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REGIONAL MARINE POLLUTION EMERGENCY RESPONSE CENTRE FOR THE MEDITERRANEAN SEA (REMPEC)

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STUDY ON INTERNATIONAL BEST PRACTICES

Note by the Secretariat

SUMMARY

Executive Summary: This document provides an in-depth analysis of existing recognized international best practices and regulations relevant to the implementation of the Offshore Protocol and a comparative analysis of existing legislative and administrative framework in the region in order to highlight potential gaps between the Offshore Protocol requirements and the existing laws or practices. It also highlights measures to be considered in the development of the Offshore Protocol Action Plan.

Action to be taken: As indicated under each agenda item.

Related documents: REMPEC/WG.34/20

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EXECUTIVE SUMMARY

INTRODUCTION AND METHODOLOGY

This report was prepared by CSA Ocean Sciences Inc. under contract to the United Nations Environment Programme Coordinating Unit for the Mediterranean Action Plan (UNEP/MAP). The purpose of the report is to assist UNEP/MAP in the preliminary preparation phase for the drafting of the Marine Action Plan for the implementation of the Offshore Protocol (OP) of the Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention).

Following the entry into force of the OP in March 2011, the 17th Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, Paris (France), 8-10 February 2012, adopted Decision IG.20/12 related to the Marine Action Plan for the implementation of the OP. Decision IG.20/12 established an *ad hoc* working group coordinated by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) and composed of representatives of the Contracting Parties and observers from representatives of the concerned industries, relevant international organizations, and UNEP/MAP partners, to prepare the Action Plan. This report was prepared to assist REMPEC in the preparation of the relevant materials to be considered by the Contracting Parties in developing the Action Plan.

The report focused on two tasks:

- Task 1 – Best Practices. The objective of this task was to identify and analyse existing recognized international best practices and regulations either from a legislative or an industry point of view, relevant to the implementation of the OP, with particular emphasis on the main activities and installations listed in the OP. Whenever a topic addressed under the OP is also addressed by a relevant international instrument, this instrument should be identified to ensure consistency between the OP and the regional and international legislations in place.

- Task 2 – National Questionnaire Analysis. REMPEC developed a questionnaire (see **Appendix C**), based on the provisos of the OP, which was circulated to all Contracting Parties during the first week of February 2013. The aim of this questionnaire, which was developed for the implementation of Decision IG.20/8, was to map the existing legislative and administrative framework in the region. Decision IG.20/12 invited Contracting Parties to provide data, with annual updates, with respect to the questionnaire. The objective of Task 2 was to compile the responses to the questionnaire and carry out a comparative analysis of existing legislative and administrative framework in the region in order to highlight potential gaps between the OP requirements and the existing laws or practices.

TASK 1 – BEST PRACTICES

Task 1 consisted of two parts. First, we compiled and summarized examples of legal instruments and best practices relevant to the implementation of the OP. Then, we reviewed each Article of the OP and identified relevant international rules, standards, and/or recommended best practices available in other legal instruments, industry guidelines, or other documents.

Overview of Legal Instruments and Sources of Best Practice Guidance

Several types of legal instruments were identified that are relevant to the OP. The categories include international legal instruments; European legal instruments; regional legal instruments; national legal instruments; multilateral financial institution guidelines; and offshore oil and gas industry standards and guidelines.

International Legal Instruments. The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. MARPOL 73/78 includes six Annexes that address regulations for prevention of pollution by: (I) oil; (II) noxious liquid substances carried in bulk; (III) harmful substances in packaged form; (IV) sewage from ships; (V) garbage from ships; and (VI) air pollution from ships.

The International Maritime Organization (IMO) also has adopted a Ballast Water Management Convention which is relevant, although not yet in force. Because the MARPOL 73/78 Annexes are

already implemented widely, including most of the Barcelona Convention parties, it is expected that authorizations for oil and gas exploration and exploitation activities carried out on fixed or floating offshore installation or structures may not need to specify separate, detailed requirements for some of the discharges covered by the convention.

European Union Legal Instruments. The following parties to the Barcelona Convention are also European Union (EU) member states: Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain with Montenegro and Turkey listed as EU candidate countries and Albania, Bosnia and Herzegovina listed as potential candidates. The EU has adopted more than 300 directives, regulations, and action plans aimed at environmental protection and the promotion of sustainability within its member states. There is no comprehensive framework solely for regulating offshore oil and gas activities, but several EU directives are applicable to such activities.

Regional Legal Instruments. The OSPAR Convention is the mechanism by which 15 governments of the western coasts and catchments of Europe, together with the EC, cooperate to protect the marine environment of the Northeast Atlantic. France and Spain are the only Contracting Parties to the Barcelona Convention that are also OSPAR parties. The offshore oil and gas industry is one of several "work areas" of the OSPAR Commission and is the one that is most relevant to the OP. The OSPAR Commission and member states have developed a large body of information that could serve as best practice guidance. The OSPAR Convention and its strategies are implemented through the adoption of Decisions (which are legally binding on the Contracting Parties), Recommendations, and Agreements.

The Kuwait Convention is a regional instrument covering the Arabian Gulf that can be regarded as a parallel to the Barcelona Convention and a potential source of best practice guidance. Guidelines on the use and storage of chemicals in offshore operations; requirements for environmental impact surveys and assessments; requirements for the conduct of seismic operations; and requirements for disposal of drill cuttings on the sea-bed have been developed under the Kuwait Convention and Protocols.

National Legal Instruments. The U.K., Norway, and the Netherlands, which are parties to OSPAR, have mature regulatory frameworks for offshore oil and gas activities based on OSPAR and other international, regional, and national legislations. Provisions that are particularly relevant to the OP are identified in the main report and links to relevant legislation and regulations are provided. Guidance from Australia, Canada, and the U.S also were sought.

Multilateral Financial Institution Guidelines. The International Finance Corporation (IFC), a member of the World Bank Group, has developed Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing. The IFC also issues the most updated versions of the World Bank Group Environmental, Health and Safety (EHS) Guidelines. Of particular relevance as source of best practice guidance are the IFC General EHS Guidelines and sector guidelines for offshore oil and gas development.

Offshore Oil and Gas Industry Standards and Guidelines. Several industry organizations are important sources of standards and best practice guidelines. Examples include:

- International Association of Oil & Gas Producers (OGP) – a global organization whose members share best practices to achieve improvements in every aspect of health, safety, the environment, security, social responsibility, engineering, and operations. OGP has developed guidelines for various aspects of oil and gas operations.
- IPIECA – a global association that is the industry's principal channel of communication with the UN. IPIECA has working groups that address biodiversity; climate change; health; oil spill preparedness; fuels and products; reporting; social responsibility, and water.
- International Association for Standardization (ISO) – the world's largest developer of voluntary international standards. International standards give state of the art specifications for products, services and good practice, helping to make industry more efficient and effective.
- Oil & Gas UK – the leading representative body for the United Kingdom (UK) offshore oil and gas industry. It issues guidelines on operational, environmental, and health and safety issues.
- American Petroleum Institute (API) – a United States (U.S.) trade association that is a leader in developing equipment and operating standards for the oil and gas industry worldwide. API works with leading industry subject-matter experts to maintain its inventory of over 600 standards and recommended practices.

- ASTM International – a globally recognized leader in the development and delivery of international voluntary consensus standards.
- DNV GL – an independent foundation with the purpose of safeguarding life, property, and the environment. DNV GL's activities are divided into three operating companies, of which DNV Maritime and Oil & Gas is relevant to the OP.
- American Bureau of Shipping (ABS) – a classification society whose mission is to verify that marine vessels and offshore structures comply with rules that the society has established for design, construction and periodic survey.
- International Marine Contractors Association (IMCA) – an international trade association representing offshore, marine, and underwater engineering companies.

Analysis of Individual Articles

For the second part of this task, we reviewed each Article of the OP and identified examples of relevant international rules, standards, and/or recommended best practices available in other legal instruments, industry guidelines, or other documents. A brief summary of our findings is listed below per section of the OP.

Section I – General Provisions

This section of the OP covers the general provisions of the Protocol, including definitions (Article 1), geographical coverage (Article 2), and general undertakings (Article 3). Six Conventions (Abidjan, Bucharest, Cartagena, Helsinki, Kuwait, OSPAR) similar to the Offshore Protocol and MARPOL 73/78 and Annexes were reviewed for possible guidance relevant to this section. Discussions of these three articles are found in **Sections 3.3.1** to **3.3.3**, respectively.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include following:

- Clarification of some of the definitions in Article 1;
- Clarification of the geographic coverage of the Offshore Protocol relative to inland waters of the contracting parties or the freshwater limit may be warranted; and
- Provisions found in other Conventions covering general undertaking.

Section II – Authorization System

This section of the OP covers the authorization system of the Protocol, including general principles (Article 4), requirements for authorizations including environmental impact assessment (EIA) requirements (Article 5 and Annex V), granting of authorizations (Article 6), and sanctions (Article 7). International best practices were reviewed within various permitting systems for permits issued, permitting documentation required, EIA requirements and guidelines, and compliance and enforcement procedures in the case of a breach of obligation. Examples were provided for the following regions and countries: the EU, U.K., U.S., Norway and Kuwait Convention area. Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

Requirements for Authorizations

- Develop a list of approved standards and certifications for Installation Certification;
- Develop guidance document on requirements for certifications;
- Determine the acceptable standard for technical competence and financial capacity;
- Develop a guidance document on technical competence and financial capacity;
- Determine scale of geographical area required within permit submissions;
- Clarify the roles of personnel required within the professional and technical qualifications documentation;
- Develop guidance document requirements for professional and technical qualifications;
- Determine conditions when an EIA is required, and when an Environmental Survey is sufficient;
- Determine requirements to be included within an Environmental Survey if an EIA is not required; and
- Develop guidance document for Operators specifying the requirements for an Environmental Survey and EIA.

Granting of Authorizations

- Develop a checklist for granting an Authorization;
- Develop a timeframe for each stage of the Authorization approval process;
- Develop a guidance document for Operators to use that specifies the Authorization approval process;
- Develop a guidance document for the Competent Authority to use when reviewing permitting documents from an Operator; and
- Determine a process for the registration of an Authorization by the Competent Authority.

Section III – Waste and Harmful or Noxious Substances and Materials

Article 8 –General Obligations

The wording of this article is similar to the general requirements of other international legal instruments. However, certain terms such as “best available” techniques have specific definitions within the context of the EU or OSPAR, as discussed in **Section 3.3.5**. We recommend carefully reviewing existing regulatory usage within EU and OSPAR when defining these terms for implementation.

