologies to be employed.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The guidelines provide detailed characteristics of barriers (e.g. materials, lengths) and in terms of verification of barriers sets testing characteristics (e.g. pressure testing psi). Overall, the guidelines provide a significant amount of detail on well closure and barriers to be employed that are likely to constitute BAT. The wider applicability of the guidelines is unknown given that these are UK guidelines only.

Guidance Identified	
• Title, link, etc	API Bull E3 Well Abandonment and Inactive Well Practices for U.S. Exploration and Production Operations, Environmental Guidance Document https://global.ihs.com/doc_detail.cfm?document_name=API%20BULL%20E3 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	The guidance has been developed for US operations and is primarily focussed on onshore wells. It is agreed. Its applicability to all areas of the EU is unclear.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidance: 1. Discusses a methodology for assessing the contamination potential of wells. 2. Describes the environmental concerns that justify proper wellbore abandonment procedures. 3. Describes permanent plugging and abandonment procedures. 4. Establishes risk based guidelines for monitoring inactive wells. 5. Summarises major environmental legislation and associated regulations applicable to wellbore abandonments – this cover the US only. The guidance looks to address accidental events e.g. loss of containment. It does not go into detail on techniques themselves, relying rather on a description of characteristics to be employed with regard to barriers.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The report is from 1993 and was reaffirmed in 2000. Given the age of the guidance it is likely to have been superseded by more recent guidance.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/	The does not include performance standards. It does not specify or describe any techniques that can be applied to achieve those performance standards. In general the guidance appears to be of relatively limited use and application in the EU and is unlikely to constitute present day BAT / BARM.

process/ technique concerned?	

Guidance Identified	
• Title, link, etc	NOGEPA *Best Practice Well Abandonment (in development)* *Provided by: NOGEPA* This document has yet to be published and a full assessment of its BAT / BARM content was unable to be undertaken.
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Unknown.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Unknown.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Will be publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Unknown.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Unknown.

Guidance Identified	
• Title, link, etc	API RP 96 Recommended practice deepwater well design and construction – First edition – March 2013 – API http://www.techstreet.com/api/products/1854971 *Provided by: UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas?	US deep water operations. Principles are likely applicable to other deep water environments including in the EU. Agreed and published in 2013.

• Is it agreed or only in a developmental phase?	
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidance: - identifies the appropriate barrier and load case considerations to maintain well control during DW well operations (drilling, suspension, completion, production, and abandonment). - provides a description of barriers and discussion of the philosophy, number, type, testing, and management required to maintain well control. - Abandonment barrier requirements are described for use when designing the well. - Discusses load assumptions, resistance assumptions, and methodologies commonly used to achieve well designs with high reliability. - Describes the risk assessment and mitigation practices commonly implemented during deep water casing and equipment installation operations. It does not, however, detail casing design load case definitions and does not include specific casing designs or design factors.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered current and relevant. The high level description of technique considerations is of value, albeit actual techniques themselves are not described in any real detail.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are not provided. Examples of techniques are provided but it is unclear if these are considered as BAT / BARM. Overall the document may be of value in defining characteristics of BAT for deep water abandonment and builds upon significant experience of such activities in the US. Its wider applicability is unknown and its lack of detail on techniques themselves and levels of performance would require further detail in order to be in keeping with what is expected for the work of the TWG.

Releases to air • **Drilling rig (air emissions from drilling rig and associated supply and transport vessels)**

Summary

Emissions from drilling rig, associated supply and transport vessels (marine air emissions) are considered to be covered to some extent by existing regulations and Guidance. The BREF could hence refer to some of these documents.

The following Guidance provided may be referred to by the BREF for specific techniques:

- NORSOK S-003 Environmental Care
- IPIECA-OGP compendium
- Economic Commission for Europe Guidance on Emissions Control

Note that the completeness of the list of techniques identified in these documents would still need to be verified. It is expected that they present a summary of selected methods rather than a comprehensive list of techniques. The ECE reference, for example, is not specific to hydrocarbons and hence any techniques referenced would need to be caveated on that basis.

The following Guidance may be useful for developing Performance Standards:

- IMO MARPOL 73/78 Annex VI
- DNV Rules for Classification of Ships, Environmental Class
- IMO Energy Efficiency guidance

A number of references relating to IPPC have been cited for which, it would need to be verified, are either relevant to this or to the Industrial Emissions Directive and associated BREF. If there is crossover to the hydrocarbons BREF then that will need to be investigated further.

A number of references have been cited relating to Emissions Trading which are not directly relevant to Performance standards and techniques on reducing emissions. They do, however, demonstrate that processes are in place to manage emissions (particularly power generation) more broadly in the industry.

References relating to energy efficiency improvements are related to this issue, in terms of reducing emissions more fundamentally by finding energy savings. Hence these references are relevant to the BREF and should be referred to. They do not constitute the whole issue though, they are concerned primarily with emissions prevention, as opposed to any further control or mitigation measures that may also be put in place.

The remaining information provided is considered useful only as background material. The subgroup should be clear that Regulations and Legislation state requirements for offshore operations, but do not specifically detail how operators should meet those requirements in terms of management measures and BAT. EU Directives and national legislation are hence no more substitutes for a hydrocarbons BREF than, for example the EU Industrial Emissions Directive (IED) is a substitute for what is now the Industrial Emissions BREF.

A gap was found in that no individual references provide the level of detail sought on Performance Standards and techniques. It is concluded that the Guidance provided addresses the environmental issue in part, and provides an incomplete summary of Performance Standards and techniques that could be referenced (but not in a single reference provide a substitute for) the BREF.

Guidance Identified	
• Title, link, etc	IMO MARPOL 73/78 Annex VI and Amendments http://www.imo.org/blast/mainframe.asp?topic_id=233 *Provided by: IOGP / UK DECC* Also covers: IAPP – International Air Pollution Protocol Certificate And: IMO MODU Code http://mdl2179trialdocs.com/releases/release201303211200016/TREX-44072.pdf *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide. IMO applies Europe wide currently. IMO provides statutory emissions performance testing, survey, and certification requirements of the applicable IMO Regulations and Guidelines.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	MARPOL covers emissions of ozone depleting substances, VOCs, NOx and SOx from mobile drilling rigs, which require an IAPP (International Air Pollution Prevention) certificate to demonstrate compliance. MARPOL sets requirements (which are also subsequently implemented in national legislation and regulations, such as the Norway Pollution Control Act (http://www.miljodirektoratet.no/no/Regelverk/Forskrifter/Forskrift-om-kvoteplikt-og-handel-med-kvoter-for-utslipp-av-klimagasser-klimakvoteforskriften/) MARPOL provides information on how to meet requirements it sets, but does not specifically provide *best* techniques for fulfilling requirements. This remit may be fulfilled by as yet unidentified guidance from Classification Societies (e.g. DNV, ABS, Lloyds, etc), or elsewhere. MARPOL addresses the environmental issue and covers relevant media, i.e. air/water. It addresses both routine and accidental events. Air emissions are considered a routine event.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	MARPOL is not publicly available, and is charged for access. IMO MODU Code can be downloaded
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information is considered sufficiently current and relevant. Most recent updates are 2015. MARPOL itself is originally 1970's – potentially not considered current. IMO MODU Code is 2001
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does includes potential Performance Standards for some aspects, e.g. fuels. MARPOL addresses requirements for air emissions and provides some information on techniques. It is not a reference source for best techniques and practices. Require to investigate the extent to which this covers fixed facilities. IMO MODU Code makes no specific reference to environmental. Use in BREF: Background material Search information provided by Classification societies and others, which may detail specific techniques recommended to fulfil IMO requirements.

Guidance Identified	
• Title, link, etc	IOGP/IPIECA compendium of energy and GHG efficient technologies and practices http://www.ipieca.org/energyefficiency *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide. Can be applied in all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The IPIECA-OGP compendium is an online database which provides an introduction to energy efficiency measures for oil and gas facilities, and aims to raise awareness and uptake of such technologies and practices across the industry. In the case of marine emissions, IPIECA Guidance is useful for measures and techniques related to energy efficiency improvements. Improving energy efficiency can reduce air emissions. The Guidance does not cover all aspects of controlling air emissions butr could be referenced for some of the techniques.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance addresses some of the specific techniques relevant to air emissions. It could be referenced as one of several sources of Guidance, mainly in the area of techniques to improve energy efficiency. Note that air emissions reduction and eliminations techniques are not fully covered by this Guidance. Consider that a gap still exists here. Use in BREF: Refer to directly Note that this Guidance may also be useful for other environmental issues.

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care Section 5.2 (Energy management) Section 5.4 (NOx control on engines) Section 5.8 (Well testing) Section 5.9 (Emission control and monitoring) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance addresses the environmental issue. Covers the relevant media of air. Main aspects of the issue relate to the control and minimisation of emissions to air from marine sources. Guidance provides a list of measures. Guidance addresses routine events, with which this aspect is concerned.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance includes potential Performance Standards. Guidance addresses specific techniques in detail. Guidance provides a description of how best to manage the activity. Limitations to the guidance are geographical (designed for Norway). Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Yet to be determined whether techniques exist that fall outside the Guidance – in other words should Guidance be supplemented in the BREF with additional information, either new, or referenced from other sources? Use in BREF: Refer to directly Verify whether Guidance is sufficiently complete in terms of the issue.

Guidance Identified	
• Title, link, etc	DNV Rules for Classification of Ships, Environmental Class Section B200 (NOx Emissions) http://rules.dnvgl.com/docs/pdf/DNV/rulesship/2015-07/ts612.pdf *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance covers some of the design and operational compliance requirements for marine air emissions. Guidance does not specifically address techniques for the prevention, control and mitigation of air emissions, including for example recommended types of power generation equipment or emissions abatement technology. Guidance covers relevant media of air. Guidance (and issue) is relevant only to planned activities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards, but could be potentially referred to for a performance measure in terms of compliance. Guidance does not address specific techniques in detail. Guidance is limited to ships. Does not cover fixed offshore facilities. Use in BREF: Background material Techniques not discussed.

Guidance Identified	
• Title, link, etc	EU- Directive 2010/75 http://ec.europa.eu/environment/industry/stationary/ied/legislation.htm *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	EU member states. Industrial Emissions Directive (IED) is intended to be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	IED does address the issue of air emissions from Industrial processes. It is, however, the industry BREFs that provide specific information on techniques to meet requirements of the Directive. In the case of offshore emissions, such a BREF does not currently exist. Reference to the IED is therefore not considered credible for the purposes of addressing this issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	IED is relevant insofar as it is an overarching instrument. Not relevant, however, in the case of addressing this issue. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	IED does not include Performance Standards, and is not intended to provide management and mitigation measures. Not considered a credible reference for this issue. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Dutch Air Emissions Legislation and Regulations • Activiteitenbesluit • Activiteitenregeling • Nederlandse Emissie Richtlijn (NeR) • F-gassen verordening • Beluit handel in emissierechten • Wet milieubeheer • Omgevingswet • Meerjarenafspraken Energie Efficientie (MJA3) http://www.infomil.nl/onderwerpen/klimaat-lucht/ner/ *Provided by: NOGEPA*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Netherlands. Principles are applicable Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	NER Represents a collection of legislation and regulations which implement the EU Industrial Emissions Directive (IED) in the Netherlands. Online information associated with these documents points directly to the BREFs for individual industries as a source of reference http://www.infomil.nl/onderwerpen/klimaat-lucht/ner/digitale-ner/3-eisen-en/3-5-bat-referentie/ Such a BREF is of course the purpose of the exercise and it is hence concluded that this issue is not addressed currently in Dutch regulation or other Guidance. Other documents are similar – legislation and regulations but no specific Guidance on techniques.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered sufficiently current but not relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards not provided. No information provided on specific techniques. Not specific to offshore. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Utslippsfaktorer for NOx (mobile rigger) (Emission factors for NOx (mobile oil rigs)) *Provided by: Norway Environment Agency* Study performed by DNVGL
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Unable to verify whether applicable to all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Revision of emission factors of NOx from diesel engines on mobile oil rigs. The purpose of the study was to verify the assumption that NOx-emissions factors used to calculate NOx-emissions from diesel engines and motors on these installations were not representative for the current technical standard and performance. The study was based on the EIAPP database (motor certificates) combined with achieved results and experience from the Norwegian NOx-fund. New factors were recommended. UNABLE TO LOCATE THE DOCUMENT
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Summary of proposed action plan for Norwegian emissions of shortlived climate forcers http://www.miljodirektoratet.no/en/Publications/2014/March-2014/Summary-of-proposed-action-plan-for-Norwegian-emissions-of-shortlived-climate-forcers/ *Provided by: Norway Environment Agency* Study performed by DNVGL
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Unable to verify whether applicable to all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Short-lived climate pollutants (SLCPs) are agents that have relatively short lifetime in the atmosphere - a few days to a few decades - and a warming influence on climate. This document addresses the issue but in a general way, it is not specific to offshore oil and gas. It relates primarily to routine releases.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2014. Not entirely relevant to the BREF in terms of a reference for offshore oil and gas. Very general.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No directly applicable Performance Standards or BAT. Relevant only in terms of the wider issue of emissions management. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Directive 2001/81/EC on national emission ceilings for certain atmospheric pollutants. Directive 2010/75/EC on industrial emissions (integrated pollution prevention and control) (Recast) Directive 2012/33/EU amending Directive 1999/32/EC as regards the sulphur content of marine fuels Decision 93/389/EEC for a monitoring mechanism of Community CO2 and other greenhouse gas emissions - European Pollutant Emissions Register (EPER). Directive 2003/87/EC establishing a scheme for greenhouse gas emission allowance trading within the Community later amended by Directive 2009/29/EC 389/2013 (establishing a Union Registry pursuant to Directive 2003/87/EC of the European Parliament and of the Council, Decisions No 280/2004/EC and No 406/2009/EC of the European Parliament and of the Council and repealing Commission Regulations (EU) No 920/2010 and No 1193/2011) 1031/2010 on the timing, administration and other aspects of auctioning of greenhouse gas emission allowances pursuant to Directive 2003/87/EC of the European Parliament and of the Council establishing a scheme for greenhouse gas emission allowances trading within the Community 2216/2004 for a standardised and secured system of registries pursuant to Directive 2003/87/EC of the European Parliament and of the Council and Decision No 280/2004/EC of the European Parliament and of the Council Decision 2011/278/EU on determining the transitional EU wide rules for the harmonised free allocation of emission allowances in accordance with Article 10a of the EU ETS Directive (as amended) Decision 2011/745/EU amending Decisions 2010/2/EU and 2011/278/EU as regards the sectors and subsectors which are deemed to be exposed to a significant risk of carbon leakage Regulation 166/2006 concerning the establishment of a European Pollutant Release and Transfer Register (E-PRTR). Regulation 1193/2011 concerning the establishment of a single Union-wide EU-ETS Registry Regulation 1210/2011 concerning the auctioning of EU-ETS allowances Regulation 601/2012 on the monitoring and reporting of greenhouse gas emissions pursuant to Directive 2003/87/EC as amended by 600/2012 Regulation 600/2012 on the verification of greenhouse gas emission reports and tonne-kilometre reports and the accreditation of verifiers

	pursuant to Directive 2003/87/EC Regulation 1494/2007 (products and equipment containing certain fluorinated greenhouse gases) Regulation 1493/2007 on the format for the report to be submitted by producers, importers and exporters of certain fluorinated greenhouse gases 525/2013 on a mechanism for monitoring and reporting greenhouse gas emissions and for reporting other information at national and Union level relevant to climate change and repealing Decision No 280/2004/EC Regulation 1516/2007 establishing standard leakage checking requirements for stationary refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases Regulation 1497/2007 establishing, standard leakage checking requirements for stationary fire protection systems containing certain fluorinated greenhouse gases Directive 2012/27/EU of the European Parliament and of the Council of 25 October 2012 on energy efficiency, amending Directives 2009/125/EC and 2010/30/EU and repealing Directives 2004/8/EC and 2006/32/EC Regulation 1005/2009 on substances that deplete the ozone layer Regulation 744/2010 amending Regulation 1005/2009 with regard to the critical use of halons Regulation 291/2011 on essential uses of controlled substances other than hydrochlorofluorocarbons for laboratory and analytical purposes under EC Regulation No 1005/2009 Regulation 517/2014 on fluorinated greenhouse gases Regulation (EC) No 842/2006 of the European Parliament and of the Council on certain fluorinated greenhouse gases Decision 2013/808/EU determining quantitative limits and allocating quotas for substances controlled under Regulation 1005/2009 on substances that deplete the ozone layer Regulation 2037/2000 on substances that deplete the ozone layer 306/2008 (Minimum requirements and the conditions for mutual recognition for the certification of personnel recovering certain fluorinated greenhouse gas-based solvents from equipment) 305/2008 (Minimum requirements and the conditions for mutual recognition for the certification of personnel recovering certain fluorinated greenhouse gases from high-voltage switchgear) 304/2008 (Minimum requirements and the conditions for mutual recognition for the certification of companies and personnel as regards stationary fire protection systems and fire extinguishers containing certain fluorinated greenhouse gases)