Article 9, Annex I, Annex II, and Annex III –Harmful or Noxious Substances and Materials

MARPOL 73/78 Annexes include specific requirements for releases of oily waste, noxious liquid substances in bulk, harmful substances carried by sea in packaged form, sewage, garbage, air pollution, and ballast water, as discussed in **Section 3.2.1.2**. Additional information about MARPOL 73/78 requirements is provided for oil and oily mixtures and drilling fluids and cuttings under Article 10 (**Section 3.3.7**); for sewage under Article 11 (**Section 3.3.8**), and for garbage under Article 12 (**Section 3.3.9**).

The OSPAR Convention provides a broad framework for regulating the use and discharge of offshore chemicals through the Offshore Chemicals Notification Scheme (OCNS), under which all offshore chemicals are subject to a pre-screening process. OSPAR represents a potential source of best practice guidance in implementing Article 9.

Two EU regulations are particularly relevant to chemical use. The Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Regulation is discussed in **Section 3.2.2.8** and the Classification, Labelling and Packaging (CLP) Regulation is discussed in **Section 3.2.2.9**.

The Kuwait Convention can be regarded as a parallel to the Barcelona Convention (see **Section 3.2.3.3**). Under the Continental Shelf Protocol of the Kuwait Convention, the “Guidelines on the Use and Storage of Chemicals in Offshore Operations” define key terms, identify chemicals that are exempt from notification, and specify the required contents of a Chemical Use Plan.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

Chemical Use Approval

- Develop and adopt guidelines specifying the limitations or prohibitions for use of chemicals;
- Determine the requirements to be stated within the Chemical Use Plan and determine limits or prohibitions for chemicals used and/or discharged within the Protocol area;
- Determine the chemicals required to be listed within the Chemical Use Plan (refer to the text within the Kuwait Convention that states "**provided that where there is no known danger of a chemical escaping into the marine environment, it need not be included in the plan**");
and
- Develop a guidance document for Operators specifying the Chemical Use Plan requirements.
- *Discharge Special Permit*
- Define limits for the acceptance of the substances listed in Annex I and, in relation to oil, as listed in Article 10;
- Develop a guidance document for Operators specifying limits for the acceptance of the substances listed in Annex I and, in relation to oil, as listed in Article 10;
- Determine the requirements for the Discharge Special Permit;
- Develop a template for the Discharge Special Permit; and

- Develop a guidance document for Operators specifying the requirements for Discharge Special Permit;
- *Discharge General Permit*
- Determine the control and strict limitation requirements for discharges of substances listed in Annex II and determine acceptance limits per requirements set in Annex III;
- Determine the requirements for the Discharge General Permit;
- Develop a template for the Discharge General Permit; and
- Develop a guidance document for Operators specifying the requirements for Discharge General Permit.

Article 10– Oil and Oily Mixtures and Drilling Fluids and Cuttings

Oil Content of Machinery Space Drainage

MARPOL 73/78 Annex I provides the worldwide standard for oil content of machinery space drainage from ships. Regulation 39 of Annex I applies to fixed or floating. The drilling rig or platform must be equipped "as far as practicable" with the oil filtration equipment and the discharge of oil or oily mixtures from machinery drainage spaces is prohibited unless the oil content does not exceed 15 ppm. These facilities are also required to keep a record of all operations involving oil or oily mixture discharges.

Because the MARPOL 73/78 Annex I standards for machinery space drainage are already implemented worldwide, it is expected that authorizations for oil and gas exploration and exploitation in the Protocol Area would most likely refer to these existing requirements.

Oil Content of Production Water

Article 10 specifies that the oil content of produced water cannot exceed 40 mg/L in any calendar month or 100 mg/L at any time. Either OSPAR Recommendation 2001/1 or the Gulf of Mexico National Pollutant Discharge Elimination System (NPDES) permit could be adapted to develop common standards under the Protocol. OSPAR Recommendation 2001/1 is more narrowly focused on the oil content of produced water than the NPDES permit, which includes multiple waste streams and includes other effluent limits (toxicity).

Use and Disposal of Drilling Fluids and Cuttings

Two key sources of best practice guidance are the Gulf of Mexico NPDES general permit GMG290000 (USEPA, 2012a) and OSPAR Decision 2000/3. Both are based on extensive research and development efforts. Other guidelines appear to be based, at least in part, on one of these sources.

The Gulf of Mexico NPDES general permit could be adapted to develop common standards under the OP. It has the advantage of providing a comprehensive set of standards for drilling fluids and cuttings in a single document. The following aspects could be especially useful for developing common standards:

- Limits for synthetic based fluids (SBF) retention on cuttings (6.9% for internal olefins and 9.4% for esters), including a test method for permit compliance;
- Limits on cadmium and mercury in stock barite, polycyclic aromatic hydrocarbon (PAH) content of drilling fluids, formation oil in drilling fluids, including test methods for permit compliance and a maximum discharge rate;
- Requirements for toxicity testing, including test methods for permit compliance;
- Biodegradation requirements for drilling fluids, including a test method for permit compliance;
- A prohibition on "free oil" in discharges, including a test method for permit compliance;
- A definition of "de minimis" discharges of nonaqueous drilling fluids (NADFs) that are allowable; and
- Monitoring and reporting requirements.

However, some aspects of the Gulf of Mexico NPDES permit are irrelevant or would need to be revised significantly to make them applicable to the OP:

- Coverage of variety of effluents in addition to drilling fluids and cuttings (relevant sections could be excerpted);

- Prohibition against discharge of NADF cuttings other than those from SBF systems., specifically prohibits the discharge of cuttings generated from mineral oil based fluids;
- Specified test methods and organisms that may not be appropriate for use in the Mediterranean Sea or may require modification or substitution; and
- Reporting requirements and forms obviously are not applicable.

OSPAR Decision 2000/3 could also be adapted to develop common standards under the Protocol. The following aspects could be especially useful for developing common standards:

- Limits for NADF retention on cuttings (1%);
- Prohibition on the use of NADF in the upper part of the well;
- Prohibition on the use of diesel oil-based drilling fluids and the discharge of whole NADFs; and
- Best Available Techniques and Best Environmental Practice, including a waste management hierarchy.
- There are aspects of the OSPAR framework that could prove challenging as a basis for drilling fluid and cuttings standards for the OP. These issues are discussed in **Section 3.3.7.3.**

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol are as follows:

- Formulate and adopt common standards for the disposal of oil and oily mixtures from installations
- Annex V, A.1 - Define what the oil and grease acceptable level is for discharge
- Annex V, A.3 and A.4 - Define the minimum standard for "all the necessary precautions"
- Annex V, B.2(a) - Clarify the parameters in determining "sufficiently low toxicity"
- Annex V, B.2(e) - Develop a standard for a seabed sampling program
- Develop guidance document for Operators specifying the requirements for drilling fluids and cuttings.

Article 11 – Sewage

As summarized in **Section 3.3.8**, MARPOL 73/78 Annex IV contains requirements to control pollution of the sea by sewage. It applies to all ships greater than 400 gross tons and all ships less than 400 tons certified to carry 15 or more persons. The discharge of sewage into the sea is prohibited, except when a ship is using an IMO-approved sewage treatment plant and discharging comminuted and disinfected sewage at a distance of more than 3 nautical miles from the nearest land. Because the MARPOL 73/78 Annex IV standards for sewage are already implemented widely, including most of the Barcelona Convention parties, it is expected that authorizations for oil and gas exploration and exploitation may not need to specify separate, detailed requirements for sewage. Authorizations could require facilities to comply with MARPOL 73/78 requirements, including the use of IMO-approved sewage treatment plants.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol are as follows:

- Determine if standards in excess of MARPOL are required for the treatment and discharge of sewage into the Protocol area
- Develop guidance document for Operators specifying the requirements for Sewage Treatment

Article 12 – Garbage

As summarized in **Section 3.3.9**, MARPOL 73/78 Annex V deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of. Annex V prohibits the discharge of all garbage into the sea, except as provided otherwise in Regulations 4, 5, 6 and 7 of the Annex. Because the Annex V standards for garbage are already implemented widely, including most of the Barcelona Convention parties, most authorizations for oil and gas exploration and exploitation do not specify detailed requirements for these discharges from drilling rigs and

platforms. Most oil and gas operators have waste management procedures in place to minimize the release of solid waste into the marine environment.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol are as follows:

- Determine if standards in excess of MARPOL are required for the treatment and discharge of waste into the Protocol area
- Develop guidance document for Operators specifying the requirements for waste management

Article 13 – Reception Facilities, Instructions, and Sanctions

MARPOL 73/78 Annexes I, II, IV, V, and VI include requirements for port reception facilities, which are summarized in **Section 3.3.10**. Specific guidelines for ensuring the adequacy of port waste reception facilities are provided in Resolution MEPC.83(44) (IMO, 2000).

Article 14 – Exceptions

As discussed in **Section 3.3.11**, all MARPOL 73/78 Annexes include exceptions, with similar wording. The exceptions apply to discharges necessary for the purpose of securing the safety of a ship or saving life at sea; or resulting from damage to a ship or its equipment, provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge; and except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result. Exceptions also apply to the discharge of substances containing oil, approved by the IMO, when being used for the purpose of combating specific pollution incidents.

Section IV – Safeguards

Article 15 – Safety Measures

The term “Safety” includes a large number of topics, ranging from a major accident, e.g., a ship collision, to a minor first aid incident, e.g., a small cut on a finger. Setting requirements for “Safety Measures” to meet the intent of the Barcelona Convention, i.e. the “Protection Of The Mediterranean Sea Against Pollution”, leads to a sub-set of above discussed range, these being safety measures implemented to prevent events that could lead to pollution, e.g., measures in place ensuring adequate containment of liquids. Safety measures were discussed in **Section 3.3.12**.

Article 15 and Annex VI of the Offshore Protocol outline the requirements to be considered by the Contracting Party to ensure that adequate safety measures are implemented by the Operator. For the review of best practices, these were broken into three areas.

Design, Construction, Equipment and Certification

It is international industry best practice for offshore oil an gas Operators to identify the safety critical equipment applicable to the facility and its overall operation. Focus on the operation and maintenance of the equipment are highlighted as critical for maintaining a safe operation. In addition to regulatory requirements, there are a huge number of international standards addressing design and construction of offshore oil and gas.

Management Systems and Associated Safety Plans/Procedures

Plans or procedures addressing the safe operations associated with the oil and gas activities are typically combined under an umbrella within an Operator’s management system. Many regulatory agencies require a safety case from the Operator, which provides assurance that the risks of an operation have been identified with management measures are in place to manage the risks. A safety management system is requirement within a safety case.

Verification and Inspection

Verifications and regulator inspections are a required measure to confirm that Operators are conducting their activities within the required parameters, ensuring safety measures and environmental protection measures are adequate

Per the requirements of the Protocol, the above safety measures, such as those discussed above, are to be implemented in line with international practices and recommendations, best available

environmentally effective and economically appropriate techniques, and using the most advanced safety systems. Industry recognized best practices that could be drawn on by the Competent Authority were discussed.

Discussions regarding regulator inspections are covered in the section addressing Article 19 (monitoring).

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol are as follows:

- Determine specific requirements for the marking and enforcing a safety zone;
- Develop a guidance document for Operators specifying the requirements for a safety zone;
- Determine the specific safety measures required and to what standard they are to be met;
- Develop a template for the Certificate of Safety and Fitness, and create a list of approved issuing bodies; and
- Develop a guidance document for Operators specifying the requirements for Safety Measures

Article 16 and Annex VII – Contingency Planning

There are already many systems and tools in place, mainly due to the requirements enforced on the shipping industry that address the requirements of Article 16. The main difference between existing international shipping legislation and the activities covered by the Offshore Protocol lies within planning for blowout events. Therefore this section focused on best practices related to blowout contingency planning. Contingency planning was discussed in **Section 3.3.13**.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

- Establish procedures, based on the National Contingency Plan of Contracting Parties, stating the standards requirement within an Operator's Contingency Plan;
- Adopt guidelines, as set by the competent international organization, in order to coordinate the development and implementation of contingency plans;
- Formulate and adopt guidelines in accordance with international practices and procedures to ensure contingency planning efforts meet the requirements of Annex VI;
- Review National Contingency Plan to ensure it adequately addresses offshore oil and gas activities;
- Determine how the Operator Contingency Plan will be integrated with country's National Contingency Plan, it is recommended to develop a Contingency Plan template to be followed by an Operator; and
- Develop a guidance document for Operators specifying the requirements for Contingency Planning.

Article 17 – Notifications

Defining the type and magnitude of an event requiring a notification is a critical component in order to successfully implement the requirements of this Article. Making the requirements too broad will not only be cumbersome for the Operator making the notification, but also for the Competent Authority in terms of availability to take a report (operations are typically 24/7) and the resources to receive the report (documentation and responses).

The discussion within **Section 3.3.14** reviews existing systems in place for MARPOL notifications. In addition, a review of the notification requirements in both Australia and U.K. were provided as best practice examples of legislation that could be implemented to meet the requirement of this Article.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

- Determine notification requirements, ensuring the definitions of "pollution", "without delay", "likely to cause pollution" are clarified;
- Develop a notification process for use by Operators as guidance within their Contingency Plans, including the information as required in Annex VII, B(e); and
- Develop a notification process for Competent Authorities to use as guidance to address the requirements of Annex VII, B(f), (i) and (k).

Article 18 – Mutual Assistance in Cases of Emergency

Article 18 states that in the event of an emergency causing pollution or likely to cause pollution, a Party requesting assistance from other Parties, either directly or through REMPEC, must receive aid to the fullest extent that can be provided. **Section 3.3.15** discusses existing arrangements in place that could be used as best practices to address the requirements of this article.

A recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol is to evaluate if REMPEC and MOIG have the capabilities to expand current scope to support Offshore Protocol mutual assistance requirements, develop other capabilities if required

Article 19 – Monitoring

Monitoring measures were discussed in **Section 3.3.16**. Conventions similar to the Offshore Protocol were reviewed for possible guidance relevant to Article 19 contain provisions addressing monitoring although they differ in the degree of treatment or detail. In most, the subject of monitoring is briefly discussed under convention articles on scientific and technological co-operation. A thorough description of a monitoring program and requirements is described in Annex IV to the OSPAR Convention. Article 19 is very general and broad and is subject to interpretation.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

Operator Monitoring

- Define criteria for "qualified entity" - Is a certification required?;
- Determine acceptable monitoring frequency and scope;
- Determine reporting frequency and scope; and
- Develop guidance document for Operators specifying the requirements for Monitoring Plan.

Regulator Inspections

- Develop inspection scope and checklist;
- Determine inspection frequency;
- Determine qualifications required by inspector;
- Consider a shared/pooled set of inspectors from all Contracting Parties;
- Define "removal operations" - recommended for decommissioned platforms and pipelines; and
- Develop guidance document for Operators specifying the requirements for CA Inspections.

Article 20 – Removal of Installations

A review of Conventions, relevant national regulations, and industry guidance documents identified sources of guidance on removal of installations (i.e., decommissioning) relevant to the Offshore Protocol. Of the Conventions reviewed only the Kuwait and OSPAR Conventions provide equal or greater guidance on removal of installations compared to the Offshore Protocol. Each has annexes or other instruments that require removal of installations. The Helsinki Convention has a requirement for removal of abandoned, disused offshore units and accidentally wrecked offshore units under the responsibility of the owner. Owners also are responsible for ensuring disused drilling wells are plugged. Measures for removal of installations were discussed in **Section 3.3.17**.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

- Article 20, 1 states "The operator shall be required by the competent authority to remove any installation which is abandoned or disused, in order to ensure safety of navigation, taking into account the **guidelines and standards adopted by the competent international organization**";
- Article 28, (i) states "Supervise the removal operations of the installations as provided in Article 20 of this Protocol";
- Determine the requirements to be stated in the removal plans, and clarify the removal operations that Article 28 will apply to (CA supervision of removal); and

- Develop guidance document for Operators specifying the requirements for Removal Plan.

Article 21 – Specially Protected Areas

Article 21 of the Offshore Protocol provides requirements for measures to prevent pollution of specially protected areas (SPAs). Measures addressing SPAs were discussed in **Section 3.3.18**. Compared to other conventions, OSPAR provides relatively more guidance with Annex V On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area although these are not focused on protected areas but generally on protecting ecosystems and biodiversity.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

- Document any established SPAs;
- Determine special provisions for activities in areas of SPAs; and
- Develop guidance document for Operators specifying special provisions required for activities in areas of SPAs.

Section V – Cooperation

Article 22 – Studies and Research Programmes

The discussion in **Section 3.3.19** identified several international organizations and government agencies that conduct programs of scientific and technological research in support of offshore oil and gas activities. Examples of potential sources of guidance and research cooperation are the EU Joint Research Centre, the OSPAR Commission, and industry groups such as OGP and IPIECA

Article 23 – International Rules, Standards and Recommended Practices and Procedures

This article of the Protocol was discussed in **Section 3.3.20**. The review of legal instruments in **Section 3.2** identified several sources of international standards, rules, and best practice guidance relevant to the OP. Key sources include:

- The IMO, a U.N. agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.
- The EU, which has adopted more than 300 directives, regulations, and action plans aimed at environmental protection and the promotion of sustainability within its member states.
- The OSPAR Commission, which is the mechanism by which 15 governments of the western coasts and catchments of Europe cooperate to protect the marine environment of the Northeast Atlantic.
- The BOEM and BSEE, which are the main permitting authorities for offshore oil and gas exploration and development on the U.S. outer continental shelf.
- The IFC, a member of the World Bank Group, which has developed Performance Standards to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing.

Industry Groups. Several industry organizations are reviewed in **Section 3.2.6**. The most important potential sources of rules, standards and best practice guidance were described in the Overview of Legal Instruments and Sources of Best Practice Guidance.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol. include the following:

- Action on Article 23, 1 (a) which states **"Establish appropriate scientific criteria** for the formulation and elaboration of international rules, standards and recommended practices and procedures for achieving the aims of this Protocol"
- Action on Article 23, 1 (b) which states **"Formulate and elaborate such international rules, standards and recommended practices and procedures"**

Article 24 – Scientific and Technical Assistance to Developing Countries

This article of the Protocol was discussed in **Section 3.3.21**. No specific “best practice” guidance was identified for Article 24. Assistance in formulating and implementing programs of assistance to developing countries may be available through international organizations such as UNEP and the EU.

Article 25 – Mutual Information

This article of the Protocol was discussed in **Section 3.3.22**. No specific "best practice" guidance was identified for Article 25. REMPEC provides the framework for the exchange of information among Barcelona Convention parties on operational, technical, scientific, legal and financial matters related to the Convention and its Protocols. The implementation of Article 25 would require the integration of the OP into the existing reporting system operated by REMPEC.

Article 26 – Transboundary Pollution

Transboundary pollution was discussed in **Section 3.3.23**. The Prevention and Emergency Protocol to the Barcelona Convention provides the foundation for regional cooperation in the fields of prevention of, preparedness for, and response to transboundary pollution from oil spills. REMPEC is the organization mandated by the Contracting Parties to strengthen the capacities of coastal States in the Mediterranean region and to facilitate cooperation among them in order to combat massive marine pollution by oil, particularly by developing national capacities to combat oil pollution and by establishing a regional information system with a view to dealing with marine pollution emergencies.

Certain aspects of Article 26 of the OP are expected to be addressed within the framework of the EIA process required by the OP. This includes the requirement that each Party "shall take all measures necessary to ensure that activities under its jurisdiction are so conducted as not to cause pollution beyond the limits of its jurisdiction." Two sources of best practice guidance for EIA in a transboundary context are the Espoo Convention and the EU EIA Directive, as discussed in **Section 3.3.23**. A subregional (Mediterranean) workshop on the Espoo Convention was held in 2010 (UNECE, 2010), and the EU (2013b) recently issued an EIA guide for large-scale transboundary projects.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this article of the Protocol include the following:

- Formulate and adopt appropriate criteria, rules and procedures for the determining the occurrence of transboundary pollution; and
- Develop a guidance document for Operators on the process for notifying the Competent Authority of the potential for or actual occurrence of transboundary pollution from its offshore activities.

Article 27 – Liability and Compensation

The immediate requirements of Article 27 can be summarized as:

Liability is to be imposed on Operators by Competent Authorities;
Competent Authorities require compensation assurances from Operators; and
Operators must maintain insurance or other financial security to cover any potential compensation arising from an accident.

In the longer term, Article 27 requires the parties to formulate and adopt appropriate rules and procedures for the determination of liability and compensation, in conformity with Article 12 of the Barcelona Convention. Article 12 of the Barcelona Convention requires Contracting Parties to, "cooperate as soon as possible in the formulation and adoption of appropriate procedures for the determination of liability and compensation for damage resulting from the pollution of the marine environment deriving from violations of the provisions of this Convention and applicable Protocols".

There currently is no international or national legal framework that adequately covers the liability and compensation requirements for offshore oil and gas related incidents. **Section 3.3.24** reviews existing international and national legal framework liability and compensation systems in place and identified gap within these frameworks.