	303/2008 (Minimum requirements and the conditions for mutual recognition for the certification of companies and personnel as regards stationary refrigeration, air conditioning and heat pump equipment containing certain fluorinated greenhouse gases) Directive 2004/107/EC relating to arsenic, cadmium, mercury, nickel and polycyclic aromatic hydrocarbons in ambient air as amended by 2015/1480 laying down the rules concerning reference menthods, data validation and location of sampling points for the assessment of ambient air quality Directive 2008/50/EC on ambient air quality and cleaner air for Europe *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	A comprehensive summary of EU Directives and EU wide regulations relating to air emissions.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This list of EU Directives and Regulations addresses the environmental issue, and is applicable to the relevant medium of air. Directives and Regulations provide a framework for controlling air emissions, by stating the requirements by which potential emitters must abide. These documents, however, do not constitute Guidance on how polluters should act in order to reduce their emissions using best available techniques and methods.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Directives and regulations are current (varying dates within the last two decades). Not entirely relevant to the BREF in terms of Guidance on BAT.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	No directly applicable Performance Standards or BAT. Relevant in terms of demonstrating that a robust legislative and regulatory framework is in place. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	SI 2002/3118 National Emissions Ceilings Regulations 2002 Offshore Combustion Installations (Pollution Prevention and Control) Regulations 2013 "Sulphur Content of Liquid Fuels Regulations 2014 SSI 2000/ 169 The Sulphur Content of Liquid Fuels (Scotland) Regulations 2000 SI 2007/79 The Sulphur Content of Liquid Fuels (England and Wales) Regulations 2007 " "Greenhouse Gas Emissions Trading Scheme Regulations 2005 as amended SI 2015/1849 The Greenhouse Gas Emissions Trading Scheme (Amendment) Regulations 2015 SI 2012 No. 3038 The Greenhouse Gas Emissions Trading Scheme Regulations 2012 SI 2012/2661 The Community Emissions Trading Scheme (Allocation of Allowances for Payment) SI 2011/ 2911 The Greenhouse Gas Emissions Trading Scheme (Amendment) (Registries and Fees etc.) Regulations 2011Regulations 2012 SI 2009/ 1258 The Climate Change Act 2008 (2020 Target, Credit Limit and Definitions) Order 2009 SI 2009/ 1257 The Carbon Accounting Regulations 2009 SI 2008/ 1825 The Community Emissions Trading Scheme (Allocation of Allowances for Payment) Regulations 2008" Energy Savings Opportunity Scheme Regulations 2014 SI 2015/816 The Pollution Prevention and Control (Designation of Energy Efficiency Directive) (England and Wales) Order 2015 SI 2015/310 The Fluorinated Greenhouse Gases Regulations 2015 CRC Energy Efficiency Order 2013 SI 2008/ 2924 The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 Control of Pollution Act 1974 Health and Safety at Work Act 1974 (c37) G Waste and Emissions trading Act 2003 and SI 2013/141 The Waste and Emissions Trading Act 2003 (Amendment etc.) Regulations 2013 Energy Act 1976 and Petroleum Act 1998 in the UK – permitted activity SSI 2010/204 The Air Quality Standards (Scotland) Regulations 2010 SI 2013/971 The Offshore Combustion Installations (Pollution

	Prevention and Control) Regulations 2013 SI 2004/ 352 The Petroleum Licensing (Exploration and Production) (Seaward and Landward Areas) Regulations 2004 SI 1999/ 360 The Offshore Petroleum Production and Pipe-lines (Assessment of Environmental Effects) Regulations 1999 G SI 1999/ 160 The Petroleum (Current Model Clauses) Order 1999 SI 1995/ 738 The Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 (MAR) G SI 1988/ 1213 Petroleum (Production) (Seaward Areas) Regulations 1988 Energy Act 1976 Petroleum Act 1998 in the UK – permitted activity SI 2012/ 461 The Storage of Carbon Dioxide (Inspections etc) Regulations 2012 *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	A comprehensive summary of UK legislation and regulations relating to air emissions.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This list of UK legislation and regulations addresses the environmental issue, and is applicable to the relevant medium of air. Legislation and Regulations provide a framework for controlling air emissions, by stating the requirements by which potential emitters must abide. These documents, however, do not constitute Guidance on how polluters should act in order to reduce their emissions using best available techniques and methods.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Legislation and regulations are largely current. Not entirely relevant to the BREF in terms of Guidance on BAT.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used?	No directly applicable Performance Standards or BAT. Relevant in terms of demonstrating that a robust legislative and regulatory framework is in place. <u>Use in BREF: Background material</u>

• What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Guidance on Offshore Combustion Installations (Prevention and Control of Pollution) Regulations 2001 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/448264/ppc-guidance-notes-250909.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Content may be applicable to all EU areas. *Covered by Large Combustion Plant IPPC BREF – possibly should not be reviewed here*
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance on the Offshore Combustion Installations (Prevention and Control of Pollution) Regulations 2001, including how to comply with the regulations, matters of how facilities will be inspected, etc. Addresses combustion for power generation purposes.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Contains applicable Performance Standards and best practices, but these are probably relevant to the IED BREF. Measures contained would need to be reviewed in further detail to ensure comprehensive. Geographical limit to UK but principles could be applied more widely. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidance on Energy Assessment https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/128712/Energy_Assessment_Methodology.pdf Appears on the DECC website but is a PI document *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Content may be applicable to all EU areas. *Covered by Large Combustion Plant IPPC BREF – possibly should not be reviewed here*
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance provides approach to energy management, which represents part of the issue around reducing emissions, particularly from offshore power generation. Having an energy management plan is one critical component to any operation, and the Guidance addresses that issue. Covers relevant media of air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered sufficiently current and relevant. 2008.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document is a methodology for assessment, and as such Performance Standards not part of the remit. Some information provided on specific techniques, including steps in management plan. Suggest that the BREF should reference this document directly as part of the issue around power generation emissions. Other references would however need to be drawn upon to fully address this issue, and aspects may still need to be addressed that are not covered by Guidance. Note that this represents one form of Guidance but it is not clear that this is considered as best industry practice, or that the techniques mentioned can actually be considered as BAT. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Guidance for completion of Offshore Combustion Installations Non-compliance (Prevention and Control of Pollution) Regulations 2001 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/80835/ppc-guid-non-compliance-notif-form.doc *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Not applicable EU wide. This is a form. *Covered by Large Combustion Plant IPPC BREF – possibly should not be reviewed here*
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This is a form.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	N/A
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not relevant as Guidance. This is a form. Refer to reviews for UK Legislation and Regulations. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Offshore PPC (Combustion Plant) Emissions Monitoring Guide https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/128711/offshore_monitoring_guidance_sept09.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Could be applied EU wide as this relates to the IPPC BREF *Covered by Large Combustion Plant IPPC BREF – should not be reviewed here*
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Integrated Pollution Prevention and Control Reference Document on Best Available Techniques for Large Combustion Plants http://eippcb.jrc.ec.europa.eu/reference/BREF/lcp_bref_0706.pdf *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Could be applied EU wide as this relates to the IPPC BREF *Covered by Large Combustion Plant IPPC BREF – should not be reviewed here*
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	EEMS Atmospherics User Guide https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/136470/atmos.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Could in principle be applied to other EU areas
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document is a series of return sheets used to report Atmospheric Emissions from offshore oil and gas installations and also from onshore oil and gas Terminals under the Environmental Emissions Monitoring System (EEMS) in the UK. Emissions from support vessels, tankers on-route, helicopters and seismic vessels are not to be included as these emissions are recorded elsewhere in the National Inventory. Addresses routine emissions
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document is currently applicable, but not relevant as Guidance on this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not Guidance No Performance Standards or techniques specified. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidance Document for the implementation of the European PRTR http://prtr.ec.europa.eu/docs/EN_E-PRTR_fin.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	EU wide applicability
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document relates to providing guidance on reporting of waste/pollution/emissions transfers. Relevant in terms of media, but not guidance in terms of reducing emissions to air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document is current 2006, but not relevant as Guidance on this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not Guidance on the issue of air emissions reduction. No Performance Standards or techniques specified. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Additional Guidance on The Merchant Shipping (Prevention of Air Pollution from Ships) Regulations 2008 as amended by the Merchant Shipping (Prevention of Air Pollution from Ships) (Amendment) Regulations 2010 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/440776/MGN_400__MF_.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	EU wide applicability
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This MGN provides guidance for ships on the requirements of MARPOL, specifically to aid interpretation of the requirements under the Regulations for ships either anchored or at berth in UK ports, with respect to sufficient time for fuel changeover, and “hotelling”. Relevant in terms of media, but not guidance in terms of reducing emissions to air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document is current 2010, but not relevant as Guidance on this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not Guidance on the issue of air emissions reduction. No Performance Standards or techniques specified. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	European Union Emissions Trading System (EU ETS) Phase III- Guidance for installations https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/401346/LIT_7590.pdf EU-ETS : Guidance on the Notification of Temporary Equipment used offshore Guidance to Operators on the requirements for installations to achieve the highest applicable monitoring tiers (as defined within Commission Decision of 18 July 2007 establishing guidelines for the monitoring and reporting of greenhouse gas emissions known as "MRG2") EU Emissions Trading Scheme Annual Emissions Report Guidance to Offshore Operators for Completion of Form ETS7 European Union Emissions Trading System for Offshore Installations DECC Civil Sanctions Guidance DECC: The Greenhouse Gasses Emissions Trading Scheme (ETS) Regulations 2005: Notification of Change Requirements Offshore Combustion Activities Monitoring and Reporting Guidelines Emissions Trading Scheme Workflow Automation Project (ETSWAP) : Industry user guidance (draft) Greenhouse Gases Emission Trading Scheme (ETS) Regulations 2003 EXPLANATORY NOTES Guidance for completing the Commission GHG NE&C (Change of Activity) Form for: Partial Cessation/Recovery from Partial Cessation EU Emissions Trading System Appeals Guidance https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/439869 /Appeals_Guidance_EU_ETS_reporting_year_2013_onwards.pdf European Union Emissions Trading System for Offshore Installations Guidance to Industry https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/450988/EU_ETS_sanctions_guidance.pdf DECC OGED MRR Guidance for Phase III Monitoring & Reporting Plan https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62737/6421-decc-oged-mrr-guidance-for-phase-iii__2_.pdf Guidance Document- The Monitoring and Reporting Regulation – General guidance for installations https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62736/ 6423-general-guidance-for-installations-mrr-g.pdf Guidance Document- The Monitoring and Reporting Regulation – Guidance on Uncertainty Assessment https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288130/ Guidance_on_Uncertainty_MRR_GD.pdf Guidance Document The Monitoring and Reporting Regulation – Guidance on Sampling and Analysis https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/288167/ Guidance_on_Sampling___Analysis_MRR_GD.pdf

	Phase III Monitoring Plans - Further Guidance https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62733/6080-phase-iii-further-guidance.pdf Phase III New Entrant Reserve or Increased Capacity Applications https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/62732/5689-new-entrant-reserve-increased-capacit.pdf ETSWAP Industry User Guidance https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/395960/ETSWAP_industry_user_guidance_v1.pdf Guidance for completing the Commission GHG Change of Activity Form Partial Cessation https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/389558/Guidance_for_completing_the_NE_C_Partial_Cessation_or_Recovery_V2.pdf Guidance on how to measure and report your greenhouse gas emissions https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/69282/pb13309-ghg-guidance-0909011.pdf Environmental Reporting Guidelines: Including mandatory greenhouse gas emissions reporting guidance https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/206392/pb13944-env-reporting-guidance.pdf DEFRA Environmental Reporting Guidelines : Including mandatory greenhouse gas emissions reporting guidance The Monitoring and Reporting Regulation – Guidance on Uncertainty Assessment http://ec.europa.eu/clima/policies/ets/monitoring/docs/gd4_guidance_uncertainty_en.pdf *Provided by: OGUK / UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK/EU applicability for emissions trading and GHG reporting.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on	The above documents provides guidance for emissions trading and reporting. Relevant in terms of media, but not guidance in terms of reducing emissions to air. It is considered that the review of these documents is too onerous given that they do not have as their mandate to provide guidance specifically on BAT for air emissions reduction.

whether they are addressed? • Does it address routine releases or accidental events?	
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Documents are current, but not relevant as Guidance on this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not Guidance on the issue of air emissions reduction. No Performance Standards or techniques specified. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Complying with the Energy Savings Opportunity Scheme (ESOS) https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/466515/LIT_10094.pdfa Energy Savings Opportunity Scheme (ESOS) ESOS guidance notes for the oil and gas offshore industry https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/410218/DECC-OGED_Offshore_ESOS_guidance_v1.0_March_2015.pdf CRC Energy Efficiency Scheme guidance for participants in Phase 2 (2014-2015 to 2018-2019 https://www.gov.uk/government/uploads/system/uploads/attachment_data/ile/466103/LIT_9008.pdf *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Not applicable EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Energy Savings Opportunity Scheme (ESOS) is a mandatory energy assessment and energy saving identification scheme for large undertakings (and their corporate groups). The scheme also applies to the offshore oil and gas industry operating on the United Kingdom Continental Shelf (UKCS). For those that qualify under the scheme, action is compulsory. Scheme relates to better understanding energy use with a view to making it more efficient. The documents provide guidance in terms of energy saving opportunities, but these are given as examples and should not be considered comprehensive or containing sufficient detail to constitute BAT. Relevant in terms of media. The CRC Energy Efficiency Scheme is also included here.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Documents are current 2015, and relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards?	The documents are not Guidance on air emissions per se, they relate to energy efficiency improvements, which are however directly related. They would be considered as reference material to the BREF, rather than a

• Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	substitute for it, as they deal with one component of the environmental issue as a whole. They should be referred to directly in the BREF for any techniques that they specifically relate to (e.g. power generation) No Performance Standards or techniques specified. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Marine Environment Protection Committee, 2014 Guidelines on the Method of Calculation of the Attained Energy Efficiency Design Index (EEDI) for New Ships http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/MEPC%20Resolutions/MEPC%20245%2066.pdf Marine Environment Protection Committee, 2013 Guidelines for Calculation of Reference Lines for use with the Energy Efficiency Design Index (EEDI) http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Documents/MEPC%20-%20Marine%20Environment%20Protection/231%2865%29.pdf Marine Environment Protection Committee, 2012 Guidelines on Survey and Certification of the Energy Efficiency Design Index (EEDI) http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Documents/MEPC%20-%20Marine%20Environment%20Protection/214(63).pdf *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Applicable EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Identified EEDI Guidelines detail recent IMO requirements for energy efficient design on new ship builds. Relates to better energy use with a view to making ships more energy efficient and reducing emissions. The documents provide guidance in terms of energy efficiency calculations, etc and opportunities for increasing efficiency, and may be considered as Performance Standards. Documents should not be considered to contain sufficient detail to constitute all possible BAT in this area. Requires further review. Relevant in terms of media.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Documents are current 2014, and relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/	The documents are not Guidance on air emissions per se, they relate to energy efficiency improvements, which are however directly related. They would be considered as reference material to the BREF, rather than a substitute for it, as they deal with one component of the environmental issue as a whole. They should be referred to directly in the BREF for any techniques that they specifically relate to (e.g. power generation) Use in BREF: Refer to directly

technique concerned?	

Guidance Identified	
• Title, link, etc	Marine Environment Protection Committee, 2012 Guidelines for the Development of a Ship Energy Efficiency Management Plan (SEEMP) http://www.imo.org/en/KnowledgeCentre/IndexofIMOResolutions/Documents/MEPC%20-%20Marine%20Environment%20Protection/213(63).pdf *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide coverage through IMO. EU wide applicability
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidelines have been developed to assist with the preparation of Ship Energy Efficiency Management Plan (hereafter referred to as the "SEEMP") that are required by regulation 22 of Annex VI of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (MARPOL 73/78 Relevant in terms of media, but from the perspective of energy efficiency increases, including reducing emissions to air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document is current 2012, relevant as Guidance on this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Some aspects provide guidance on direct emissions reduction, the remainder appears to be related to energy efficiency improvement, which would indirectly lead to emissions reduction. No Performance Standards specified. Some techniques and measures are specified. Not all encompassing guidance on the issue of air emissions, but deals with the root cause around efficiency aspects. BREF could refer to this document directly for any particular aspects with which it is concerned. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Marine Environment Protection Committee, 2009 Guidelines For Exhaust Gas Cleaning Systems http://www.imo.org/blast/blastDataHelper.asp?data_id=26469&filename=184(59).pdf *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide coverage through IMO. EU wide applicability
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidelines related to exhaust gas cleaning systems, one means of reducing air emissions. Relevant in terms of media, air. Addresses one part of the issue of air emissions relating to control and mitigation.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document is current 2009, relevant as Guidance on this issue.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Quantitative Performance Standards specified. Some techniques and measures are specified. Not all encompassing guidance on the issue of air emissions, but deals with one important aspect, that of exhaust gases. BREF could refer to this document directly for any particular aspects with which it is concerned. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Marine Environment Protection Committee, Amendments to the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines http://www.imo.org/blast/blastDataHelper.asp?data_id=23761&filename=177(58).pdf *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide. Can be applied in all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The purpose of this Code is to provide mandatory procedures for the testing, survey and certification of marine diesel engines which will enable engine manufacturers, shipowners and Administrations to ensure that all applicable marine diesel engines comply with the relevant limiting emission values of NOx as specified within regulation 13 of Annex VI. In terms of the environmental issue this document - Is applicable to air emissions - Deals with a specific type of air emission (NOx) - Is concerned with achieving compliance with Regulations in terms of testing, survey and certification The document deals with routine emissions to air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2008.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document contains information that may constitute a Performance Standard and could be referred to by the BREF in this regard. Document is not concerned with specific techniques for controlling emissions. Therefore these would need to be covered in the BREF or referenced elsewhere. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Energy Institute, Atmospheric Hydrocarbon Emissions from Marine Vessel Transfer Operations, 1st ed Sep 2009, ISBN 978-0-85293-539-2 *http://publishing.energyinst.org/ data/assets/file/0011/9659/Pages-from-HM-65-Atmospheric-hydrocarbon-emissions-from-marine-vessel-transfer-operations-07.10.09.pdf* *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide. Can be applied in all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This standard provides methods for estimating evaporative loss from marine vessel transfer operations. Specifically, this standard addresses: 1) loading stock into: a) ship or ocean barges, or b) shallow draft barges, and 2) loading ballast water into ship or ocean barges from which crude oil has been unloaded In terms of the environmental issue this document - Is applicable to air emissions - Deals with a specific type of air emission – evaporative losses - Is concerned with estimating evaporative loss The document deals with routine emissions to air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available, charge for by Energy Inst.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document contains no information on Performance Standards. Document is not concerned with specific techniques for controlling emissions. Document is primarily concerned with quantifying extent of impact, as opposed to providing guidance on how to manage it. Is therefore not a substitute for information in the BREF, but could be referenced as background. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Economic Commission for Europe, Guidance document on control techniques for emissions of sulphur, nitrogen oxides, volatile organic compounds and particulate matter (including PM10, PM2.5 and black carbon) from stationary sources. *http://www.unece.org/fileadmin/DAM/env/documents/2012/EB/ECE.EB.AIR.117_AV.pdf* *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Europe. Can be applied in all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This standard provides, as the title suggest, guidance on control techniques for emissions of sulphur, nitrogen oxides, volatile organic compounds and particulate matter (including PM10, PM2.5 and black carbon) from stationary sources. In terms of the environmental issue this document - Is applicable to air emissions - Deals with a range of air emission types - Is concerned with control techniques and technologies The document deals with routine emissions to air. Main concern in terms of relevance relates to the lack of specific hydrocarbon industry information. Combustion plants are covered (hence addressing the power generation aspect) but these may be more aligned with the IED BREF. This would need to be verified.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but mostly not relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document is interesting as it contains a wealth of information on specific techniques (BAT) and Performance Standards for controlling a range of emission types. Concern is that the document is not hydrocarbon industry specific, however some of the techniques may be able to be referenced by the BREF if sufficient crossover is verified. The document could not be a substitute for information contained in the hydrocarbons BREF but may nevertheless be a useful reference. Use in BREF: Refer to directly Pending further verification of information relevance contained within

Releases to air • **Flaring (emissions from during blowdown, completion or unplanned event)**

Summary

In general the Guidance provided can be used to inform particular aspects of the BREF for air emissions from flaring, but no standalone document could replace preparing a Section on this issue in the BREF.

The BREF should contain a section on air emissions from flaring, complete with identified Performance Standards and BAT. Specific BAT within the BREF can then be referenced back to the Standards and Guidance provided for this issue, if a suitable reference can be found.

REVIEW FINDINGS

In general, flaring is covered fairly comprehensively by existing documentation on the engineering side, but less in terms of operational practices to ensure process system management and maintenance and ultimately to limit flaring. Although flaring may be performed for "safety reasons" the context of this requirement is always important, and in many cases optimised system operation will reduce the requirement to flare. A lack

A lack of specific guidance on technologies that limit flaring emissions is determined to be a gap by the review.

NORSOK S-003 is a well rounded Guidance for techniques applicable to air emissions from flaring. However it only applies currently in Norway. **Geographical limitation is determined to be a gap.**

It is not clear that the techniques listed in NORSOK S003 are comprehensive for this activity. Further review is therefore required to determine additional measures that it does not address. **Limitation in techniques is determined to be a gap, and requires further review.**

Likewise, the Norway Assessment of Flare Strategies. document provides useful information on Performance Standards and BAT, and should be referenced directly by the BREF. It would need to be verified on an EU wide basis to determine whether specified techniques can be considered comprehensive.

ISO 23252 and 25457 provide good level of engineering detail on pressure relief system and flare system design and operation. The BREF should refer to these directly, as required, to reference detail on relevant BAT mentioned in the BREF. It should not seek to duplicate (or replace) the work done in developing such Standards.

IPIECA /OGP Guidance is specific to the preparation of Flaring Management Plan and could be referenced by the BREF with regard to this aspect, but not all aspects

The remaining information provided is considered useful only as background material.

None of the Guidance provided addresses flaring air emissions from a purely environmental perspective.

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care Section 5.5 (Flaring) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance addresses the environmental issue. Covers the relevant media of air. Main aspects of the issue relate to the control and minimisation of emissions to air from flaring. Guidance provides a list of measures. Guidance addresses routine events. It is not clear from the Guidance that accidental events are covered.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance addresses specific techniques, but these are not addressed in detail. It is also not clear whether the list of techniques provided is complete, and this needs to be verified as part of the work of the TWG within the framework of the BREF. Limitations to the guidance are geographical (designed for Norway). The BREF could refer directly to this document, but it would need to be one of several references, with additional supplemental information contained in the BREF itself. Yet to be determined whether techniques exist that fall outside the Guidance – in other words should Guidance be supplemented in the BREF with additional information, either new, or referenced from other sources? Use in BREF: Refer to directly Verify whether Guidance is sufficiently complete in terms of the issue.

Guidance Identified	
• Title, link, etc	API Standard 520 - Sizing, Selection, and Installation of Pressure-Relieving Devices http://www.americanpetroleuminstitute.com/publications-standards-and-statistics/standards/whatsnew/publication-updates/new-refining-publications/api_std_520p1 *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Published by the American Petroleum Institute(API) for worldwide use. Therefore applicable to EU member states.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This document is a design Standard. It is used by engineers designing a pressure relief system, the end point of which is ultimately the flare tip. As a whole, the Standard is applicable in terms of demonstrating the rigour with which designing the system is expected to be performed. It can be considered as Guidance on this aspect only. The Standard does not offer Guidance on optimal design or best available techniques, hardware, equipment or components for flare systems, nor systems to reduce emissions that may be available. The Standard does not offer Guidance on the operation of the flare system, including the operating philosophy for routine or unplanned operations. It does not address best available techniques in this regard. The Standard is not in any way supposed to take into account the environmental impacts of flaring or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard is considered sufficiently current, but not entirely relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This Standard, like any other design Standard, demonstrates that norms exist for the engineering of offshore systems. It therefore covers the basic requirement that a flare system must be correctly designed in the first place. While fulfilling this component, however, the Standard offers nothing further in terms of flare system selection and operation, or any measures to minimise air emissions from flaring. It is not an environmental Guidance, nor does it have this as its remit. If an organisation wished to specify a flare system and operate that system in a way that ensured minimum possible emissions, this Standard could not offer overarching best available techniques for doing so.

	The remark by the provider that "not flaring is not an option given the safety implications" should be further scrutinised, since if anything, this Standard adds weight to the argument that pressure relief system design should be optimised such that flaring is minimal, and such that there is no need to trade off safety and environmental objectives. It is hypothesised that instances of blowdowns would have likely occurred offshore, in situations in which they could have been avoided, had either the design or operation of the system been undertaken correctly. Use in BREF: Background material Techniques not discussed.

Guidance Identified	
• Title, link, etc	ISO 23251 Pressure-relieving and Depressuring systems *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ISO Standard, applies EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses the environmental issue in part. This is a Standard that specifies requirements and gives guidelines for examining the principal causes of overpressure; and determining individual relieving rates; and selecting and designing disposal systems, including such component parts as piping, vessels, flares, and vent stacks. Addresses routine and accidental events.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard is considered sufficiently current, and relevant. 2008.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standard does not include measurable Performance Standards, but may provide information that could be developed into a Performance Standard. The Standard could then be referenced by the BREF. Standard does provide details on specific techniques, which could be referenced by the BREF. This includes operations, hardware and aspects that are not, for example, captured in the API520 Standard. Standard has not been specifically produced to address environmental aspects of air emissions. The BREF should still include a section on air emissions from Flaring, including a Performance Standard and details of BAT for flaring systems and the pressure relief system as a whole. This Standard could be referenced by the BREF as a source for this information, as it contains details that BREF readers may require. It is not clear at this stage that this Standard captures all BAT. The issue of air emissions from flaring should be fully reviewed by the BREF to ensure that all BAT are captured. Use in BREF: Refer to directly Does not necessarily close entire gap – issue requires further

	investigation
Guidance Identified	
• Title, link, etc	ISO 25457: 2008 Flare details for general refinery and petrochemical service *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ISO Standard, applies EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses the environmental issue in part. This is a Standard that specifies requirements and gives guidelines for examining the principal causes of overpressure; and determining individual relieving rates; and selecting and designing disposal systems, including such component parts as piping, vessels, flares, and vent stacks. Addresses routine and accidental events.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard is considered sufficiently current, and relevant. 2008.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standard does not include measurable Performance Standards, but may provide information that could be developed into a Performance Standard. The Standard could then be referenced by the BREF. Standard does provide details on specific techniques, which could be referenced by the BREF. This includes operations, hardware and aspects that are not, for example, captured in the API520 Standard. Standard has not been specifically produced to address environmental aspects of air emissions. The BREF should still include a section on air emissions from Flaring, including a Performance Standard and details of BAT for flaring systems and the pressure relief system as a whole. This Standard could be referenced by the BREF as a source for this information, as it contains details that BREF readers may require. It is not clear at this stage that this Standard captures all BAT. The issue of air emissions from flaring should be fully reviewed by the BREF to ensure that all BAT are captured. Use in BREF: Refer to directly

	Does not necessarily close entire gap – issue requires further investigation

Guidance Identified	
• Title, link, etc	IPIECA /OGP – Preparing Effective Flare Management Plans http://www.ogp.org.uk/pubs/467.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles are applicable Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance provides recommended approaches to flare management, which represents part of the issue around reducing emissions from flaring. Other issues include design of flare and related plant systems, operation of flare, mitigation measures for gas, hardware selection, etc. Having a flare management plan is seen as one critical component to any operation, and the Guidance addresses that issue. Covers relevant media of air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered sufficiently current and relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards not provided. Some information provided on specific techniques, including steps in management plan. Suggest that the BREF should reference this document directly as part of the issue around flaring emissions. Other references would however need to be drawn upon to fully address this issue, and aspects may still need to be addressed that are not covered by Guidance. Note that this represents one form of Guidance but it is not clear that this is considered as best industry practice, or that the techniques mentioned can actually be considered as BAT. Use in BREF: Refer to directly Does not necessarily close entire gap – issue requires further investigation