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this section of the Protocol include the following:

- Action on Article 27 which states "The Parties undertake to cooperate as soon as possible in **formulating and adopting appropriate rules and procedures** for the determination of liability and compensation for damage resulting from the activities dealt with in this Protocol, in conformity with Article 12 of the Convention.";
- Formulate and adopt appropriate rules and procedures for the determination of liability and compensation;

- Determine the liability requirements to be met for operations and determine information required from Operators to prove adequate coverage is held and maintained - create template for submittal of information; and
- Develop a guidance document for information required from Operators to prove adequate liability coverage.

Section VI – Final Provisions

Article 28 Appointment of Competent Authorities

Most conventions did not provide explicit provisions on the appointment of competent authorities, define "Competent Authority", or contain consolidated provisions relative to appointment or responsibilities of competent authorities. Terms of reference for related competent authorities were not available. No specific "best practice" guidance was identified for Article 28. The Offshore Protocol may be the exemplar among the Conventions for this provision. This article of the Protocol was discussed in **Section 3.3.25**

Recommendations to the Organization and Parties to the OP on actions in support of implementation of this article of the Protocol include the following:

- Consideration of whether the competent authority for permitting offshore activities under the Offshore Protocol should be independent of other government agencies that promote oil and gas development
- Consideration of the establishment of a network of competent authorities under the Offshore Protocol by the Contracting Parties to promote communications, coordination, and competencies in the implementation of its provisions is recommended.

Article 29 Transitional Measures

This article of the Protocol was_discussed in **Section 3.3.26**. A review of the Conventions did not result in guidance applicable to Article 29. Recommendations to the Organization and Parties to the OP on actions in support of implementation of this article of the Protocol include the following:

- Action on Article 29 which states "Each **Party shall elaborate procedures and regulations** regarding activities, whether authorized or not, initiated before the entry into force of this Protocol, to ensure their conformity, as far as practicable, with the provisions of this Protocol."; and
- Developing transitional procedures and regulations by the Competent Authority of each Contracting Party is recommended for consideration.

Article 30 Meetings

Discussions under this article addressed the frequency and functions of the meetings of the Contracting Parties for management of activities within the Protocol area (see **Section 3.3.27**). Recommendations to the Organization and Parties to the OP on actions in support of implementation of this article of the Protocol include the following:

- Determine frequency and scope of meetings to cover requirements per Article 30;
- Periodically assess the state of the environment or review the state of pollution in the Protocol area;
- Review implementation, consider efficacy of measures, advise other measures, review annex and appendices accuracy/adequacy;
- Revise any annex or appendix;
- Consider issued authorization and permit;
- Adopt international rules, standards, responsible parties, and procedures for Chemical Use and Safety Measures guidelines;
- Consider Contingency Plan records and means of emergency interventions;
- Establish criteria and formulate international rules, standards, responsible parties and procedures;
- Facilitate and implement policies for drilling fluids and discharges, harmonization with EU and national legislation;

- Review progress in implementation of liability requirements; and
- Other communications as required.

Article 31 Relations with the Convention

This article of the Protocol was discussed in **Section 3.3.28**, which addresses how the Offshore Protocol relate to the Barcelona Convention and its other Protocols. Other conventions include provisions for the rules of procedure and the financial rules similar to the Barcelona Convention. No specific recommendations were identified for Article 31.

Article 32 Final Clause

This article of the Protocol is a recitation of the Protocol adoption process (e.g., signature, ratification, acceptance or approval), accession, and entry into force was discussed in **Section 3.3.29**. No specific "best practice" guidance and n specific recommendations were identified for Article 32.

TASK 2 – NATIONAL QUESTIONNAIRE

The national questionnaire for Task 2 was developed by and sent to the Contracting Parties by REMPEC. Unfortunately, out of the 22 Contracting Parties queried, only 10 responded (Algeria, Cyprus, France, Greece, Israel, Italy, Libya, Morocco, Spain and Turkey), of which six sent the first and four the reviewed questionnaire. Under the Barcelona Convention Reporting System (BCRS), online reports from five countries were extracted (Bosnia-Herzegovina, Cyprus, Israel, Italy and Spain) and from the European Commission (EC) study, information for five additional Contracting Parties were taken (EU, France, Spain, Italy and Croatia). For nine Contracting Parties (Albania, Croatia, Egypt, Lebanon, Malta, Monaco, Montenegro, Syria and Tunisia), no information was available from any source.

We tabulated the results and prepared comparative tables to summarize the existing national legislative and administrative framework in the Mediterranean region and highlight potential gaps and differences between the OP provisions and the existing national laws and practices.

In addition to the above analysis, a review was conducted to identify the most important synergies and differences between the Offshore Protocol (OP) and European Union (EU) Directive 2013/30/EU on safety of offshore oil and gas operations (from European Commission [EC] study). This review, in conjunction with the analysis of the national questionnaires, showed that for EU Mediterranean Contracting Parties some of the identified issues additional measures are required. In particular, additional guidance is needed for managing the removal of offshore installations, the delineation of national monitoring systems, disposal requirements of oil and oily mixtures and drilling fluids and cuttings and monitoring and mitigation of transboundary pollution. However, in other cases, such as liability, disposal requirements governing waste and hazardous and noxious substances and materials (HNS&M), safety measures, contingency planning, EU Mediterranean Contracting Parties in general have legislation in place.

We conclude that, although the provisions of the OP have not yet been adopted by all the EU Mediterranean Contracting Parties, the majority of the provisions are covered by the existing EU *acquis*. However, the *acquis* not only covers the majority of the OP's requirements; in many cases it provides more detailed (and more recent) provisions that could be used to strengthen implementation of the OP in the Mediterranean Sea. The parallel adoption of the OP and the EU Directive 2013/30/EU on safety of offshore oil and gas operations provides a unique opportunity to align actions and improve measures undertaken to implement the OP core requirements.

Table ES-1. A summary of the information sources available for each Contracting Party.

Contracting Parties	Sources			
	Questionnaire		Barcelona Convention Reporting System (BCRS)	European Commission Study
	First	Reviewed		
Albania				
Algeria		X		
Bosnia and Herzegovina			X	
Croatia			X	X
Cyprus	X		X	
European Union				X
Egypt				
France		X		X
Greece	X			
Israel	X		X	
Italy		X	X	X
Lebanon				
Libya	X			
Malta				
Monaco				
Montenegro				
Morocco	X			
Slovenia				
Spain	X		X	X
Syria				
Tunisia				
Turkey		X		

Regarding the non-EU Mediterranean Contracting Parties, the review of the existing national legislative and administrative framework shows that in some issues related to the OP additional measures are required, such as concrete regulation on the removal of offshore installations, on national monitoring systems, disposal requirements of waste and hazardous and noxious substances and materials (HNS&M), oil and oily mixtures and drilling fluids and cuttings, and garbage and measures to impose sanctions. However, in other cases, such as safety measures and contingency planning, non-EU Mediterranean Contracting Parties, in general, have legislation in place.

1.0 INTRODUCTION

This report was prepared by CSA Ocean Sciences Inc. (CSA) under contract to the United Nations Environment Programme Coordinating Unit for the Mediterranean Action Plan (UNEP/MAP). The purpose of the report is to assist UNEP/MAP in the preliminary preparation phase for the drafting of the Mediterranean Action Plan for the implementation of the Offshore Protocol of the Barcelona Convention.

The Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean (Barcelona Convention) is regarded as a cornerstone for the promotion of environmental protection and integration in the Mediterranean Sea. Contracting Parties to the Barcelona Convention are Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey, and the European Union (EU). The "Protocol for Protection of the Mediterranean Sea against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil" (Offshore Protocol) of the Barcelona Convention was adopted on 14 October 1994 and entered into force on 24 March 2011 after the ratification by Albania, Cyprus, Libya, Morocco, Syria, and Tunisia.

Following the entry into force of the Offshore Protocol, the 17th Ordinary Meeting of the Contracting Parties to the Barcelona Convention and its Protocols, Paris (France), 8-10 February 2012, adopted Decision IG.20/12 related to the Mediterranean Action Plan for the implementation of the Offshore Protocol. Decision IG.20/12 established an *ad hoc* working group coordinated by the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) and composed of representatives of the Contracting Parties and observers from representatives of the concerned industries, relevant international organizations, and MAP partners, to prepare the Action Plan. This report was prepared to assist REMPEC in the preparation of the relevant materials to be considered by the Contracting Parties in developing the Action Plan.

This report documents the results of tasks that were undertaken to support the Offshore Protocol Working Group: 1) developing best practice recommendations for implementation of the Offshore Protocol provisions and 2) analysis of national Offshore Protocol questionnaire responses.

1.1 BACKGROUND

1.1.1 The Mediterranean Environment and Offshore Hydrocarbon Exploration and Exploitation (Production)

The Mediterranean Sea is bounded by Europe, northern Africa, and southwestern Asia, and bordered by 21 nations. It stretches approximately 3,700 kilometers (km) from the Strait of Gibraltar on the west to the Dardanelles and the Suez Canal on the east. It is almost completely enclosed, aside from these narrow locations. Few rivers discharge into the Mediterranean, particularly along its southern and eastern shores. Its total area is 2,500,000 km^2 (970,000 square miles), and its average depth is approximately 1,500 meters (m) (4,900 feet), with the greatest depth located off the coast of Greece at approximately 5,121 m (16,800 feet) deep. Despite its relatively small size (covering less than 1% of the global ocean), the Mediterranean Sea is home to 6 to 8% of all described marine species, amounting to some 17,000 unique species.

With its multitude of resources and uses, the marine environment is the basis of life for both humans and a large variety of living resources. Valuation of the marine and coastal ecosystems in economic terms is made possible through examining the ecosystem services (e.g., raw materials, fisheries, and recreational benefits) and the regulating services (e.g., climate regulation through the uptake of greenhouse gases [GHGs]) that are provided by the systems. Tinch and Mathieu (2011) conservatively valued the Mediterranean marine environment in 2010 at €10,000 per square kilometer, with most of the benefits arising from amenities (e.g., aesthetics) and recreation.

Offshore hydrocarbon exploration and exploitation activities are increasing in the Mediterranean marine environment, which is particularly vulnerable due to its semi-closed configuration and attendant risks due to regional seismic activity. Offshore exploration, particularly by the oil and gas industry, represents a risk to marine and coastal environments and the value they represent to the Mediterranean region. Catastrophic oil spills on the scale of the *Deepwater Horizon* in the Gulf of Mexico in 2010 represent perhaps the greatest potential threat to marine and coastal environments

from offshore activities. Certainly, cooperation between governments, industry, and organizations is required to address the potential environmental consequences of increasing offshore activities.

1.1.2 Mediterranean Action Plan

In 1975, only three years after the Stockholm Ministerial Conference that set up the United Nations Environment Programme (UNEP), 16 Mediterranean countries and the European Community adopted the Mediterranean Action Plan (MAP). The MAP was the first Regional Seas Programme established under UNEP's umbrella. The main objectives of the MAP were: to assist the Mediterranean countries with assessing and controlling marine pollution, to formulate their national environment policies, to improve the ability of governments to identify better options for alternative patterns of development, and to optimize the choices for allocation of resources.

In 1995, the Action Plan for the Protection of the Marine Environment and the Sustainable Development of the Coastal Areas of the Mediterranean (MAP Phase II) was adopted by the Contracting Parties to replace the MAP Phase I (1975). Today the MAP involves 21 countries bordering the Mediterranean, as well as the European Union. Together, they are determined to protect the Mediterranean marine and coastal environment while boosting regional and national plans to achieve sustainable development.

1.1.3 Barcelona Convention

In 1976, the Contracting Parties of the MAP, meeting in Barcelona, Spain, adopted the Convention for the Protection of the Mediterranean Sea Against Pollution, commonly referred to as the Barcelona Convention. The Barcelona Convention came into force on 9 July 2004 and is a multi-lateral agreement for protecting the Mediterranean Sea (i.e., the Protocol Area) from various sources of pollution. Under the Barcelona Convention, the Protocol Area is defined as follows: "*The Mediterranean Sea area shall mean the maritime waters of the Mediterranean Sea proper, including its gulfs and seas, bounded to the west by the meridian passing through Cape Spartel lighthouse, at the entrance of the Straits of Gibraltar, and to the east by the southern limits of the Straits of the Dardanelles between the Mehmetcik and Kumkale lighthouses"* (*Article 1 of the Barcelona Convention*). The Barcelona Convention's main objectives are:

- To assess and control marine pollution;
- To ensure sustainable management of natural marine and coastal resources;
- To integrate the environment in social and economic development;
- To protect the marine environment and coastal zones through prevention and reduction of pollution, and as far as possible, elimination of pollution, whether land or sea-based;
- To protect the natural and cultural heritage;
- To strengthen solidarity among Mediterranean coastal States; and
- To contribute to improvement of the quality of life.

The Barcelona Convention has given rise to seven Protocols addressing specific aspects of Mediterranean environmental protection and conservation:

- Dumping Protocol (from ships and aircraft);
- Prevention and Emergency Protocol (pollution from ships and emergency situations);
- Land-based Sources and Activities Protocol;
- Specially Protected Areas and Biological Diversity Protocol;
- Offshore Protocol (pollution from exploration and exploitation);
- Hazardous Wastes Protocol; and
- Protocol on Integrated Coastal Zone Management (ICZM).

1.1.4 Offshore Protocol

The Protocol for the Protection of the Mediterranean Sea Against Pollution Resulting from Exploration and Exploitation of the Continental Shelf and the Seabed and its Subsoil, known as the Offshore Protocol was signed and adopted on 14 October 1994 in Madrid with the aim of complementing the Barcelona Convention with respect to exploration and exploitation activities. The Offshore Protocol encourages Contracting Parties to take all appropriate measures to prevent, abate, combat, and control pollution in the Protocol Area resulting from activities in the areas under Contracting Parties' authority by ensuring that the best available environmentally effective and economically appropriate techniques are used for this purpose. Contracting Parties must also ensure that all necessary safety

measures are taken so that their activities do not cause pollution. Contracting Parties are to "impose a general obligation upon operators to use the best available, environmentally effective, and economically appropriate techniques and to observe internationally accepted standards regarding wastes, as well as the use, storage, and discharge of harmful or noxious substances and materials, with a view to minimizing the risk of pollution."

To date the Offshore Protocol has been signed by 12 Contracting Parties to the Barcelona Convention, but has been ratified only by Tunisia, Morocco, Albania, Cyprus, Libya, Syria, and the European Union (**Table 1-1**). The Offshore Protocol entered into force on 24 March 2011, after its ratification by Syria.

1.1.5 Ecosystem Approach-based Management Under the Mediterranean Action Plan

The Ecosystem Approach (EcAp) was introduced to improve the way human activities are managed for the protection of the marine environment. As stated in Convention of Biological Diversity, the EcAp is a strategy for the integrated management of land, water, and living resources that promotes conservation and sustainable use in an equitable way. It goes beyond examining single issues, species, or ecosystem functions in isolation. Instead, it recognizes ecological systems as rich mixes of elements that interact with each other continuously. This understanding is particularly important for coasts and seas, where water keeps systems and functions connected.

The EcAp brings the MAP's many sectoral analyses and management measures into a single integrated framework, which results in an adaptive management strategy that will be periodically monitored, evaluated, and revised. With the ultimate objective of influencing the management of human activities, 11 priority ecological objectives have been defined and adopted in COP17 (2002) through an intensive process of consultation led by the UNEP/MAP Secretariat fully owned by the Contracting Parties and with participation of MAP Partners and technical experts.

Table 1-1. Signature and ratification of the Offshore Protocol by the Contracting Parties.

Contracting Party	**1994 OFFSHORE PROTOCOL**		
	Signature	**Ratification**	**Entered into Force**
Albania	-	26 January 2001	24 March 2011
Algeria	-	-	-
Bosnia and Herzegovina	-	-	-
Croatia	14 October 1994	-	-
Cyprus	14 October 1994	16 May 2006	24 March 2011
European Union	17 December 2012/AC	27 February 2013	-
Egypt	-	-	-
France	-	-	-
Greece	14 October 1994	-	-
Israel	14 October 1994	-	-
Italy	14 October 1994	-	-
Lebanon	-	-	-
Libya	-	16 June 2005	24 March 2011
Malta	14 October 1994	-	-
Monaco	14 October 1994	-	-
Montenegro	-	-	-
Morocco	-	01 July 1999	24 March 2011
Slovenia	10 October 1995	-	-
Spain	14 October 1994	-	-
Syria	20 September 1995	22 February 2011	24 March 2011
Tunisia	14 October 1994	01 June 1998	24 March 2011
Turkey	-	-	-

AC = Accession

The following are the ecological objectives that were adopted in COP17 (2002):

- Biological diversity is maintained or enhanced. The quality and occurrence of coastal and marine habitats and the distribution and abundance of coastal and marine species are in line with prevailing physiographic, hydrographic, geographic, and climatic conditions.
- Non-indigenous species introduced by human activities are at levels that do not adversely alter the ecosystem.
- Populations of selected commercially exploited fish and shellfish are within biologically safe limits, exhibiting a population age and size distribution that is indicative of a healthy stock.
- Alterations to components of marine food webs caused by resource extraction or human-induced environmental changes do not have long-term adverse effects on food web dynamics and related viability.
- Human-induced eutrophication is prevented, especially adverse effects thereof, such as losses in biodiversity, ecosystem degradation, harmful algal blooms, and oxygen deficiency in bottom waters.
- Sea-floor integrity is maintained, especially in priority benthic habitats.
- Alteration of hydrographic conditions does not adversely affect coastal and marine ecosystems.
- The natural dynamics of coastal areas are maintained and coastal ecosystems and landscapes are preserved.
- Contaminants cause no significant impact on coastal and marine ecosystems and human health.
- Marine and coastal litter does not adversely affect coastal and marine environments.
- Noise from human activities causes no significant impact on marine and coastal ecosystems.

1.2 PROJECT OBJECTIVES

Contracting Parties to the Barcelona Convention adopted Decision IG.20/12 related to the Action Plan for the implementation of the Offshore Protocol at the 17th Ordinary Meeting in Paris (France), 8-10 February 2012. Decision IG.20/12 calls for efforts for establishing an *ad hoc* working group, the Offshore Protocol Working Group, composed of representatives of the Contracting Parties and observers from representatives of the concerned industries, relevant international organizations, and MAP partners. The Offshore Protocol Working Group is coordinated by the Regional Marine Pollution Emergency Response Centre for the Mediterranean (REMPEC) and is charged with leading the work for preparing an in-depth assessment and stock-taking analysis of the existing practical measures in place in the Mediterranean countries with regard to offshore activities as a baseline to measure progress towards implementation of the Offshore Protocol in the future. This project called for providing support to the *ad hoc* working group in developing and analyzing the background information for the drafting of the MAP for the implementation of the Offshore Protocol of the Barcelona Convention.

1.2.1 Task 1 – Best Practice Recommendations for Implementation of Offshore Protocol Provisions

Task 1 focused on conducting a detailed review of the Offshore Protocol provisions and identifying existing international best practices, industry guidelines, and other sources of guidance (that exist within the public domain) with particular emphasis for the main activities/installations listed in the Offshore Protocol. Other international agreements and programs for multilateral protection of shared waters such as the Oslo-Paris (OSPAR) Convention for the North Sea, the Kuwait Convention for the Arabian Gulf, the Abidjan Convention for the Gulf of Guinea, and the Cartagena Convention for the Caribbean, and available implementing guidelines, also have been reviewed for relevant input into the Offshore Protocol provisions review. Given its direct relevance, the Protocol for Protection of the Environment from Exploration and Exploitation of the Seabed under the Kuwait Convention was also reviewed.

This effort was in line with EcAp-based management under the MAP and based on the EcAp ecological objectives. Sources of best practices included industry guidelines provided by organizations such as the International Oil and Gas Producers Association (OGP), the International Petroleum Industry Environmental Conservation Association (IPIECA), the Australian Petroleum Producers and Exploration Association (APPEA), the American Petroleum Institute (API), and the Offshore Operators Committee (OOC) in the United States, Oil & Gas UK, and others.

According to Article 23 of the Offshore Protocol on international rules, standards, and recommended practices and procedures, existing recognized international best practices and regulations, either from a legislative or an industry point of view, that are relevant to the implementation of the Offshore Protocol need to be identified and analysed. Whenever a topic addressed under the Offshore Protocol was also addressed by a relevant international instrument, this instrument has been identified to ensure consistency between the Offshore Protocol and the regional and international legislations in place.

After reviewing existing best practices, identified topics, and proposed actions required to support the Contracting Parties with implementation of the Offshore Protocol, requirements were prioritized and summaries were prepared.

1.2.2 Task 2 – Analysis of National Offshore Protocol Questionnaire Responses

Task 2 focused on existing national-level implementation of the Offshore Protocol. The objective was to conduct a comparative analysis of the existing national legislative and administrative framework in the Mediterranean region and highlight potential gaps and differences between the Offshore Protocol provisions and requirements relative to the existing national laws and practices. Stock-taking of the existing regulatory framework among the Contracting Parties was accomplished mainly through the analysis of the responses in questionnaires provided to Competent Authorities of the Contracting Parties. Other sources used under this Task were the online reports of the Contracting Parties under the Barcelona Convention Reporting System (BCRS) and a study prepared by Milieu Ltd. (2013) for the Director General (DG) Environment of the European Commission (EC study).