Guidance Identified	
• Title, link, etc	IEC 61508 Functional safety of electrical/electronic/programmable electronic safety-related systems IEC 61511 Functional safety – Safety instrumented systems for the process industry sector *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide. IEC applies Europe wide currently.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	IEC 61508/11 are functional safety standards for use in industry. They are not specifically concerned with either flaring issues, or environment. If these standards make reference to HIPPS High-integrity pressure protection systems, then they could be used as background documentation in that regard. They can also be used as background documentation for demonstrating that offshore systems are expected to be designed to particular safety integrity standards, preventing system failure and building in operational redundancy.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	IEC standards are not publicly available, and are charged for access.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information is considered sufficiently current but not entirely relevant to the issue. 2010/2003
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	This could be considered in a similar way to other engineering design documentation (e.g. API520) that ensure systems are robustly engineered. A similar review applies to these standards as to those provided in API520. Please refer to this review. There are no specific techniques or Performance Standards included as part of these Standards that would negate a requirement to include information in the BREF. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Emissiebepaling en Rapportage – Lucht (Dutch only) Gaslekkages (Dutch only) *Provided by: NOGEPA*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applies in the Netherlands only. No known EU applicability.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance relates to general emissions reporting requirements for any activity. This is not specific to flaring, nor does it provide information on techniques for management and mitigation of emissions. Covers relevant media of air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered sufficiently current but not relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards not provided. No information on specific techniques. Not applicable outside the Netherlands. <u>Use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Assessment of flare strategies, techniques for reduction of flaring and associated emissions, emission factors and methods for determination of emissions from flaring http://www.miljodirektoratet.no/no/Publikasjoner/2015/Januar1/Assessment-of-flare-strategies-techniques-for-reduction-of-flaring-and-associated-emissions-emission-factors-and-methods-for-determination-of-emissions-to-air-from-flaring/ Technical report prepared for the Norwegian Environment Agency by Contractor (Carbon Limits) *Provided by: Norway*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Many principles are likely to be applicable Europe wide, but need to verify this.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	This project and the resulting report covers the following topics: - Strategies and techniques used to reduce flaring and associated emissions, - Available flare technologies/systems suitable for Norwegian conditions, - Criteria for selection of flare technologies/systems, - Current flaring situation and status of technologies against BAT requirements, - The quality of methods and factors used to determine emissions, - Potential measures, including cost-benefit analysis of potential barriers Report addresses the environmental issue, and covers relevant media. Addresses flaring, be it routine or accidental.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Information considered sufficiently current and relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards provided. Information provided on specific techniques, including BAT. Suggest that the BREF should reference this document directly as part of the issue around flaring emissions. A section would still need to be included in the BREF to cover the issue, as this document is in the form of a consultancy report prepared for Norway only. Need to verify that all findings are applicable EU wide. <u>Use in BREF: Refer to directly</u>

Guidance Identified	
• Title, link, etc	Background document on Flaring of oil, condensate and gas from well testing http://www.ospar.org/work-areas/oic *Provided by: UKDECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Document not found. Web reference is to homepage only
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Energy Institute, Guidelines for the safe and optimum design of hydrocarbon pressure relief and blowdown systems, 1st ed Aug 2001, ISBN 978–0–85293–287–2 http://publishing.energyinst.org/publication/ei-technical-publications/offshore-safety/guidelines-for-the-safe-and-optimum-design-of-hydrocarbon-pressure-relief-and-blowdown-systems *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Could be applied to all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These guidelines are intended for designers of relief and blowdown systems for offshore oil and gas installations and their associated onshore terminal facilities. They are addressed primarily to process engineers who will be familiar with the basic principles and calculation techniques involved. As a whole, the Standard is applicable in terms of demonstrating the rigour with which designing the system is expected to be performed. It can be considered as Guidance on this aspect only. The Standard does not offer Guidance on optimal design or best available techniques, hardware, equipment or components for flare systems, nor systems to reduce emissions that may be available. The Standard does not offer Guidance on the operation of the flare system, including the operating philosophy for routine or unplanned operations. It does not address best available techniques in this regard. The Standard is not in any way supposed to take into account the environmental impacts of flaring or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for access by EI.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Concern that information may not be current. 2001. Not entirely relevant other than as explained below.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/	This guidance demonstrates that norms exist for the engineering of offshore systems. It therefore covers the basic requirement that a flare system must be correctly designed in the first place. While fulfilling this component, however, the Guidance offers nothing further in terms of system selection and operation, or any measures to minimise emissions from flaring. It is not an environmental Guidance, nor does it have this as its remit. If an organisation wished to procure and install a flare system and

technique concerned?	operate that system in a way that ensured minimum possible emissions, this Standard could not offer overarching best available techniques for doing so. Techniques not discussed. Use in BREF: Background material

Releases to air • **Production (Accidental gas release due to loss of containment)**

Summary

Guidance API 520 and ISO 23251 are the same as those cited for Air Emissions (Flaring). They are included again here for immediate reference. Please refer to the Summary for Air Emissions (Flaring) for an overview of these. For this issue, ISO 25457: 2008 would also be relevant.

As the environmental issue is an accidental release this makes it a candidate for BARM, since the potential impact may be addressed through a risk management process which , for example as stated by IADC in their summary: "Loss of containment potential is minimised by design in reducing the number of potential release points (flanges, connections etc.) to the maximum extent that is technically feasible. ESD and BD sequences configured to reduce risks as far as is reasonably practicable."
It is suggested that the issue be investigated further as part of the BREF to understand management measures within this process for prevention, detection, control, mitigation, and their interrelation with safety aspects. In this respect a gap remains to be investigated, principally because the ISO Standards etc provided do not constitute a summarised set of Guidance on BAT/BARM as would be expected in the BREF. They contain a lot of technical information which only partially fulfils this function, and is disparately distributed and potentially incomplete.

API Standards are relevant from the point of view of demonstrating integrity of engineering.

In general the Guidance provided can be used to inform particular aspects of the BREF for accidental releases, but no standalone document could replace preparing a Section on this issue in the BREF. **A gap was found in that no individual references provide the level of detail sought on Performance Standards and techniques.**

The BREF should contain a section on accidental releases, complete with identified Performance Standards and BAT. Specific BAT within the BREF can then be referenced back to the Standards and Guidance provided for this issue, if a suitable reference can be found.

None of the Guidance provided addresses flaring air emissions from a purely environmental perspective.

Guidance Identified	
• Title, link, etc	EU Directive 2015/30 (Offshore Directive) http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2013:178:0066:0106:en:PDF As implemented by the The Offshore Installations (Offshore Safety Directive)(Safety Case etc.) Regulations 2015 http://www.hse.gov.uk/offshore/assets/pdfs/safety-case-regs.pdf *Provided by: IADC / OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Offshore Directive applies to EU member states. Intended EU wide. Safety Case 2015 applies to UK waters and implements the Offshore Directive.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Part of the remit of the Offshore Directive is to address the issue of environmental incidents. The Directive does not, and is not supposed to, provide guidance on management measures implemented to minimise the likelihood or impact of such incidents. The Offshore Directive 2015 introduces, for the first time, the notion of Environmental Critical Elements: parts of an installation that are critical for ensuring the prevention of a major environmental incident, or that would result in an environmental incident upon failure. It does not set out Guidance for identifying and managing these, however. Similarly, requirements for Reporting and Environmental Management Systems are included, but no specific Guidance provided on how these should be undertaken. In a similar manner, the UK Safety Case Regulations 2015 state requirements but do not provide Guidance on BAT or BARM. The UK Safety Case Regulations 2015 does not contain the word “emission” and the only reference to emissions in the Offshore Directive 2015 is a reference to the Industrial Emissions Directive, which as outlined previously does not contain information on BAT/BARM. Reference to either of the above regulatory instruments is therefore not considered credible for the purposes of addressing this issue.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	EU Directive 2015/30 and Offshore Directive 2015 are only relevant insofar as it they are overarching instruments. Not relevant, however, in the case of addressing this environmental issue. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/	No Performance Standards included, and not intended to provide management and mitigation measures. Not considered a credible reference for this issue. Use in BREF: Background material

technique concerned?	

Guidance Identified	
• Title, link, etc	API Spec 12J Specification for Oil and Gas Separators API Std 537 Flare details for General Refinery and Petrochemical Service API Std 521 Pressure-Relieving and Depressuring Systems http://www.americanpetroleuminstitute.com/publications-standards-and-statistics/standards/whatsnew/publication-updates/new-refining-publications/ *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Published by the American Petroleum Institute(API) for worldwide use. Therefore applicable to EU member states.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These document are design Standard. They are used by engineers designing process, flaring, and pressure relief systems. A correctly designed system will result in a reduced risk of a loss of containment in the first place, and hence these Standard demonstrate the rigour with which system design is expected to be performed. They can be considered as Guidance on these aspects. The Standards do not offer Guidance on best available techniques (BAT), hardware, and equipment, nor systems to reduce emissions that may be available. The BREF would be expected to holistically take into these elements, and also the operation of the system, including operating philosophy for routine or unplanned operations. The Standards are not written from the point of view of managing environmental impacts or how to minimise them. Please also refer to other reviews of API/ISO Standards, for details of what these documents can/can't provide in terms of guidance.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Considered sufficiently current, but not entirely relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and	These Standards, like any other design Standards, demonstrate that norms exist for the engineering of a number of offshore systems. They therefore cover the requirement that systems must be correctly designed in the first place. Although they fulfil this aspect, Standards such as these offer nothing further in terms of system selection and operation, or measures to minimise risk (BARM) of unplanned air emissions. They are not environmental Guidance, nor do they have this as its remit. Use in BREF: Background material

in total for the activity/ process/ technique concerned?	Techniques not discussed.

Guidance Identified	
• Title, link, etc	API Publ 4628 A guidance Manual for modelling Hypothetical Accidental Releases to the Atmosphere *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	API Guidance, could be assumed as worldwide and hence EU.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Provides an overview of gaseous release modelling for scenarios relevant to petroleum industries. Useful for understanding consequences such as gas plume sizes, etc. Only addresses the issue insofar as extent of consequences. Addresses accidental events. Covers air, the medium of interest.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance is not considered sufficiently current, year 1996. Methods contained in the guidance have in some cases likely been superseded since the time of writing, e.g. by software such as DNVGL PHAST. Guidance not considered entirely relevant as it does not provide BAT/BARM. The only take home conclusion for BARM is that an understanding of potential consequences of any accidental release should be formed, using an analytical approach.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include measurable Performance Standards. Guidance provides details on specific techniques, but only for one aspect of the environmental issue – that of understanding consequences. Guidance has not been specifically produced to address environmental aspects of air emissions. Guidance is considered too dated to be the “go to” source for release modelling. Could be included as background material. Use in BREF: Background material

Releases to air • **Production (Planned gas emissions from venting, fugitive emissions)**

Summary

Conclusion is that the BREF should include this issue, as the guidance provided does not completely cover the environmental issue for all aspects of venting and fugitive emissions.

Emissions from production (planned emissions from venting/fugitive emissions) are considered to be covered to some extent by existing guidance. The following Guidance provided may be referred to by the BREF for specific techniques/Performance Standards:

- Specific hydrocarbon operations relevant management measures - NORSOK S-003 Environmental Care
- F gas and ozone depleting substances – UK Guidance
- VOC Management – IMO Guidance

A gap was found in that no individual references provide the level of detail sought on Performance Standards and techniques.

Given that two of the above references are country-specific, however, they could not be a substitute for covering this issue in the BREF. Also, it would need to be verified whether NORSOK S003, which provides the most comprehensive (but still brief) list of techniques is complete, or whether these techniques constitute BAT in an EU wide context. **A gap was found relating to varying applicability of different guidance across the EU.**

The remaining information provided is considered useful only as background material as it is either not guidance, or does not provide techniques or Performance Standards that could be referenced directly by the BREF.

Guidance Identified	
• Title, link, etc	NORSOK S-003 Environmental Care Section 5.6 (Oil storage and loading), Section 5.7 (Fugitive emissions and cold vents) Section 5.9 (Emission control and monitoring) https://www.standard.no/en/sectors/energi-og-klima/petroleum/norsok-standard-categories/s-safety-she/s-0031/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance addresses the environmental issue. Covers the relevant media of air. Main aspects of the issue relate to the control and minimisation of emissions to air from flaring. Guidance provides a list of measures. Guidance addresses routine events. It is not clear from the Guidance that accidental events are covered.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance addresses specific techniques, but these are not addressed in detail. It is also not clear whether the list of techniques provided is complete. It is considered that other techniques likely applicable are not listed here. Limitations to the guidance are geographical (designed for Norway). The BREF could refer directly to this document, but it would need to be one of several references, with additional supplemental information contained in the BREF itself. Yet to be determined whether techniques exist that fall outside the Guidance – in other words should Guidance be supplemented in the BREF with additional information, either new, or referenced from other sources? Use in BREF: Refer to directly Verify whether Guidance is sufficiently complete in terms of the issue.

Guidance Identified	
• Title, link, etc	NORSOK P-002 Process System Design, section 15.7 (environmental requirements for gas treatment) https://www.standard.no/en/nyheter/nyhetsarkiv/petroleum/2014/p-002-process-system-design-edition-1-august-2014/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norwegian waters. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document is charged for access and has not been able to be reviewed. Information referred to is only one subsection in the document. It is therefore assumed that this document may be a relevant reference but not a substitute for the BREF, since it likely does not address the environmental issue in full.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	ISO 28300 : 2008 Venting of atmospheric and low pressure storage tanks http://www.iso.org/iso/iso_catalogue/catalogue_tc/catalogue_detail.htm?csnumber=44643 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ISO Standard, applies EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Addresses the environmental issue in part. This is a Standard that specifies requirements and gives guidelines for engineering of atmospheric and low pressure storage tanks. This is a key component in terms of designing systems such that venting and fugitive emissions are reduced. Would cover routine and accidental events, although actual events are not specifically discussed as this is not the remit of the document.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance not publicly available. Charged for by ISO.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standard is considered sufficiently current, and relevant. 2008.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standard does not include measurable Performance Standards, but may provide information that could be referenced by the BREF. Standard does not provide details on specific techniques or BAT. It is largely concerned with the engineering of tank systems. Standard has not been specifically produced to address environmental aspects of air emissions. The BREF should therefore still include a section on air emissions from Venting/Fugitive Emissions, including a Performance Standard and details of BAT for relevant systems. This Standard could be referenced by the BREF as a source for this information, as it contains details that BREF readers may require. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Study on cold venting and fugitive emissions in the Norwegian offshore oil and gas industry; mapping of emission sources, updating of methods for determining emissions, BAT- and mitigation assessments *Provided by: Norway Environment Agency (Awaiting publication in March 2016)* Technical report prepared for the Environment Agency by Contractor (add novatech)
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Assume many of the findings will be applicable EU wide, but this will need to be verified upon publication of the report.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Purpose of the study: - Mapping of emission sources, technologies currently used for emission control, cold venting- and flaring strategies, maintenance procedures and methods used for leakage detection - Revision of emission factors and methods for determining emissions - Evaluation of best available techniques (BAT) and possible efforts to reduce emissions
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Report publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	This study has yet to be published, but if it contains the subject matter suggested, it is likely to be a relevant resource for the BREF. Expected 2016.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	To be reviewed upon publication. Purpose currently states that the document will contain BAT, and potentially also material that could be used to derive Performance Standards. Potential use as an EU wide reference would need to be verified. <u>Suggested use in BREF: Background material</u>

Guidance Identified	
• Title, link, etc	Guidance document for the offshore hydrocarbon industry on the F-Gases Regulation (EU) No. 517 / 2014 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/448801/Offshore_Hydrocarbon_Industry_Guidance_Document_on_the_F-Gas_Regulation_EU_No._517-2014_Version_One_-_.pdf "Guidance: Fluorinated greenhouse gases (F gases) regulated by the EU DEFRA guidance EU F Gas Regulations : How to operate or service high voltage switchgear containing SF6" Guidance document for the offshore industry on the ozone depleting substances https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/356466/Offshore_O_G_Industry_Guidance_on_EU_ODS_Regulation__Update_-_September_2014_.pdf "DEFRA: F Gas in Refrigeration, Air Conditioning and Fire Protection Systems : Record keeping and maintenance requirements for companies that operate or service equipment containing fluorinated greenhouse gas (F gas) \ DEFRA guidance How to dispose of industrial solvents that contain F gas " *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Assume information will be applicable EU wide, but this will need to be verified.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The documents relate to guidance for the management of F gas and ozone depleting substances. These can be considered under fugitive emissions. Relevant to the issue but covers only one aspect of fugitive emissions.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Documents publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2014, and relevant to the specific issue of ozone depleting substances and F gases.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be	No Performance Standards Documents contain some guidance on techniques which would need to be reviewed in further detail for completeness. This could then be referenced by the BREF for the specific aspect.

used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Potential use as an EU wide reference would need to be verified. Suggested use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	DECC Guidance Notes for the Completion of Flare and Vent Applications - https://www.gov.uk/oil-and-gas-fields-and-field-development#guidance-on-applications-for-flaring-and-venting-consent *Provided by: OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	UK. Not applicable all EU areas.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Specifically relates to applying for the right to Flare and Vent. Not applicable in terms of guidance on techniques to reduce emissions. More guidance on how to complete the actual application process.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	This is a web page.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Current 2015, but not relevant as guidance relating to air emissions reduction.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Not relevant in terms of guidance on emissions reduction. Relevant insofar as offshore operators must obtain consent to flare and vent, and for this they must demonstrate a certain level of rigour in their systems and operations around this activity. Suggested use in BREF: Background material

Guidance Identified	
• Title, link, etc	Offshore Installations: Guidance on design, construction and certification - Fourth edition -1990 SI 1974/ 289 L *Provided by: OGUK* This document was not sighted, not found.
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	It is assumed that this document is design guidance for offshore facilities. It is used by engineers and is applicable in terms of demonstrating the rigour with which designing the system is expected. It can be considered as Guidance on this aspect only. It is assumed the document does not offer Guidance on optimal design or best available techniques, hardware, equipment or components for flare systems, nor systems to reduce emissions that may be available. It is assumed that the document does not take into account the environmental impacts of flaring or how to minimise them.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Not publicly available. Not found.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Document not found. Assumed relevant in terms of engineering design only.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Assumed that this document demonstrates that norms exist for the engineering of offshore systems. It therefore covers the basic requirement that a flare system must be correctly designed in the first place. <u>Use in BREF: Background material</u> .

Guidance Identified	
• Title, link, etc	API Spec 12J Specification for Oil and Gas Separators http://www.api.org/~/media/Files/Publications/Addenda-and-Errata/purchasing/12J_PGH_2009.pdf?la=en API Publ 342 and 343 Fugitive Emissions from equipment leaks Part 1 and 2 https://global.ihs.com/doc_detail.cfm?document_name=API%20PUBL%20342 https://global.ihs.com/doc_detail.cfm?document_name=API%20PUBL%20343 API Publ 4653 Fugitive Emission Factors for Crude oil and Product Pipeline facilities http://www.techstreet.com/products/1695386 API Publ 4589 Fugitive Hydrocarbon Emissions from Oil and Gas Production https://global.ihs.com/doc_detail.cfm?document_name=API%20PUBL%204589 *Provided by: IOGP* Unable to obtain Standards and hence cannot review.
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	API Standard, can be applied EU wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	API Publ 342 and 343 : The two resulting manuals focus on the recommended fugitive emission practices in the petroleum industry, specifically for refineries, marketing terminals, and the oil and gas production industries API Publ 4653 Presents the results of a study to determine equipment component fugitive emission factors for crude oil and product pipeline facilities. The emission factors presented in this report will allow pipeline operators to estimate total hydrocarbon emissions from equipment components located at pipeline facilities in light crude service, heavy crude service, and product service. API Publ 4589 develops emission factors for individual components and groups of components. A workbook included in the report provides site operators with three different options to calculate emissions from their facilities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Guidance not publicly available. Charged for by API.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Standards vary in age. Some contain relevant information
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance	Require access to these standards in order to review

standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	

Guidance Identified	
• Title, link, etc	Marine Environment Protection Committee, Guidelines for the Development of a VOC Management Plan http://www.imo.org/blast/blastDataHelper.asp?data_id=26470&filename=185(59).pdf *Provided by: UK DECC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Document provides guidance on VOC management. Document addresses the environmental issue in part, regarding VOCs. Media is relevant, air.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available, without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Document provides some information on specific techniques for VOC management. No Performance Standards provided. BREF could refer to this document for techniques relating to VOCs specifically. It should be verified whether the techniques listed constitute BAT, and whether this can be considered a comprehensive list of measures. Use in BREF: Refer to directly .

Physical presence	• **Drilling / production facilities (impact on commercial vessel operations e.g. shipping / fishing)**

Summary

The guidance referenced by IADC and the UK are considered to be the more complete on this key environmental issue. Both includes techniques to use in order to mark / light the offshore installations, to avoid interference of the installation with other uses of the maritime space. As such both guidance should be directly referred to by the HC BREF in order to avoid duplication. UNCLOS includes the possibility for the coastal state to establish safety zones around artificial structures in order to guarantee safety of navigation. It also adds that that artificial islands may not be established where they cause interference with recognised sea lanes. This is an important principle inscribed in the international legislation, and it would be useful to include as BAT a practice reflecting this.

However, gaps have ben identified, in particular it should be discussed with the TWG:

- The partial EU coverage of the guidance and whether a gap exists in exchange of information on best available techniques across the EU. (This is a general issue across various environmental issues.)
- Whether other practices than marking/ lighting should be considered with this key environmental issue of management impact from installations on commercial vessel operations (for example guidance on conduct of activities according to specific fishing seasons)

Candidate Guidance	Provided by	Overview	Use in BREF?
Subject to site specific risk assessments by operators*	IADC	Not specific guidance rather indication that operator's risk assessment considers (inter alia) shipping lane density, defense zones, fishing grounds and wind farms. No link included on guidance on how to consider them and what best practices are (e.g. minimum distance from shipping lane). The main objective of these instructions are to ensure safety of the helideck / helicopters.	Background material
IMO MODU Code	IADC	Code includes guidance on obstacle marking and lighting, this includes parameters for lights positions, chromaticity and intensity. The main objective of these instructions are to ensure safety of the helideck / helicopters.	Refer to directly
International treaties like SOLAS/IMO*	IOGP	This includes only a reference to existing international treaties not guidelines	Background material
United Nations Convention on the Law of the Sea, Article 60 (Artificial islands installations and structures in the Exclusive economic zone)	IOGP	This reference is to an international convention. The principle contained in the UNCLOS is useful for the purpose of the HC BREF, however it is restricted to artificial islands in the EEZ and relies on enforcement from coastal state. The HC BREF could include as BAT the requirement to 'not establish artificial islands, installations and structures, where interference may be caused'	Refer to directly
Legislation applicable:	NOGEPA	These references are Dutch legislation and not guidance, as such do not include	Background

Candidate Guidance	Provided by	Overview	Use in BREF?
Besluit milieueffectenrapportage Natuurbeschermingswet Flora en Fauna wet Ontgrondingenwet Wet ruimtelijke ordening*		BAT or BARM.	material
The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). Marking of Man-Made Offshore Structures O-139	UK	Guidance includes standards and techniques to be implemented to ensure that the environmental issue is managed	Refer to directly

* Those sources referred by TWG are not further analysed as they are not guidance / do not include best practices

Guidance Identified	
• Title, link, etc	IMO MODU Code http://www.safety4sea.com/images/media/pdf/A.1023%2826%29%20MODU%20Code.pdf *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is parties to the International Maritime Organisation (signatories to UNCLOS). Principles contained in the plan regarding management of environmental impacts from production and exploration of oil and gas could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The code does include references on how to mark / light offshore installation that can constitute obstacle. The term 'obstacle' is also defined. The name of the unit should be clearly displayed on unit identification panels located in such positions that the unit can be readily identified from the air and sea from all normal angles and directions of approach take into account shipping lane or others when locating offshore installations. The main objective of these instructions are to ensure safety of the helideck / helicopters. The code includes the recommendation that stationary units engaged in drilling operations should inform about their position together with the approximate duration of the operation IMO code applies to the protection of vessels in navigation.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Code considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The Code includes relevant parameters for marking / lighting, including lighting chromaticity, intensity and the location of the floodlights. References are made to fixed obstacles that should be identified with specific lights. The main objective of these instructions are to ensure safety of the helideck / helicopters. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	United Nations Convention on the Law of the Sea, Article 60 (Artificial islands installations and structures in the Exclusive economic zone) http://www.un.org/depts/los/convention_agreements/texts/unclos/part5.htm *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	International Convention on the Law of the Sea. Article 60 deals with artificial islands and structures in the EEZ. EEZ extend from the edge of the territorial sea out to 200 nautical miles. Principles contained in the report could be applied Europe wide, EU is a signatory to the UNCLOS since 1988. http://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Article 60 of UNCLOS deals with artificial islands in the EEZ. It provides jurisdiction to the coastal state to establish safety zones around artificial structures in order to guarantee safety of navigation. It also adds that 'Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.'
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	International convention is dated but still relevant. 1988.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The principle contained in the UNCLOS is useful for the purpose of the HC BREF, however it is restricted to artificial islands in the EEZ and relies on enforcement from coastal state. The HC BREF could include as BAT the requirement to 'not establish artificial islands, installations and structures, where interference may be caused' Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	The International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA). Marking of Man-Made Offshore Structures O-139 http://www.iala-aism.org/products/publications/1507091219/marking-of-man-made-offshore-structures-o-139 *Provided by: UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Guidance from international technical association Principles contained in the report could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidance includes recommendations on the marking of offshore structure in order to identify them in waterways for safe navigation and apply to oil and gas platforms. It includes the general principle that 'In general development of all structures mentioned in this section must not prejudice the safe use of Traffic Separation Schemes, Inshore Traffic Zones, recognised sea-lanes and safe access to anchorages, harbours and places of refuge.' The guidance includes clear best practices in terms of lights / fog signals to be used and where these should be located. It is considered that the guidance is complete with regards to managing the physical presence of the offshore installation once built and should be referred to by the BREF directly.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Study considered sufficiently current and relevant. 2008.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance includes best practices and specific techniques for marking of offshore installations. Use in BREF: Refer to directly

Physical presence	• **Offshore facility lighting (impact on seabirds and migration)**

Summary

Recently (August 2015) OSPAR issued guidelines to reduce the impact of offshore installations lighting on birds in the OSPAR maritime area. These are quite succinct but include several recommended practices (e.g. review of the lighting needs, assessment that the existing lighting are all necessary, removal of the un-necessary lighting) and is a sound basis for this part of the HC BREF. While useful, the guidelines do not specify how to assess that lighting is necessary or not.
However, gaps have been identified, in particular it should be discussed with the TWG:

- The partial EU coverage of the guidance and whether a gap exists in exchange of information on best available techniques across the EU. (This is a general issue across various environmental issues.) OSPAR applies only to signatories countries.
- Whether there would be benefit from exchange on information on identifying un-necessary lighting and techniques to limit impacts of seabirds and migration (e.g. lighting intensity during seasons to reflect seasonality of migration).

Candidate Guidance	Provided by	Overview	Use in BREF?
IMO MODU Code	IADC	The code includes information on lighting level and positions, however it is not in order to minimise impact on birds but rather to ensure safety. No mention is made of impact on birds.	Background material
EIA Directive	IADC	This reference is to existing European legislation for which no BAT have been listed. As a result, no in-depth analysis has been conducted.	Background material
Bird Directive (2009/147/EC) Habitat Directive (92/43/EEC)	IADC / IOGP	This references is to existing European legislation for which no BAT have been listed. As a result, no in-depth analysis has been conducted.	Background material
NORSOK S-002 standard Chapter 5.6, 4.4.8 and associated lighting values in Appendix A	IOGP	Standards include lighting standards according to type of use of the area and best practice (e.g. avoid shadow areas). However, it does not include information on how to minimise the impact from lighting on seabirds and migration.	Background material
NL regulation: Mining Decree, art. 52,56[1]	IOGP	This references is to national legislation for which no BAT have been listed. Articles referred to were consulted, these refer to requirements of installation to be lighted and marked. No reference is made on minimising impact on seabirds and migration. As a result, no in-depth analysis has been conducted.	Background material

[1] http://www.nlog.nl/resources/Legislation/MBBvertaling19Feb08.pdf

Candidate Guidance	Provided by	Overview	Use in BREF?
United Nations Convention on the Law of the Sea, Article 60 (Artificial islands installations and structures in the Exclusive economic zone)[2]	IOGP	Article 60 of UNCLOS deals with artificial islands in the EEZ. It provides jurisdiction to the coastal state to establish safety zones around artificial structures in order to guarantee safety of navigation. It also adds that 'Artificial islands, installations and structures and the safety zones around them may not be established where interference may be caused to the use of recognized sea lanes essential to international navigation.' The article does not make reference to impact on seabirds or migration. As a result, no in-depth analysis has been conducted.	Background material
BERN Convention (1979/1982)	IOGP	The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats, to increase cooperation between contracting parties, and to regulate the exploitation of those species (including migratory species). It covers over 500 wild plant species and more than 1,000 wild animal species The scope of the Convention includes protection of migratory species however no guidance or related document has been identified on impacts of lighting from offshore platform on migratory birds. As a result, no in-depth analysis has been conducted.	Background material
OSPAR (1992): protection of the marine environment in NE Atlantic Ocean, includes criteria for assigning Marine Protected Areas.	IOGP	According to the OSPAR convention, one of the ecological criteria used to define marine protected areas is whether the area is of ecological significance, including presenting 'a high proportion of a biogeographic population of a migratory species'. In these MPA, specific management measures must be adopted.	Background material
OSPAR Agreement 2015-08 - Guidelines to reduce the impact of offshore installations lighting on birds in the OSPAR maritime area	IOGP / Norway/ UK / OGUK	Guidelines present an approach to reducing impacts of lighting from platform on birds, this would be done by assessing light sources and where possible reduce them.	Refer to directly

[2] http://www.un.org/depts/los/convention_agreements/texts/unclos/part5.htm

Guidance Identified	
• Title, link, etc	IMO MODU Code http://www.safety4sea.com/images/media/pdf/A.1023%2826%29%20MODU%20Code.pdf *Provided by: IADC*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is parties to the International Maritime Organisation (signatories to UNCLOS). Principles contained in the plan regarding management of environmental impacts from production and exploration of oil and gas could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The code includes information on selecting lighting chromaticity and intensity in order to ensure platform is visible from afar. The primary objective of the code is to ensure safety of the helideck and helicopter, it also ensures that the platform is visible for other boats. The impacts on bird is not addressed.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guide considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The code includes information on lighting level and positions, however it is not in order to minimise impact on birds but rather to ensure safety. No mention is made of impact on birds. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	NORSOK S-002 standard Chapter 5.6, 4.4.8 and associated lighting values in Appendix A http://acoustics.no/regulations_requirements/content/text_2f378365-63d1-4b30-8da2-c2db2e68192d/1319006173600/s_002.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Standard on working environment Principles contained in the report could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Standard defined in designing the lighting for various spaces of the offshore installation. Appendix provides detailed lighting standards, however no reference is made on minimising the impact from lighting on seabirds and birds' migration. Focus of the standards is health and safety of workers.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Study considered sufficiently current and relevant. 2004.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Standards include lighting standards according to type of use of the area and best practice (e.g. avoid shadow areas). However, it does not include information on how to minimise the impact from lighting on seabirds and migration. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OSPAR Agreement 2015-08 - Guidelines to reduce the impact of offshore installations lighting on birds in the OSPAR maritime area http://www.ospar.org/documents?d=33046 *Provided by: IOGP/ UK / Norway / OGUK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Applicable to parties to OSPAR Convention Principles included in the guidelines could be applied to all EU.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	These guidelines provide advice for OSPAR Contracting Parties considering the course of action to take to address the potential impact of conventional lighting of offshore installations on birds. The guidelines are not intended to be prescriptive. This document offers guidance based on discussions at the 2012 OSPAR Workshop aimed at reducing potential lighting impacts on migrating birds and seabirds. The guidelines recommend a full assessment of the lighting equipment in order to identify those which are not necessary for safety purpose. The guidelines are succinct and do not provide information on how to identify non-essential lightings.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidelines considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidelines present an approach to reducing impacts of lighting from platform on birds, this would be done by assessing light sources and where possible reduce them. Use in BREF: Refer to directly

Physical presence	• **Jacket decommissioning**

Summary

The issue jacket decommissioning and leaving of structures in situ is linked directly to other decommissioning issues assessed elsewhere in this document. Certain materials were submitted by the TWG that are considered in this specific section.