2.0 REVIEW OF OFFSHORE PROTOCOL PROVISIONS

The Offshore Protocol is a powerful and important regional instrument which establishes a comprehensive environmental regime specifically governing the protection of the Mediterranean Sea from offshore development activities, taking into account the relevant provisions of the United Nations Convention on the Law of the Sea of 1982. The Offshore Protocol covers a wide range of exploration and exploitation activities, and its provisions include: the authorization system; the environmental management of harmful and noxious substances and materials used for, or resulting from, these activities; safety measures; contingency planning; monitoring; removal of abandoned or disused installations; liability and compensation requirements; and coordination with other Parties of the Barcelona Convention at a regional level. The Offshore Protocol[1] provides requirements in 32 articles organized into 6 sections with 7 annexes and a brief appendix. The key provisions of the Offshore Protocol are described in the following sections.

2.1 SECTION I – GENERAL PROVISIONS

Section I has three articles that cover definitions, geographic coverage, and general provisions. Article 1 provides definitions that describe certain requirements in other articles of the Offshore Protocol (e.g., Chemical Use Plan). The functional scope of the Offshore Protocol covers the full circle of activities concerning exploration and exploitation of resources in the Protocol Area: scientific activities, exploration activities (e.g., seismological activities, exploration drilling), and exploitation activities (establishment of installations, development drilling, recovery/treatment/storage, transportation to shore, maintenance, repair, and other ancillary operations) [Article 1(d)]. It covers all types of installations (any fixed or floating structure, and any integral part thereof, engaged in offshore activities) [Article 1(f)]. The Offshore Protocol provides a comprehensive definition of "operator," which includes not only persons authorized to carry out activities in accordance with the Protocol (the license holder) or who carry out these activities (a sub-contractor) [Article 1(g)(i)], but also any person who does not hold an authorization but is *de facto* in control of activities [Article 1(g)(ii)].

The spatial scope of the governance architecture established by the Offshore Protocol regime covers the whole Mediterranean seabed [Article 2(1)(a)]. The Offshore Protocol applies to internal waters, extending in the case of watercourses up to the freshwater limits [Article 2(1)(b)], while wetlands or coastal areas may also be included if the Contracting Parties decide so [Article 2(2)]. At the same time, the Offshore Protocol does not prejudice the rights of any State concerning the delimitation of the continental shelf [Article 2(3)]. This means that the environmental governance regime of the Offshore Protocol will be established and appropriately promoted in the framework of the Barcelona Convention system, irrespective of presently unsettled issues concerning the delimitation of the continental shelf.

Article 3 establishes the obligation of the Contracting Parties to ensure that all necessary measures are taken so that offshore activities, within their jurisdiction, are in accordance with the Offshore Protocol and do not cause pollution, provisions representing the sustainable management approach for the Offshore Protocol. This obligation is tailored to the particular capabilities of the Contracting Parties, which are obliged to ensure that the best available techniques (BAT) which are "environmentally effective and economically appropriate" are used.

2.2 SECTION II – AUTHORIZATION SYSTEM

Section II defines specifications for the authorization system (general principles, requirements, granting of authorizations, and sanctions). The Offshore Protocol provides that all exploration and exploitation activities are subject to prior written authorization from the Competent Authority of a Contracting Party. Before granting the authorization, the authority must be satisfied that the installation has been constructed according to international standards and practice and that the operator has the technical competence and the financial capacity to carry out the activities [Article 4(1)]. Authorization should be refused if there are indications that the proposed activities are likely to cause significant adverse effects on the environment that could not be avoided by compliance with specified requirements and technical conditions [Article 4(2)].

Any application for authorization or renewal of authorization of exploration and exploitation activities must include a survey (i.e., an environmental impact assessment) concerning the effects of the

[1] http://195.97.36.231/dbases/webdocs/BCP/ProtocolOffshore94_eng.pdf

proposed activities on the environment. The Competent Authority may, in light of the nature, scope, duration, and technical methods employed in the activities and of the characteristics of the area, require that an Environmental Impact Assessment (EIA) be prepared. Minimum contents of an EIA are specified in Annex IV of the Offshore Protocol [Article 5(1)(a)].

The Offshore Protocol provides for the imposition of sanctions if its provisions are violated and also when the specific conditions attached to the authorisation are not fulfilled (Article 7).

2.3 SECTION III – WASTES AND HARMFUL OR NOXIOUS SUBSTANCES AND MATERIALS (HNS&M)

Under Section III, the Offshore Protocol regulates wastes and the use, storage, and discharge of harmful or noxious substances and materials. It imposes an obligation on operators to obtain an approval from the Competent Authority to use and store chemicals for their activities on the basis of the Chemical Use Plan [Article 9(1)]. A Chemical Use Plan is a plan drawn up by the operator which shows: i) the chemicals that the operator intends to use in the operations; ii) the purpose or purposes for which the operator intends to use the chemicals; iii) the maximum concentrations of chemicals the operator intends to use within any other substances and maximum amounts intended to be used in any specified period; and iv) the area within which the chemical may escape into the marine environment [Article 1(k)].

The disposal of HNS&M used for, or resulting from, the exploration and exploitation activities is based on the *differentiating control system of black/grey list* system. That is, if harmful and noxious substances and materials are black-listed, their disposal is prohibited (Annex I); if they are grey-listed, their disposal requires, in each case, a special permit (Annex II); the disposal of all other harmful and noxious substances and materials requires a prior general permit (Annex III). The black/grey list approach is considered outdated. Section III was negotiated and adopted before the 1995 revision of the Barcelona Convention. After the Barcelona Convention, the black/grey list system was replaced by an *integrated management system*.

Addressing the environmental management of oil and oily mixtures, the Offshore Protocol calls for the application of common standards for the disposal of oil and oily mixtures [Article 10(1)] in accordance with the provisions of Annex V, A of the Offshore Protocol. The Offshore Protocol also provides the application of common standards for the use and disposal drilling fluids and drill cuttings [Article 10(2)] in accordance with the provisions of Annex V, B. In light of the new scientific evidence and international practice, it is recommended that these provisions be reconsidered.

With respect to the discharge of sewage (Article 11) and the disposal of garbage (Article 12), the Offshore Protocol provides a prohibition-exceptions scheme, which also need to be re-evaluated. In close relation to the requirements for specific types of waste of Section III, the Offshore Protocol (Article 13) requires Contracting Parties to ensure that, among others, "operators dispose satisfactorily of all wastes and harmful or noxious substances and materials in designated onshore reception facilities, except as otherwise authorized by the Protocol."

Exceptions to requirements under Section II are allowed. The provisions of Section III of the Offshore Protocol do not apply in case of (a) *force majeure* and for disposals to save human life, to ensure the safety of installations, and in case of damage to the installation or its equipment, on the condition are that all reasonable precautions have been taken, as well as (b) discharge into sea of harmful or noxious substances for the purpose of combating specific pollution incidents (Article 14).

2.4 SECTION IV – SAFEGUARDS

Section IV of the Offshore Protocol deals with and sets out several safeguards. Among others, it requires operators to have a contingency plan to combat accidental pollution (in coordination with the contingency plan of the Parties to the Emergency Protocol), to take safety measures with regard to the "design, construction, placement, equipment, marking, operation, and maintenance of installations" as well as to remove abandoned or disused installations, taking into account International Maritime Organization (IMO) guidelines and standards[2].

The Offshore Protocol provides that Contracting Parties must ensure that safety measures are undertaken concerning the design, construction, placement, equipment, marking, operation, and maintenance of installations [Article 15(1)]. Moreover, the Offshore Protocol requires that the

[2] IMO Resolution A.672(16): *Guidelines and Standards for the Removal of Offshore Installations and Structures on the Continental Shelf and in the Exclusive Economic Zone*

operator's equipment is maintained in good working order for protecting human life, preventing and combating accidental pollution, and facilitating prompt response to an emergency, and is in accordance with the best available environmentally effective and economically appropriate techniques [Article 15(2)]. The Offshore Protocol also imposes upon operators an obligation to acquire a certificate of fitness from a recognised body [Article 15(3)]. Annex VI to the Offshore Protocol provides guidance to the safety measures under Article 15, requiring the establishment of safety measures by providing, among others, that installations are safe and fit for purpose, that all phases of activities must be properly prepared, and that the most advanced safety systems are used.

The Offshore Protocol provides that operators are responsible for putting in place emergency response plans in accordance with the Protocol concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency [Article 16(1)]. Operators are required to have a contingency plan to combat accidental pollution, coordinated with the contingency plan of the Contracting Party. Further, each Contracting Party must establish coordination for the development and implementation of contingency plans [Article 16(2)]. Such plans must be established in accordance with guidelines adopted by the competent international organization. Annex VII to the Offshore Protocol sets out the requirements for the operator's contingency plan as well as the requirements for national coordination and direction to the Competent Authorities [Article 16(3)].

Operators are required to immediately report events in their installations or in the surrounding sea that may or will cause pollution in the Protocol Area (Article 17). Article 18 provides that a Party may request help from the other Parties, either directly or through REMPEC, for assistance in order to prevent, abate, or combat pollution resulting from activities.

Articles 19 to 21 dealing with Monitoring, Removal of Installations, and Specially Protected Areas, respectively, would not usually be associated with Safeguards but are not under a separate section heading.

The Offshore Protocol requires the operator to measure the effects of the activities on the environment in the light of the nature, scope, duration, and technical methods employed in the activities and of the characteristics of the area and to report on them periodically or upon request by the Competent Authority [Article 19(1)]. The Competent Authority must establish a national monitoring system to regularly monitor installations and the impact of activities on the environment [Article 19(2)].

Part of the section on safeguards is the requirement of the operator "to remove any installation which is abandoned or disused in order to ensure safety of navigation, taking into account the guidelines and standards adopted by the competent international organisation. Such removal shall also have due regard to other legitimate uses of the sea, in particular fishing, the protection of the marine environment, and the rights and duties of other Contracting Parties" [Article 20(1)].

With respect to the Offshore Protocol, installations fall under the definition of "waste" as provided in the framework of the related Dumping Protocol[3]. According to Article 4(2) of the Dumping Protocol, platforms and other man-made structures at sea constitute one of the four specific exceptions to the general prohibition of dumping in the Mediterranean Sea. Dumping can take place under the strict conditions stated in the "Guidelines for dumping of platforms and other man-made structures at sea[4]" adopted by the Contracting Parties (Meeting of the Parties[5]) in 2003, where the requirements for granting an authorisation for the dumping at sea of offshore installations are specified, including public review and participation in the permit evaluation process, consultation procedure with the other contract parties, and monitoring operations for the disposal at sea of disused offshore installations.

The Offshore Protocol includes in the minimum of requirements for (renewal of) authorisation of the project to be submitted by the operator to the competent authorities "the plans for the removal of installations as specified in Article 20" [Article 5(1)(g)].