In general the material submitted states the minimum requirements with regard to leaving materials in place. With regard to jackets – little specific reference is made in the materials provided. Rather, jackets are included in the general provisions in relation to decommissioned materials. In general the materials provided emphasise the need to remove as many elements of existing undersea structures as possible (as long as these would not lead to leaks of material – see assessment of closure / plugging provided elsewhere in this report). The general rule, therefore, is that materials should not be left in place albeit certain derogations exist where these can be justified.

Little description of actual techniques are provided in the materials submitted. Perhaps of greatest relevance are the UK guidelines on decommissioning that reflects on a number of key aspects in relation to decommissioning including undertaking assessments, identifying appropriate measures, monitoring and aftercare. However, little material on applicability and costs is available in relation to these guidelines.

The following gaps are, therefore, considered to exist:

- **Lack of EU-wide guidance on techniques**: The techniques listed under the UK guidance listed above are perhaps the most detailed. However, their application outside of the UK is unclear and there appears to be value in ensuring that similar guidance exists for the entire EU.
- **Lack of information on applicability and cost of techniques**.

Candidate Guidance	Provided by	Overview	Use in BREF?
OSPAR Decision 98/3 on the Disposal of Disused Offshore Installations	IOGP	The Decision does not include Performance Standards and does not specify the techniques to be applied. The Decision highlights the importance of not dumping parts of installations at sea or, where a derogation is applied, managing disposal at sea._However, little detail accompanies the Decision to allow a determination of BAT by operators or competent authorities.	Background material
World Bank guidance / toolkit on sustainable closure of mines and oil fields	IOGP	The standard does not include performance measures and no actual disposal / decommissioning techniques are provided. Links are made to existing practices around the world, including in the EU and US (that are considered to be the areas of greatest experience when it comes to decommissioning). Such practices would be of interest in the work of the TWG.	Background material
IFC Environment, Health and Safety guidelines for Offshore O&G development 2015	IOGP	Certain minimum standards are included (minimum depths for structures to comply) albeit no real detail as to techniques to be employed is provided. In general the guidelines are insufficient in their description of actual BAT to be employed – this is left to operators / competent authorities to determine as long as the guidelines are referred to.	Background material
NORSOK S-003 Environmental Care, section 9.3 (Options for disposal of offshore installations)	IOGP	Performance Standards are not provided although techniques are named but not further specified. Overall the standard is helpful in identifying potential issues to be considered at the stage of decommissioning and disposal of infrastructure. However, further detail on the techniques and their applicability and costs and performance would be more commensurate with what is expected in the context of the work of the TWG.	Refer to directly
UK Regulations and guidance related to Offshore Decommissioning including: - Guidance Notes on the Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 (October 2011). - Regulatory Impact Assessment. EIA Guidance Notes - October 2011.	UK	A majority of the guidance reflects procedural elements to do with the implementation of UK law in the decommissioning of offshore facilities. At points this refers to UK law, EU law (including the EIA Directive) and relevant IMO and OSPAR Decisions. Of greatest relevance in the context of defining BAT is the guidance note - Decommissioning of Offshore Oil and Gas Installations and Pipelines under the Petroleum Act 1998 that considers a number of environmental issues in relation to decommissioning and goes into some detail with regard to techniques that are considered most appropriate. The guidance reflects on:	Partially refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
- Guidance on Implications of Public Participation Directive (PDD) for the Revision and Renewal of Production Consents. - Clarification of DECC Guidance relating to environmental aspects of drilling, well intervention and well abandonment operations. - Streamlined Decommissioning Programme Template (non-derogation cases) (August 2014). - Revised Guidance Notes on the Decommissioning of Offshore Oil and Gas Installations and Pipelines 2011. - Oil & Gas UK Stakeholder Engagement during Decommissioning Programmes Guidelines 2013. - Oil & Gas UK Comparative Assessment in Decommissioning Programmes Guidelines 2015 - DECC Note on Deposit of Stabilisation and Protection Materials (new replacement guidance pending). - Revised Guidance Notes on the Decommissioning of Offshore Oil and Gas Installations and Pipelines 2011 - Streamlined Decommissioning Programme Template (non-derogation cases) (August 2014).		- Legislative obligations; - The impact of wider international obligations including OSPAR; - Key environmental considerations including assessments, surveys, debris clearance, sampling post decommissioning and reporting; - Production of close-out reports; - Marking of remains and liability. This guidance note does not generally include performance standards. In some cases (such as debris clearance) it sets minimum survey ranges that are considered as appropriate for ensuring that the surrounding environment is adequately protected. It does include measures to be applied in addressing decommissioning environmental issues, albeit in relatively limited detail. In general the guidance appears to be of use in identifying decommissioning environmental issues and in undertaking a site specific assessment in order to address them. However, the actual description of techniques themselves is limited.	

Guidance Identified	
• Title, link, etc	OSPAR Decision 98/3 on the Disposal of Disused Offshore Installations http://www.ospar.org/documents?d=32703 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is OSPAR Parties. The Decision is final and published. The decision could be applied outside of the OSPAR sea areas. However, the extent to which this takes place is not known.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The Decision does not distinguish between Jacket decommissioning and other decommissioning. It is made clear that the dumping and the leaving, wholly or partly in place, of disused offshore installations within the maritime are is prohibited. However derogations are allowed in cases where the competent authority is satisfied that an assessment shows that there are significant reasons why an alternative disposal mentioned below is preferable to reuse or recycling or final disposal on land and may issue a permit for: a. All or part of the footings of a steel installation in a category listed in Annex I placed before 9 February 1999 to be left in place; b. A concrete installation in a category listed in Annex I or constituting a concrete anchor base, to be dumped or left wholly or partly in place; or c. Any other disused offshore installation when exceptional and unforeseen circumstances resulting from structural damage or from some other cause presenting equivalent difficulties can be demonstrated. Annex I categories are (excluding their topsides): a. steel installations weighing more than ten thousand tonnes in air; b. gravity based concrete installations; c. floating concrete installations; d. any concrete anchor-base which results, or is likely to result, in interference with other legitimate uses of the sea. Any permit for dumping or leaving elements in place must meet with the requirements of Annex 4. This includes the procedures to be adopted for the disposal activity, the need for independent verification, updating nautical charts as to the presence of the installations, monitoring of the installation and the owner of the installation liable for meeting claims for any damage resulting from the installation. Routinely, therefore, the expectation is that no dumping should take place. However, exceptionally a derogation procedure allows such dumping to take place.

	The Decision does not state the key environmental issues being addresses, nor does it specify the techniques that constitute the best for such disposal activities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	It is publicly available and free of charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The Decision was published in 1998. It does not state techniques or technologies but rather specifies the general framework to be applied for decommissioning and disposal of parts of installations at sea.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Does not include Performance Standards. Does not specify the techniques to be applied. The Decision highlights the importance of not dumping parts of installations at sea or, where a derogation is applied, managing disposal at sea._However, little detail accompanies the Decision to allow a determination of BAT by operators or competent authorities.

Guidance Identified	
• Title, link, etc	World Bank guidance / toolkit on sustainable closure of mines and oil fields Http://siteresources.worldbank.org/EXTOGMC/Resources/336929-1258667423902/decommission_toolkit3_full.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide and it is agreed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidance provides information on decommissioning best practice, including the creation of the correct regulatory framework at the national level that addresses the key issues in relation to decommissioning of mines and offshore facilities. This includes ensuring that at the installation level decommissioning and closure plans address waste management and disposal. However, the guideline does not specify which techniques are appropriate for such waste management and disposal. It reflects on practices around the world, including OSPAR and UK practice, but does not draw conclusions on what is best practice.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.

Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The most recent toolkit was published in 2010. It is likely to continue to reflect practices worldwide with regard to decommissioning, albeit that more recent experiences in decommissioning since 2010 are not captured in this document. The issue in hand remain relevant.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The standard does not include performance measures and no actual disposal / decommissioning techniques are provided. Links are made to existing practices around the world, including in the EU and US (that are considered to be the areas of greatest experience when it comes to decommissioning). Such practices would be of interest in the work of the TWG.

Guidance Identified	
• Title, link, etc	IFC Environment, Health and Safety guidelines for Offshore O&G development 2015 http://www.ifc.org/wps/wcm/connect/f3a7f38048cb251ea609b76bcf395ce1/FINAL_Jun+2015_Offshore+Oil+and+Gas_EHS+Guideline.pdf?MOD=AJPERES *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is worldwide and the guidelines are agreed.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The guidelines address a number of broad issues to do with offshore oil and gas development. This includes measures related to decommissioning where it is stated that: - Where more stringent local regulatory requirements do not exist, internationally recognized guidelines and standards issued by IMO and OSPAR should be followed for the decommissioning of offshore facilities. - IMO standards state that installations or structures of less than 4,000 tonnes, excluding the deck and superstructure, in less than 75 meters of water should be removed entirely at decommissioning, unless an alternative use for the structure has been approved. In addition, installations or structures installed after January 1, 1998 must be designed to be entirely removed. Exceptions are on a case-by-case basis for installations or structures installed before 1998 that cannot be fully removed for demonstrable reasons of technical or financial feasibility, but these facilities must be partially removed to provide a clear water column depth of 55 meters. - The OSPAR Decision requirements are reflected. - Furthermore, the guidelines state that a preliminary decommissioning plan for offshore facilities should be developed that considers well abandonment, removal of hydrocarbons from flowlines, facility removal, and subsea pipeline decommissioning, along with disposal options for all equipment and materials. This plan can be further developed during field operations and fully defined in advance of the end of field life. The plan should include details on the provisions for the implementation of decommissioning activities and arrangements for post-decommissioning monitoring and aftercare. However, the guidance does not reflect on the most appropriate or best techniques for decommissioning and disposal activities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.

Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The guidelines were published in 2015 and remain wholly relevant. However, little information on actual techniques / technologies is provided.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Certain minimum standards are included (minimum depths for structures to comply) albeit no real detail as to techniques to be employed is provided. In general the guidelines are insufficient in their description of actual BAT to be employed – this is left to operators / competent authorities to determine as long as the guidelines are referred to.

Guidance Identified	
• Title, link, etc	**NORSOK S-003** Environmental Care, section 9.3 (Options for disposal of offshore installations) http://oilandgasuk.co.uk/product/op071/ *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Norway. Principles are likely applicable Europe wide. Agreed and published in 2005.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Section 9 of the standard covers decommissioning. The standard states that when a field or installation faces the end of its production period, an alternative use shall be found or it shall be decommissioned according to relevant legislation. Both an EIA and a cessation plan shall be worked out well in advance of the end of the production period as required by the authorities. As a general rule, all installations shall be designed so that all parts above the seabed can be entirely removed. Removal costs and potential for reuse shall be evaluated as part of the field development plan. However, in keeping with OSPAR the standard considers that all disposal options should be evaluated, e.g. re-use in petroleum activity in place, other use in place, disposal in place, partly removal or complete removal for re-use or disposal. Some disposal options are to be determined based on the water depth and the weight of the structure (OSPAR Decision 98/3) and IMO Guidelines and Standards for The Removal of Offshore Installations and Structures on the Continental Shelf, Assembly Resolution A672, 1989. The exact methods of decommissioning and disposal are not, however, detailed within the standard.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible for free.

Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The standard was issued in 2005 and is considered as relevant. However, new techniques and technologies may have been developed in the decade since its publication.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Performance Standards are not provided. Techniques are named but not further specified. Overall the standard is helpful in identifying potential issues to be considered at the stage of decommissioning and disposal of infrastructure. However, further detail on the techniques and their applicability and costs and performance would be more commensurate with what is expected in the context of the work of the TWG.

Guidance Identified	
• Title, link, etc	UK Regulations and guidance related to Offshore Decommissioning including: - Guidance Notes on the Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 (October 2011). - Regulatory Impact Assessment. EIA Guidance Notes - October 2011. - Guidance on Implications of Public Participation Directive (PDD) for the Revision and Renewal of Production Consents. - Clarification of DECC Guidance relating to environmental aspects of drilling, well intervention and well abandonment operations. - Streamlined Decommissioning Programme Template (non-derogation cases) (August 2014). - Revised Guidance Notes on the Decommissioning of Offshore Oil and Gas Installations and Pipelines 2011. - Oil & Gas UK Stakeholder Engagement during Decommissioning Programmes Guidelines 2013. - Oil & Gas UK Comparative Assessment in Decommissioning Programmes Guidelines 2015 - DECC Note on Deposit of Stabilisation and Protection Materials (new replacement guidance pending). - Revised Guidance Notes on the Decommissioning of Offshore Oil and Gas Installations and Pipelines 2011 - Streamlined Decommissioning Programme Template (non-derogation cases) (August 2014). *Provided by: UK*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	The guidance has been developed for UK operations and is primarily focussed on offshore wells. It is agreed. Its wider applicability to all areas of the EU is presently unlikely given the significant UK regulatory slant to a majority of the documents.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	A majority of the guidance reflects procedural elements to do with the implementation of UK law in the decommissioning of offshore facilities. At points this refers to UK law, EU law (including the EIA Directive) and relevant IMO and OSPAR Decisions. Of greatest relevance in the context of defining BAT is the guidance note - Decommissioning of Offshore Oil and Gas Installations and Pipelines under the Petroleum Act 1998 that considers a number of environmental issues in relation to decommissioning and goes into some detail with regard to techniques that are considered most appropriate. The guidance reflects on: - Legislative obligations; - The impact of wider international obligations including OSPAR; - Key environmental considerations including assessments, surveys, debris clearance, sampling post decommissioning and reporting; - Production of close-out reports; - Marking of remains and liability.
Accessibility	

• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible with charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	The report is from 2011 and appears to remain relevant and reflect present day techniques and technologies.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	The material submitted does not generally include performance standards. In some cases (such as debris clearance) it sets minimum survey ranges that are considered as appropriate for ensuring that the surrounding environment is adequately protected. It does include measures to be applied in addressing decommissioning environmental issues, albeit in relatively limited detail. In general the guidance appears to be of use in identifying decommissioning environmental issues and in undertaking a site specific assessment in order to address them. However, the actual description of techniques themselves is limited.