Regarding the protection of Specially Protected Areas (as defined in the Protocol concerning Mediterranean Specially Protected Areas of the Barcelona Convention), the Contracting Parties must

[3] Protocol for the Prevention of Pollution of the Mediterranean Sea by Dumping from Ships and Aircraft, signed on 16 February 2976, entry into force on 12 February 1978 (revised on 10 June 1995).
[4] http://195.97.36.231/acrobatfiles/03IG15_Inf13_eng.pdf
[5] Thirteenth Ordinary Meeting of the Contracting Parties to the Convention for the Protection of the Mediterranean Sea against Pollution, 11-14 November 2003.

take special measures in conformity with international law, while special restriction or conditions are provided for the granting of authorization of exploration and exploitation activities (Article 21).

2.5 SECTION V – COOPERATION

Section V of the Offshore Protocol focuses on the scientific cooperation between the Contracting Parties in order to minimise the risk of pollution and to prevent, abate, combat, and control pollution, specifically in emergencies (Article 22). It obliges the Contracting Parties to work towards the establishment scientific criteria and to adopt guidelines for achieving the aims of the Offshore Protocol [Article 23(1)]. The Offshore Protocol contains an aspiration that Contracting Parties exchange information on their domestic policies concerning the safety of offshore oil and gas exploration activities [Article 23(3)].

Addressing the issue of transboundary pollution (Article 26), the Offshore Protocol establishes the obligation of the Parties to take the necessary measures to ensure that activities do not cause pollution beyond the limits of its jurisdiction [Article 26(1)(2)] as well as to follow a procedure in the event of a threat or occurrence of such pollution vis-à-vis the Contracting Parties to be affected (immediate notification, and granting equal access to and treatment in administrative proceedings to persons of the affected States) [Article 26 (3)(4)(5)].

Under the Offshore Protocol, the Contracting Parties are obliged to take measures with respect to liability and compensation for damage caused by offshore activities. The Contracting Parties are obliged to take all necessary measures to ensure that: liability for damage caused by offshore activities is imposed on operators who are required to pay prompt and adequate compensation (strict liability) [Article 27(2)(a)]; operators have and maintain insurance coverage or other financial security in order to ensure compensation for damages caused by the activities covered by the Protocol (compulsory insurance) [Article 27(2)(b)].

2.6 SECTION VI – FINAL PROVISIONS

The Offshore Protocol, under Article 28, obliges the Contracting Parties to appoint one or more competent authorities and prescribes their competencies and functions. However, it does not touch upon the “good and effective governance aspect” of the national Competent Authorities responsible for the duties and powers attributed to them by the Protocol (issues of knowledge, fairness, and accountability). This is entirely left to the discretion of the Contracting Parties.

3.0 TASK 1 – COMPILATION OF BEST PRACTICES

3.1 INTRODUCTION AND METHODS

In accordance with Article 23 of the Offshore Protocol, the objective of Task 1 is to identify existing international rules, standards, and recommended practices and procedures relevant to the implementation of the Offshore Protocol. The analysis focuses on the main activities and installations listed in the Protocol. Whenever a topic addressed under the Offshore Protocol is also addressed by a relevant international instrument, this instrument should be identified to establish consistency between the Protocol and the regional and international instruments in place.

The methodology consisted of two steps. First, we compiled and summarized legal instruments and best practices relevant to the implementation of the Offshore Protocol (**Section 3.2**). Information on best practices was compiled in a matrix format to organize and track coverage of the articles (**Appendix A**). Then, we reviewed every section and article of the Offshore Protocol and identified relevant international rules, standards, and/or recommended best practices available in other legal instruments, industry guidelines, or other documents (**Section 3.3**).

3.2 REVIEW OF LEGAL INSTRUMENTS AND BEST PRACTICES

This section provides an overview of the legal instruments and best practices that were reviewed for relevance to the Offshore Protocol. Each legal instrument or source of best practice is described briefly. The review is divided into the following six subsections:

- International legal instruments;
- European legal instruments;
- Regional legal instruments;
- National legal instruments;
- Multilateral financial institution guidelines; and
- Offshore oil and gas industry standards and guidelines.

3.2.1 International Legal Instruments

3.2.1.1 UNCLOS

The United Nations Convention on the Law of the Sea (UNCLOS) provides a universal legal framework for the management of marine natural resources, including efforts to prevent, reduce, and control marine pollution. UNCLOS governs the delimitation of the Exclusive Economic Zone (EEZ) of maritime nations. The EEZ is the area in which the coastal state is accorded sovereign rights to conserve, manage, explore, and exploit all living and non-living resources in the water and on and under the seabed. UNCLOS also establishes general obligations for safeguarding the marine environment and protecting freedom of scientific research on the high seas, and creates a legal regime for controlling mineral resource exploitation in deep seabed areas beyond national jurisdiction. To date, 165 countries and the European Union have joined the Convention (UN, 2013). All of the Barcelona Convention parties have ratified UNCLOS with the exception of Israel, Libya, Syria, and Turkey (UN, 2013).

Article 194 of UNCLOS specifies that “States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.” This includes measures designed to minimize, to the fullest possible extent, “pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices.”

3.2.1.2 MARPOL 73/78

The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) is the main international convention covering prevention of pollution of the marine environment by ships from operational or accidental causes. MARPOL 73/78 includes six Annexes:

- Annex I – Regulations for the Prevention of Pollution by Oil;

- Annex II – Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk;
- Annex III – Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form;
- Annex IV – Regulations for the Prevention of Pollution by Sewage from Ships;
- Annex V – Regulations for the Prevention of Pollution by Garbage from Ships; and
- Annex VI – Prevention of Air Pollution from Ships.

The International Maritime Organization (IMO) also has adopted a Ballast Water Management Convention which is relevant and is discussed here, although not yet in force (IMO, 2013a).

As defined under MARPOL 73/78, "ship" means a vessel of any type operating in the marine environment and includes floating craft and fixed or floating platforms. Drillships and other mobile drilling rigs are also classified as ships under MARPOL 73/78. **Table 3-1** summarizes the ratification status for MARPOL 73/78 annexes by Barcelona Convention parties.

Table 3-1. Status of MARPOL 73/78 and IMO Ballast Water Convention ratifications for Barcelona Convention parties as of 31 July 2013 (Adapted from: IMO, 2013b). An "X" indicates ratification or accession.

Barcelona Convention Party (Country)	**MARPOL 73/78 Annex**					**Ballast Water Convention***
	I/II	**III**	**IV**	**V**	**VI**	
Albania	X	X	X	X	--	X
Algeria	X	X	X	X	--	--
Bosnia and Herzegovina	--	--	--	--	--	--
Croatia	X	X	X	X	X	X
Cyprus	X	X	X	X	X	--
Egypt	X	X	X	X	--	X
France	X	X	X	X	X	X
Greece	X	X	X	X	X	--
Israel	X	X	--	X	--	--
Italy	X	X	X	X	X	--
Lebanon	X	X	X	X	--	X
Libya	X	X	X	X	--	--
Malta	X	X	X	X	X	--
Monaco	X	X	X	X	--	--
Montenegro	X	X	X	X	--	X
Morocco	X	X	X	X	X	--
Slovenia	X	X	X	X	X	--
Spain	X	X	X	X	X	X
Syria	X	X	X	X	X	X
Tunisia	X	X	X	X	X	--
Turkey	X	--	--	X	--	--

* The IMO Ballast Water Convention is not yet in force.

Annex I – Regulations for Prevention of Pollution by Oil

MARPOL 73/78 Annex I covers prevention of pollution by oil from operational measures as well as from accidental discharges. Although some Annex I requirements apply specifically to tankers, the regulations for operational discharges of oil or oily mixtures from machinery spaces apply to all ships having a gross tonnage of 400 or greater, including drillships and other drilling rigs when en route. The Mediterranean Sea is a "Special Area" under Annex I. Regulation 15 of Annex I specifies that for Special Areas, "any discharge into the sea of oil or oily mixtures from ships of 400 gross tonnage and above shall be prohibited" except when all of the following conditions are satisfied:

- the ship is proceeding en route;
- the oily mixture is processed through oil filtering equipment meeting the requirements of Regulation 14.7 of Annex I;
- the oil content of the effluent without dilution does not exceed 15 ppm;
- the oily mixture does not originate from cargo pump room bilges on oil tankers; and
- the oily mixture, in case of oil tankers, is not mixed with oil cargo residues.

Because Regulation 15 of Annex I specifies that the ship must be “en route,” the regulation does not apply to drillships or drilling rigs when they are at a fixed location (wellsite). However, a separate regulation covers “fixed or floating platforms” (Regulation 39 of Annex I). It specifies that “fixed or floating platforms” must comply with the same requirements applicable to ships having a gross tonnage of 400 or greater. The drilling rig or platform must be equipped with oil filtration equipment, and the discharge of oil or oily mixtures from machinery drainage spaces cannot exceed 15 ppm.

Regulation 14 of Annex I specifies that oil filtering equipment must be of a design approved by the Administration, must be provided with an alarm arrangement to indicate when the 15 ppm level cannot be maintained, and must ensure that any discharge of oily mixtures is automatically stopped when the oil content exceeds 15 ppm. Revised Guidelines and Specifications for Pollution Prevention Equipment for Machinery Space Bilges of Ships are contained in resolution MEPC.107(49). The IMO maintains a list of approved oil filtering equipment.

Annex II – Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk

MARPOL 73/78 Annex II details the discharge criteria and measures for the control of pollution by noxious liquid substances carried in bulk. Unless expressly provided otherwise, Annex II applies to all ships certified to carry noxious liquid substances in bulk. Noxious liquid substance means any substance indicated in the pollution category column of Chapter 17 or 18 of the International Bulk Chemical Code or provisionally assessed under the provisions of Regulation 6.3 of Annex II as falling into Category X, Y, or Z, defined as follows:

- Category X: Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a major hazard to either marine resources or human health and, therefore, justify the prohibition of the discharge into the marine environment;
- Category Y: Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a hazard to either marine resources or human health or cause harm to amenities or other legitimate uses of the sea and therefore justify a limitation on the quality and quantity of the discharge into the marine environment (this category includes vegetable oils);
- Category Z: Noxious Liquid Substances which, if discharged into the sea from tank cleaning or deballasting operations, are deemed to present a minor hazard to either marine resources or human health and therefore justify less stringent restrictions on the quality and quantity of the discharge into the marine environment;
- Other Substances: Substances indicated as OS (Other Substances) in the pollution category column of Chapter 18 of the International Bulk Chemical Code which have been evaluated and found to fall outside Category X, Y, or Z as defined in Regulation 6.1 of Annex II because they are, at present, considered to present no harm to marine resources, human health, amenities, or other legitimate uses of the sea when discharged into the sea from tank cleaning of deballasting operations. The discharge of bilge or ballast water or other residues or mixtures containing only substances referred to as Other Substances shall not be subject to any requirements of the Annex.