Marine biodiversity	• **Seismic surveying (impact on marine species due to high impact noise)**

Summary

It is considered that several of the Guidance documents provided contain a sufficient level of detail on specific techniques such that the BREF can refer to these, rather than producing a new set of guidance. These are summarised as "Refer to directly" in the table below. Remaining documents are considered useful only as "Background material". Potential areas of focus for this issue when drafting the BREF are:

- Develop an overarching Performance Standard for the activity, and summarise the key techniques (and refer to cited Guidance for details)
- Verify whether there are any member states not covered by existing Guidance
- Verify whether any additional information is available to describe impacts on non-mammalian marine species as a result of seismic activities

Candidate Guidance	Provided by	Overview	Use in BREF?
NOROG 126 - Recommended guidelines for the involvement and participation of fishery liaisons in seismic surveys.	DNVGL	Guidance does not include Performance Standards. Guidance does not address specific techniques. Guidance does not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed.	Background material
NOROG 136 - Norwegian Oil and Gas Recommended guidelines for Coexistence with the fishing sector when conducting seismic surveys	DNVGL	Guidance does not include Performance Standards. Guidance does not address specific techniques. Guidance does not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed.	Background material
JNCC guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys	IOGP	Guidance does not include Performance Standards, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Limitations to the guidance are geographical (designed for UKCS) and applicable only to marine mammals and not other species. Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF.	Refer to directly
Overview of the impacts of anthropogenic underwater sound in the marine environment. (2009) OSPAR Report 441. ISBN 978-1-9068840-5	IOGP	Guidance does not include Performance Standards, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
		Limitations to the guidance are geographical (designed for OSPAR signatories). Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF.	
Overview of the impacts of anthropogenic underwater sound in the marine environment. (2009) OSPAR Report 441. ISBN 978-1-9068840-5	IOGP	Guidance does not include Performance Standards, and is not intended to provide management and mitigation measures. Guidance does not address specific management or mitigation measures in detail, overview of techniques only provided. Limitations to the guidance are geographical (designed for OSPAR signatories). Consider that guidance does not add anything additional to that contained in OSPAR Report 441.	Background material
OSPAR inventory of measures to mitigate the emission and environmental impact of underwater noise (2014) OSPAR Report 626, ISBN 978-1-909159-59-4	IOGP	Guidance does not include Performance Standards. Guidance is intended to provide management and mitigation measures for a range of particular activities. Management or mitigation measures are presented in detail for particular techniques. Limitations to the guidance are geographical (designed for OSPAR signatories). Guidance may be useful as a reference in the BREF, for underwater noise making activities other than seismic, and this should be considered for inclusion on that basis. However the Guidance does not address the issue of seismic noise.	Background material
IAGC Environmental Manual for worldwide Geophysical Operations	IOGP	Guidance does not include Performance Standards. Guidance provides a number of general management measures around operational planning. Guidance also provides several more specific mitigation measures for the marine environment. These are considered valuable and could be referenced in the BREF. Much of the Guidance is for onshore activities. Guidance may be useful as a reference in the BREF, for the issue of survey planning. Specifically for seismic the Guidance does not provide significant information in addition to that provided in OSPAR.	Background material
IAGC Mitigation Measures For Cetaceans during Geophysical Operations	IOGP	Guidance does not include Performance Standards. Guidance is intended to provide management and mitigation measures for seismic surveying. Consider that guidance does not add anything additional to that contained in OSPAR Report 441.	Background material
Guidance for Marine Life Visual Observers, December 2001	IOGP	Guidance does not include Performance Standards. Guidance is intended to provide role and responsibilities for MMO only.	Background

Candidate Guidance	Provided by	Overview	Use in BREF?
		Consider that guidance does not add anything additional to that contained in OSPAR Report 441.	material
IAGC Guidance on the Use of Towed Passive Acoustic Monitoring during Geophysical Operations	IOGP	Guidance does not include Performance Standards. Guidance is additional detail on a technique that is already identified in OSPAR Report 441. Provides an additional level of technical detail.	Background material
IPIECA-OGP Report 506: Guide to Developing Biodiversity Actions Plans for the Oil and Gas sector	IOGP	Guidance does not include Performance Standards. Guidance does not relate to the environmental issue in question. However, it may be useful as a reference for the overarching plan for biodiversity which organisations must inevitably recognise if they intend to conduct marine surveying activities.	Background material
IPIECA-OGP Report 432 :Managing HSE in a geophysical contract	IOGP	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question, and the points raised on this issue are similar to OSPAR Report 441. Guidance could be cited as a reference to show that best practice does exist to guide Operators on the best way to manage their contracts with Surveyors.	Background material
OGP IAGC Report 448 An overview of marine seismic operations	IOGP	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Useful only regarding informing types of seismic techniques used.	Background material
OGP Report 451 Model based assessment of underwater noise from an airgun array soft-start operation	IOGP	Guidance does not include Performance Standards. Report is not Guidance. It is a single study commissioned by OGP relating to seismic impacts on marine mammals. Given that it was not performed entirely independently, and that it is just a single study, one must not assume it represents a definitive word on the issue. Useful only in the sense that it indicates studies of this type have been performed. Not Guidance.	Background material
Guidelines to address the impact of anthropogenic noise on cetaceans in the ACCOBAMS area	IOGP	Guidance does not include Performance Standards per se, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Similar to OSPAR Report 441. Limitations to the guidance are geographical (designed for ACCOBAMS signatories). Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF.	Refer to directly

Candidate Guidance	Provided by	Overview	Use in BREF?
Methodological Guide: Guidance on underwater noise mitigation measures	IOGP	Guidance does not include Performance Standards per se, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Similar to OSPAR Report 441. Limitations to the guidance are geographical (designed for ACCOBAMS signatories). Can be read in conjunction with other ACCOBAMS Guidance. Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF.	Refer to directly
IFC Environmental, Health, and Safety Guidelines for Offshore Oil and Gas Development	IOGP	Guidance does not include Performance Standards per se, but includes a list of management and mitigation measures to be adopted when performing surveying activities. Guidance does not address specific techniques in detail, but intent is similar to techniques discussed in OSPAR Report 441. Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Can be referenced along with other similar Guidance in the BREF.	Refer to directly
IUCN Responsible Practices for Minimizing and Monitoring Environmental Impacts of Marine Seismic Surveys with an Emphasis on Marine Mammals - Scientific paper published in Aquatic Mammals 2013, 39(4), 356-377	IOGP	Report does not include Performance Standards per se, but includes a list of management and mitigation measures to be adopted when performing surveying activities. Report does not address specific techniques in detail, but intent is similar to techniques discussed in OSPAR Report 441. Consider that guidance could be adopted Europe-wide and referenced in the BREF.	Refer to directly

Guidance Identified	
• Title, link, etc	NOROG 126 - Recommended guidelines for the involvement and participation of fishery liaisons in seismic surveys. http://www.norskoljeoggass.no/en/Publica/Guidelines/Seismic-and-well-data/126-Recommended-guidelines-for-the-involvement-and-participation-of-fishery-lialisons-in-seismic-surveys/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Norwegian waters only. Principles contained in the Guidance regarding minimising impact between fishing and seismic activities could be applied Europe wide, although it still does not address the main issue, which is impact on marine species and biodiversity.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Consider that the primary objective of the guidance relates to ensuring adequate management of impacts of surveying on the fishing industry. This would, for example, involve minimising potential conflicts between users of the marine environment, e.g. surveying vessels and fishing vessels at the water surface. Key motivation of guidance considered to be ensuring the stability of the fisheries resource from an economic perspective. Guidance is not specifically concerned with the wider environmental impact of seismic activities and potential harm to marine species or the issue of biodiversity. Guidance does not provide specific details on how operations should be carried out in order to minimise these impacts. Guidance refers to a 'fisheries liaison' officer whom readers are left to assume makes any decisions of this type, although such decisions are not made explicit.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not address specific techniques. Guidance does not provide sufficient information on specific techniques to be implemented to ensure that the environmental issue is managed. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	NOROG 136 - Norwegian Oil and Gas Recommended guidelines for Coexistence with the fishing sector when conducting seismic surveys http://www.norskoljeoggass.no/en/Publica/Guidelines/Seismic-and-well-data/136--Norwegian-Oil-and-Gas-Recommended-guidelines-for-Coexistence-with-the-fishing-sector-when-conducting-seismic-surveys/ *Provided by: DNVGL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Scope is Norwegian waters only. Principles contained in the Guidance regarding minimising impact between fishing and seismic activities could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Consider that the primary objective of the guidance relates to ensuring coexistence between marine users – fishing, shipping, other stakeholders. As the guidance relates to fishing interactions, by default it could cover impacts on marine species, however the motivation of the guidance is a reduction of impact on fishing activity (e.g. “conflicts with trolling for mackerel” – p.10), rather than the wider environmental impact of seismic activities and potential harm to marine species or the issue of biodiversity. Refer to review for NOROG 126.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not address specific techniques. Guidance does not provide sufficient information on techniques to be implemented to ensure that the environmental issue is managed. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	JNCC guidelines for minimising the risk of injury and disturbance to marine mammals from seismic surveys http://jncc.defra.gov.uk/pdf/jncc_guidelines_seismic%20guidelines_aug%202010.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Guidance written for UK Continental Shelf activities. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance provides a comprehensive set of measures to adopt when conducting surveys, specifically applicable to marine mammals. Guidance does not address other marine species, but since research and data on behaviour of other species is not extensive, it is considered adequate in terms of addressing key issues concerning mammals. Guidance addresses routine events, accidental events are not considered applicable in this case.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2010.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Limitations to the guidance are geographical (designed for UKCS) and applicable only to marine mammals and not other species. Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Overview of the impacts of anthropogenic underwater sound in the marine environment. (2009) OSPAR Report 441. ISBN 978-1-9068840-5 http://www.ospar.org/documents?d=7147 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance addresses impacts and mitigation measures for underwater noise from activities including pile driving, shipping and seismic surveying, providing a comprehensive literature review in these areas. Guidance covers all relevant media. It is applicable to all marine species. Guidance considered to cover all relevant issue aspects. Guidance (and issue) is relevant only to planned activities.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Limitations to the guidance are geographical (designed for OSPAR signatories). Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Overview of the impacts of anthropogenic underwater sound in the marine environment. (2009) OSPAR Report 441. ISBN 978-1-9068840-5 http://www.ospar.org/documents?d=7147 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance addresses impacts of underwater noise from offshore activities at a regional level. Guidance is a literature review of the nature and extent of underwater noise in each of 5 geographical regions covered by OSPAR. Issues to which the Guidance pertains are the same as those for OSPAR Report 441.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards, and is not intended to provide management and mitigation measures. Guidance does not address specific management or mitigation measures in detail, overview of techniques only provided. Limitations to the guidance are geographical (designed for OSPAR signatories). Consider that guidance does not add anything additional to that contained in OSPAR Report 441. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OSPAR inventory of measures to mitigate the emission and environmental impact of underwater noise (2014) OSPAR Report 626, ISBN 978-1-909159-59-4 - http://www.ospar.org/documents?d=7364 *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	North East Atlantic, signatories to the OSPAR Convention. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance addresses measures that may limit the impacts of underwater noise from a variety of offshore activities, particularly construction. These activities do not, however, include seismic. Underwater noise environmental issue to which the Guidance pertains are similar to those addressed in OSPAR Report 441.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance is intended to provide management and mitigation measures for a range of particular activities. Management or mitigation measures are presented in detail for particular techniques. Limitations to the guidance are geographical (designed for OSPAR signatories). Guidance may be useful as a reference in the BREF, for underwater noise making activities other than seismic, and this should be considered for inclusion on that basis. However the Guidance does not address the issue of seismic noise. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IAGC Environmental Manual for worldwide Geophysical Operations http://dlminconline.com/Environmental%20Manual%202001.PDF *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Extractive industry prepared reference, considered to generally cover a range of worldwide environments and geographical regions. Covers both onshore and offshore geophysical surveying activities. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance does not specifically address the issue of impacts of marine seismic on species and biodiversity. A brief section is included on this issue. Specifically for seismic the Guidance does not provide significant information in addition to that provided in OSPAR. Guidance provides general overview on best practice around raising environmental awareness among operators.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2001.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance provides a number of general management measures around operational planning. Guidance also provides several more specific mitigation measures for the marine environment. These are considered valuable and could be referenced in the BREF. Much of the Guidance is for onshore activities. Guidance may be useful as a reference in the BREF, for the issue of survey planning. Specifically for seismic the Guidance does not provide significant information in addition to that provided in OSPAR. Use in BREF: Background material Note: This guidance should be reviewed further from the perspective of onshore activities to check relevance.

Guidance Identified	
• Title, link, etc	IAGC Mitigation Measures For Cetaceans during Geophysical Operations http://www.iagc.org/uploads/4/5/0/7/45074397/2015-02_iagc-mitigation_measures_for_cetaceans.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance intended to address impacts on cetaceans only. Addresses measures that may limit the impacts of underwater noise from seismic surveying. Underwater noise environmental issue to which the Guidance pertains is similar to that addressed in OSPAR Report 441. Does not include key element around selection of appropriate season for conducting surveying that is outside the seasonal windows for marine mammal migration, breeding etc.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2015.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance is intended to provide management and mitigation measures for seismic surveying. Consider that guidance does not add anything additional to that contained in OSPAR Report 441. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidance for Marine Life Visual Observers, December 2001 http://www.iagc.org/uploads/4/5/0/7/45074397/iagc_policy_guidemarlifevisobsv_vf_2012_01_19__1_.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance intended to describe the role of Marine Mammal Observer (MMO), an individual present on a surveying vessel tasked with keeping watch for marine life and if necessary stopping the survey while mammals are in the area Addresses impacts on marine mammals only. Underwater noise environmental issue to which the Guidance pertains is similar to that addressed in OSPAR Report 441. Guidance does not provide specifics on techniques applied in role.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance is intended to provide role and responsibilities for MMO only. Consider that guidance does not add anything additional to that contained in OSPAR Report 441. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IAGC Guidance on the Use of Towed Passive Acoustic Monitoring during Geophysical Operations https://scripps.ucsd.edu/labs/athode/wp-content/uploads/sites/12/2014/10/IAGC_Guidance_PAMGuide_VF_2014.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance intended to describe the role of Passive Acoustic Monitoring (PAM), used on surveying vessels to detect the presence of vocalising marine mammals nearby. Addresses impacts on marine mammals only. Underwater noise environmental issue to which the Guidance pertains is similar to that addressed in OSPAR Report 441. Guidance provides some specifics on equipment and technical considerations.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2014.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance is additional detail on a technique that is already identified in OSPAR Report 441. Provides an additional level of technical detail. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IPIECA-OGP Report 506: Guide to Developing Biodiversity Actions Plans for the Oil and Gas sector http://www.ipieca.org/publication/guide-developing-biodiversity-action-plans-oil-and-gas-sector *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance outlines generally the requirement, scope and content of a Biodiversity Action Plan for use in upstream E&P activities. Guidance is not specific to the issue of seismic surveying impacts on the marine environment. Usefulness of guidance relates to having an overarching biodiversity plan in place. It is up to individual operators to decide whether and how they wish to implement the Guidance. It is unlikely that this guidance is universally implemented currently.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2005.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate to the environmental issue in question. However, it may be useful as a reference for the overarching plan for biodiversity which organisations must inevitably recognise if they intend to conduct marine surveying activities. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	IPIECA-OGP Report 432 :Managing HSE in a geophysical contract http://www.iogp.org/pubs/432.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance outlines HSE isssues to be addressed as part of geophysical surveying contract. Guidance is not specific to the issue of seismic surveying impacts on the marine environment. A small section is, however, contained in the document relating to management/mitigation measures for seismic, similar to those identified in OSPAR Report 441. Usefulness of Guidance relates moreover to demonstrating that guidance exists that establishes relationship between Operator and their Geophysical contractor, such that this contract is managed in the best possible way.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2009.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question, and the points raised on this issue are similar to OSPAR Report 441. Guidance could be cited as a reference to show that best practice does exist to guide Operators on the best way to manage their contracts with Surveyors. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OGP IAGC Report 448 An overview of marine seismic operations http://www.ogp.org.uk/pubs/448.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Could be applied to all EU but not specifically considered relevant to this issue.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance outlines seismic principles, types of surveys, and equipment used to conduct surveys. Guidance makes no attempt to address the issue of seismic surveying impacts on the marine environment. This is not its purpose. Not considered relevant.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current but not relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Guidance does not relate specifically to the environmental issue in question. Useful only regarding informing types of seismic techniques used. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	OGP Report 451 Model based assessment of underwater noise from an airgun array soft-start operation http://www.ogp.org.uk/pubs/451.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Not Guidance and hence not able to be applied in that way within EU.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	The report is not Guidance. It represents a single study performed relating to the impact of seismic on marine mammals. Not considered relevant as Guidance.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current but not relevant. 2011.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards. Report is not Guidance. It is a single study commissioned by OGP relating to seismic impacts on marine mammals. Given that it was not performed entirely independently, and that it is just a single study, one must not assume it represents a definitive word on the issue. Useful only in the sense that it indicates studies of this type have been performed. Not Guidance. Use in BREF: Background material

Guidance Identified	
• Title, link, etc	Guidelines to address the impact of anthropogenic noise on cetaceans in the ACCOBAMS area http://www.accobams.org/images/stories/Guidelines/guidelines%20to%20address%20the%20impact%20of%20anthropogenic%20noise%20on%20cetaceans%20in%20the%20accobams%20area.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ACCOBAMS – Black Sea, Mediterranean and Contiguous Atlantic. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance is specific to cetaceans, but appears fairly robust and encompassing. Appears to address the environmental issue. Covers the media for which it is concerned, ie. Marine subsea. Key aspects of the issue are seismic impacts on marine species. This Guidance addresses anthropogenic noise (including seismic) impacts on cetaceans.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current and relevant. Date of issue unclear.
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards per se, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Similar to OSPAR Report 441. Limitations to the guidance are geographical (designed for ACCOBAMS signatories). Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	Methodological Guide: Guidance on underwater noise mitigation measures https://www.cbd.int/doc/meetings/mar/mcbem-2014-01/other/mcbem-2014-01-submission-accobams-01-en.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	ACCOBAMS – Black Sea, Mediterranean and Contiguous Atlantic. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance relates to measures to minimise underwater noise from a range of sources including construction, seismic. Appears to address the environmental issue. Covers the media for which it is concerned, ie. Marine subsea.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current and relevant. 2013
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards per se, but includes comprehensive management and mitigation measures to be adopted when performing surveying activities. Guidance addresses specific techniques in detail. Guidance provides a robust description of how best to manage the activity. Similar to OSPAR Report 441. Limitations to the guidance are geographical (designed for ACCOBAMS signatories). Can be read in conjunction with other ACCOBAMS Guidance. Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	IFC Environmental, Health, and Safety Guidelines for Offshore Oil and Gas Development http://www.ifc.org/wps/wcm/connect/f3a7f38048cb251ea609b76bcf395ce1/FINAL_Jun+2015_Offshore+Oil+and+Gas_EHS+Guideline.pdf?MOD=AJPERES *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Principles contained in the Guidance could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance relates to measures for a range of HSE issues. A set of measures is included for management of underwater noise from seismic. These are similar to those seen in other Guidance listed. Appears to address the environmental issue. Covers the media for which it is concerned, ie. Marine subsea.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current and relevant. 2015
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance Standards per se, but includes a list of management and mitigation measures to be adopted when performing surveying activities. Guidance does not address specific techniques in detail, but intent is similar to techniques discussed in OSPAR Report 441. Consider that guidance could be adopted Europe-wide and referenced in the BREF, rather than repeating this information in the BREF. Can be referenced along with other similar Guidance in the BREF. Use in BREF: Refer to directly

Guidance Identified	
• Title, link, etc	IUCN Responsible Practices for Minimizing and Monitoring Environmental Impacts of Marine Seismic Surveys with an Emphasis on Marine Mammals - Scientific paper published in Aquatic Mammals 2013, 39(4), 356-377 http://ocr.org/pdfs/papers/Nowacek_et_al_2013%20final_in_AM_Sakalin.pdf *Provided by: IOGP*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Worldwide. Not specifically Guidance but performed as a scientific study, however the study represents a summary of management measures and responsible practices. Principles contained in the paper could be applied Europe wide.
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Paper relates to responsible practices for minimizing and monitoring environmental impacts of marine seismic surveys with an emphasis on marine mammals as the title indicates. A set of measures is discussed for management of underwater noise from seismic. These are similar to those seen in other Guidance listed. Appears to address the environmental issue. Covers the media for which it is concerned, ie. Marine subsea.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Report considered sufficiently current and relevant. 2013
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Report does not include Performance Standards per se, but includes a list of management and mitigation measures to be adopted when performing surveying activities. Report does not address specific techniques in detail, but intent is similar to techniques discussed in OSPAR Report 441. Consider that guidance could be adopted Europe-wide and referenced in the BREF. Use in BREF: Refer to directly

Release to air • **Power generation (air emissions)**

Summary

- Most of the information supplied is either legislation or monitoring guidelines. While monitoring is one of the practice that can be considered in order to reduce release to air from power generation, these are not the only techniques that should be considered within the scope of the BREF.
- However, it is also important to note that power generation from combustion installations above 50 MW is already addressed by the IED which includes BAT and BREFs. There is no similar instruments for smaller combustion units yet, but the proposed Medium Combustion Plant Directive (published in 2013) includes ELVs for installations as little as 5 MW[1].
- Air emissions from power generation are not specific to hydrocarbons, all industrial sectors require, to some extent, power generation (e.g. construction sites, hospitals, manufactures), as such it is not considered that this is a 'key environmental issue' for the purpose of the HC BREF and we propose that it is excluded from the scope.

Candidate Guidance	Provided by	Overview	Use in BREF?
DNV Recommended Practice on Risk Management of Shale Gas Developments and Operations DNV-RP-U301	DNV GL	Guidance does not include performance standards for air emissions from power generation. Guidance includes general strategies and techniques to reduce emissions and mitigate their impacts.	Background material
Directive 97/68/EC and amendments	IADC	The reference provided is to European legislation, not to specific guidance documents. The legislation on NRMM covers individual unit and can be marketed only if demonstrated that they can't comply with emission limit values.	Background material
Industrial Emission Directive Emission Trading System Directive Ambient air quality Directive	IOGP	The reference provided is to European legislation, not to specific guidance documents. The IED applies to combustion of fuels in installations above 50MW for which BAT are available in BREFs. EU ETS is a cap and trade system, does not include guidance on reducing GHG emissions from oil and gas production. The Ambient air quality Directive	Background material
Gaslekkages Guidance	NOGEPA	Could not locate document	n/a
1- Technical guidance note (monitoring) M1: sampling requirements for stack emission monitoring, Environment Agency, England (v6 January 2010) 2-Technical guidance note (monitoring) M2: monitoring of stack emissions to air, Environment Agency, England (v10 October 2013)	UK	Range of guidance documents on sampling and monitoring emissions to air, including specific guidance for monitoring of ash, PM, nitrogen and VOCs. 1 – 2010, provides guidance on sampling and monitoring. No performance standards included.	Background material

[1] http://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A52013PC0919

Candidate Guidance	Provided by	Overview	Use in BREF?
3- Technical guidance note (monitoring) M3: how to assess monitoring arrangements for emissions to air in environmental permit applications, Environment Agency, England (v1 September 2011) 4- Technical guidance note (monitoring) M4: guidelines for ash sampling and analysis, Environment Agency, England (v6 April 2014) 5-Technical guidance note (monitoring) M8: monitoring ambient air, Environment Agency, England (v2 May 2011) 6-Technical guidance note (monitoring) M15: monitoring PM10 and PM2.5, Environment Agency, England (v2 July 2012 7-Technical guidance note (monitoring) M17: monitoring of particulate matter in ambient air around waste facilities, Environment Agency, England (v2 July 2013) 8-Monitoring Quick Guide 1: SM-QG-O1 – Seclecting continuous emission monitoring systems (CEMs) and the validity of the CEM unit's certificates, Scottish Environment Protection Agency (v1) 9-Monitoring Quick Guide 3: SMQG3 – Applying BS EN 14181 – Stationary Source emissions; quality assurance of automated measuring systems, Scottish Environment Protection Agency (v1) 10-Monitoring Quick Guide 5: SM-QG-05 – Monitoring oxides of nitrogen, Scottish Environment Protection Agency (v1) Monitoring Quick Guide 7: SM-QG7 – Monitoring volatile organic compounds (VOCs), Scottish Environment Protection Agency		2 – 2013, provide guidance on sampling and monitoring stake emissions to air. No performance standards included. 3- 2011, technical guidance on monitoring emissions to air for installations that apply for permit as in EPR. List requirements from existing legislation, including LCPs installations. Does not include best practices nor performance standards. 4- 2014 guidance on sampling ash, includes template for sample report. Does not include best practices (a couple of recommendations though) nor performance standards. 5- 2011, document indicates that it does not intend on setting definitive best available techniques but provide guidance for establishing air emissions monitoring strategy. Provide reference to applicable standards in the UK and techniques for monitoring these. 6 – 2012 guidance on sampling and monitoring PM10 and PM2.5. Does not include best available techniques or performance standards for reducing emissions. 7- 2013, not relevant concern waste facilities. 8, 9, 10– Serie of succinct monitoring guidelines from SEPA	

Candidate Guidance	Provided by	Overview	Use in BREF?
Emissiebepaling en Rapportage – Bodembeheer (Dutch only)	NOGEPA	Guidance does not include performance standards Guidance does not provide information on techniques to be implemented to ensure that the environmental issue is managed, however it indicates that soil survey is to consider seabed disturbance	Background material

Guidance Identified	
• Title, link, etc	DNV Recommended Practice on Risk Management of Shale Gas Developments and Operations DNV-RP-U301 http://rules.dnvgl.com/docs/pdf/DNV/codes/docs/2013-01/RP-U301.pdf *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Industry association guidelines. Principles contained in the guidelines regarding management of environmental impacts from production and exploration of oil and gas could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance refers to possible ways of limiting emissions to air generated by use of combustion fuels, vented emissions and fugitive emissions. Includes a selection of reduction strategies / best practices in order to mitigate the impacts of air emissions and limit the emissions themselves. Emissions of dust from construction and transport are also addressed. The guidance include a range of strategies to limit and mitigate emissions of dust.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2013
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance standards Guidance includes general strategies and some techniques and strategies to adopt to reduce emissions and mitigate their impacts. Use in BREF: Reference material

Releases to air • **Site equipment and vehicles**

Summary
• Most of the information supplied for this key environmental issue is legislation references. • Air emissions from site equipment and vehicles are important, but these are not specific to hydrocarbons, several industrial sectors involve, to some extent, emissions from equipment and vehicles (e.g. construction sites), as such it is not considered that this is a 'key environmental issue' for the purpose of the HC BREF and we propose that it is excluded from the scope

Candidate Guidance	Provided by	Overview	Use in BREF?
DNV Recommended Practice on Risk Management of Shale Gas Developments and Operations DNV-RP-U301	DNV GL	Guidance does not include Performance standards Guidance includes general strategies and some techniques and strategies to adopt to reduce emissions and mitigate their impacts.	Background material
Directive 97/68/EC and amendments	IADC	The reference provided is legislation, not reference to guidance, so this has not been further explored in details. Legislation on NRMM covers individual unit and can be marketed only if demonstrated that they can't comply with emission limit values. Does not cover beyond.	Background material
Directive 2007/46/EC Regulation 595/2009 and 582/2011/EU	IOGP	The reference provided is to legislation establishing a framework for the approval of motor vehicles and their trailers, and of systems, components and separate technical units intended for such vehicles (Framework Directive). Regulations include emission limit values for heavy duty vehicles.	Background material

Guidance Identified	
• Title, link, etc	DNV Recommended Practice on Risk Management of Shale Gas Developments and Operations DNV-RP-U301 http://rules.dnvgl.com/docs/pdf/DNV/codes/docs/2013-01/RP-U301.pdf *Provided by: DNV GL*
Geographic Scope	
• What is the geographic scope? • Can it be applied to all EU areas? • Is it agreed or only in a developmental phase?	Industry association guidelines. Principles contained in the guidelines regarding management of environmental impacts from production and exploration of oil and gas could be applied Europe wide
Environmental Scope	
• Does it address the environmental issue in full? • Does it cover all relevant environmental media (air, water, soil, etc.)? • List all/main relevant aspects of the issue and comment on whether they are addressed? • Does it address routine releases or accidental events?	Guidance refers to possible ways of limiting emissions to air generated by use of combustion fuels, vented emissions and fugitive emissions. Includes a selection of reduction strategies / best practices in order to mitigate the impacts of air emissions and limit the emissions themselves. Emissions of dust from construction and transport are also addressed. The guidance include a range of strategies to limit and mitigate emissions of dust.
Accessibility	
• Is the guidance publicly available and accessible? • Is it available without charge (not an exclusion criterion)?	Publicly available and accessible without charge.
Age of guidance	
• How old is the guidance? • Does it reflect present day techniques/technologies? • Overall, does it remain relevant?	Guidance considered sufficiently current and relevant. 2013
Overall Conclusion	
• Does the guidance include measurable (not necessarily quantitative) performance standards? • Does it specify which techniques can/should be used? • What is our overall conclusion on the guidance document and in total for the activity/ process/ technique concerned?	Guidance does not include Performance standards Guidance includes general strategies and some techniques and strategies to adopt to reduce emissions and mitigate their impacts. Use in BREF: Background material

Appendix C: List of documents submitted by members of the subgroup

Name	Provided by
HELCOM Manual on Co-operation in Response to Marine Pollution within the framework of the	Denmark
Response to accidents at sea involving spills of hazardous substances and loss of packaged d	Denmark
HELCOM Manual on Co-operation in Response to Marine Pollution within the framework of the	Denmark
HELCOM RECOMMENDATION 18/2*)on offshore activities	Denmark
HELCOM CONVENTION annex VI on prevention of pollution from offshore activities	Denmark
HELCOM CONVENTION annex II on criteria for the use of BEP and BAT	Denmark
HELCOM Baltic Sea Action Plan	Denmark
Protocol for the protection of the Mediterrenean Sea against pollution resulting from exploration	Denmark
Decison IG21.8 at CoP18:Follow up actions regarding the Offshore Protocol Action Plan	Denmark
MAP - Study on International Best Practises	Denmark
EU Commission Flyer: M e d i t e r r a n e a n offshore activities:e n h a n c i n g t h e i r environ	Denmark
Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety	Denmark
Commission decision C 18/07 2012 on setting up the EU Offshore Authorities Group	Denmark
Safety of offshore oil and gas operations: Lessons from past accident analysis. *Ensuring EU I*	Denmark
Health, Safety, Environmental Case Guidedlines for Mobile Offshore Drilling Units	Denmark
ARBEJDSTILSYNETS VEJLEDNINGER OM SIKKERHEDS- OG SUNDHEDSMÆSSIGE FORI	Denmark
Safety Permit Application Guidelines (Ireland)	Denmark
Safety Case Guidelines (Ireland)	Denmark
ALARP Guidance (Ireland)	Denmark
Guidelines for “Plan for Development and Operation/Development and Installation”, including E	DNV GL
EN 16260:2012 Water Quality - Visual sea bed surveys using remotely operated and/or towed	DNV GL
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