Guidelines for categorizing noxious liquid substances are given in Appendix 1 to Annex II of MARPOL 73/78. Some 250 substances were evaluated and included in the list appended to the Convention.

Annex II also defines a certification process for ships to carry liquid noxious substances in bulk, including surveys, design, construction, equipment, and operations. The discharge of residues of liquid noxious substances is allowed only to reception facilities until certain concentrations and conditions (which vary with the category of substances) are complied with. Where the regulation allows the discharge into the sea of residues of substances in Category X, Y, or Z or of those provisionally assessed as such or ballast water, tank washings, or other mixtures containing such substances, the following discharge standards apply: (1) the ship is proceeding en route at a speed of at least 7 knots in the case of self-propelled ships or at least 4 knots in the case of ships which are not self-propelled; (2) the discharge is made below the waterline through the underwater discharge outlet(s) not exceeding the maximum rate for which the underwater discharge outlet(s) is (are) designed; and (3) the discharge is made at a distance of not less than 12 nautical miles from the nearest land in a depth of water of not less than 25 m.

Annex III – Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form

MARPOL 73/78 Annex III contains requirements for the issuing of detailed standards on packing, marking, labeling, documentation, stowage, quantity limitations, exceptions, and notifications. Unless expressly provided otherwise, the regulations of Annex III apply to all ships carrying harmful substances in packaged form. For the purpose of this Annex, "harmful substances" are those substances which are identified as marine pollutants in the International Maritime Dangerous Goods Code (IMDG Code) or which meet the criteria in the Appendix of Annex III.

Annex III specifies that packages containing a harmful substance must be durably marked or labeled to indicate that the substance is a harmful substance in accordance with the relevant provisions of the IMDG Code. Each ship carrying harmful substances is required to have a special list, manifest, or stowage plan setting forth, in accordance with the relevant provisions of the IMDG Code, the harmful substances on board and the location thereof. A copy of one of these documents must be made available before departure to the person or organization designated by the port State authority. Harmful substances must be properly stowed and secured so as to minimize the hazards to the marine environment without impairing the safety of the ship and persons on board. Jettisoning of harmful substances carried in packaged form is prohibited, except where necessary for the purpose of securing the safety of the ship or saving life at sea. Appropriate measures must be taken to regulate the washing of leakages overboard, provided that compliance with such measures would not impair the safety of the ship and persons on board. A ship when in a port or at an offshore terminal of another Party is subject to inspection by officers duly authorized by such Party concerning operational requirements under this Annex.

Annex IV – Regulations for the Prevention of Pollution by Sewage from Ships

MARPOL 73/78 Annex IV contains requirements to control pollution of the sea by sewage. It applies to all ships greater than 400 gross tons and all ships less than 400 tons certified to carry 15 or more persons. Unlike Annex I, there are no separate requirements in Annex IV for "fixed or floating platforms."

Under Annex IV, the discharge of sewage into the sea is prohibited, except when a ship is using an IMO-approved sewage treatment plant and discharging comminuted and disinfected sewage at a distance of more than 3 nautical miles from the nearest land. Sewage that is not comminuted or disinfected can be discharged if the ship is at a distance greater than 12 nautical miles from the nearest land and en route at a speed not less than 4 knots, but the discharge must be at a "moderate" rate as defined in Resolution MEPC.157(55).

The IMO maintains a list of approved sewage treatment systems. The requirements for a sewage treatment plant to receive an IMO Certificate of Type Approval are specified in Resolution MEPC.159(55), as follows:

- The effluent shall not produce visible floating solids or cause discoloration of the surrounding water;
- The geometric mean of the thermotolerant coliform count of the samples of effluent taken during the test period should not exceed 100 thermotolerant coliforms per 100 milliliters (mL) as determined by membrane filter, multiple tube fermentation, or an equivalent analytical procedure;
- The geometric mean of the total suspended solids content of the samples of effluent taken during the test period shall not exceed 35 mg/L;
- The geometric mean of 5-day Biochemical Oxygen Demand (BOD5) of the samples of effluent taken during the test period does not exceed 25 milligrams per liter (mg/L), and the Chemical Oxygen Demand (COD) does not exceed 125 mg/L; and
- The pH of the samples of effluent taken during the test period shall be between 6 and 8.5.

Annex V – Regulations for Prevention of Pollution by Garbage from Ships

MARPOL 73/78 Annex V deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of. Garbage is defined as "all kinds of food wastes, domestic wastes, and operational wastes, all plastics, cargo residues, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically, except those substances which are defined or listed in other Annexes to the present Convention." Annex V prohibits the discharge of all garbage into the sea, except as provided otherwise in Regulations 4, 5, 6, and 7 of the Annex.

Regulation 5 (Special Requirements for Discharge of Garbage from Fixed or Floating Platforms). Regulation 5 of Annex V specifies the following regulations for discharge of garbage from fixed or floating platforms (defined as "fixed or floating structures located at sea which are engaged in the exploration, exploitation, or associated offshore processing of sea-bed mineral resources"):

1. Subject to the provisions of paragraph 2 of this regulation, the discharge into the sea of any garbage is prohibited from fixed or floating platforms and from all other ships when alongside or within 500 m of such platforms.

2. Food wastes may be discharged into the sea from fixed or floating platforms located more than 12 nautical miles from the nearest land and from all other ships when alongside or within 500 m of such platforms, but only when the wastes have been passed through a comminuter or grinder. Such comminuted or ground food wastes shall be capable of passing through a screen with openings no greater than 25 mm.

Discharge of all other garbage including plastics, domestic wastes, cooking oil, incinerator ashes, operational wastes, and fishing gear is prohibited.

Regulation 6 (Discharge of Garbage within Special Areas). The Mediterranean Sea is a "Special Area" under Annex V. Regulation 6 of Annex V specifies the requirements for discharge of garbage within Special Areas, as follows:

1[6]. Discharge of the following garbage into the sea within Special Areas shall only be permitted while the ship is en route and as follows:

   .1 Discharge into the sea of food wastes as far as practicable from the nearest land, but not less than 12 nautical miles from the nearest land or the nearest ice shelf. Food wastes shall be comminuted or ground and shall be capable of passing through a screen with openings no greater than 25 mm. Food wastes shall not be contaminated by any other garbage type. Discharge of introduced avian products, including poultry and poultry parts, is not permitted in the Antarctic area unless it has been treated to be made sterile.

   .2 Discharge of cargo residues that cannot be recovered using commonly available methods for unloading, where all the following conditions are satisfied:

      .1 Cargo residues, cleaning agents, or additives contained in hold washing water do not include any substances classified as harmful to the marine environment, taking into account guidelines developed by the Organization;

      .2 Both the port of departure and the next port of destination are within the Special Area, and the ship will not transit outside the Special Area between those ports;

      .3 No adequate reception facilities are available at those ports, taking into account guidelines developed by the Organization; and

      .4 Where the conditions of subparagraphs .1, .2, and .3 of this paragraph have been fulfilled, discharge of cargo hold washing water containing residues shall be made as far as practicable from the nearest land or the nearest ice shelf and not less than 12 nautical miles from the nearest land or the nearest ice shelf.

2. Cleaning agents or additives contained in deck and external surfaces wash water may be discharged into the sea, but only if these substances are not harmful to the marine environment, taking into account guidelines developed by the Organization.

3. *(this item applies only to the Antarctic area)*

4. When garbage is mixed with or contaminated by other substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.

Annex VI – Prevention of Air Pollution from Ships

MARPOL 73/78 Annex VI, first adopted in 1997, limits the main air pollutants contained in ships exhaust gas, including sulphur oxides (SOx) and nitrous oxides (NOx), and prohibits deliberate emissions of ozone depleting substances. MARPOL 73/78 Annex VI also regulates shipboard incineration, and the emissions of volatile organic compounds from tankers.

[6] Numbering as it appears in the annex has been used here.

Changes to MARPOL 73/78 Annex VI since its inception have included a progressive reduction globally in emissions of SOx, NOx, and particulate matter and the introduction of emission control areas (ECAs) to reduce emissions of those air pollutants further in designated sea areas. Progressive reductions in NOx emissions from marine diesel engines installed on ships are also included, with a "Tier II" emission limit for engines installed on or after 1 January 2011; then with a more stringent "Tier III" emission limit for engines installed on or after 1 January 2016 operating in ECAs. Marine diesel engines installed on or after 1 January 1990 but prior to 1 January 2000 are required to comply with "Tier I" emission limits, if an approved method for that engine has been certified by an Administration. Revisions to the regulations for ozone depleting substances, volatile organic compounds, shipboard incineration, reception facilities, and fuel oil quality have been made with regulations on fuel oil availability added.

In 2011, after extensive work and debate, the IMO adopted ground-breaking mandatory technical and operational energy efficiency measures to significantly reduce the amount of greenhouse gas emissions from ships; these measures were included in Resolution MEPC.203(62) which entered into force on 1 January 2013.

IMO Ballast Water Management Convention

Ballast water discharged from ships is one of the pathways for the introduction and spread of aquatic invasive species. In 2004, the IMO adopted the International Convention for the Control and Management of Ships' Ballast Water and Sediments (Ballast Water Management Convention). The convention is not yet in force. The Convention aims to prevent the spread of harmful aquatic organisms from one region to another by establishing standards and procedures for the management and control of ships' ballast water and sediments. Under the Convention, all ships in international traffic are required to manage their ballast water and sediments to a certain standard, according to a ship-specific ballast water management plan. All ships will also have to carry a ballast water record book and an international ballast water management certificate. The ballast water management standards will be phased in over a period of time. As an intermediate solution, ships should exchange ballast water mid-ocean. However, eventually most ships will need to install an on-board ballast water treatment system.

The Convention establishes is a Ballast Water Exchange Standard and a Ballast Water Performance Standard (IMO, 2013c):

- Ballast Water Exchange Standard (Regulation D-1) – Ships performing Ballast Water Exchange shall do so with an efficiency of 95 per cent volumetric exchange of ballast water. For ships exchanging ballast water by the pumping-through method, pumping through three times the volume of each ballast water tank shall be considered to meet the standard described. Pumping through less than three times the volume may be accepted provided the ship can demonstrate that at least 95 percent volumetric exchange is met.
- Ballast Water Performance Standard (Regulation D-2) – Ships conducting ballast water management shall discharge less than 10 viable organisms per cubic meter greater than or equal to 50 µm in minimum dimension and less than 10 viable organisms per milliliter less than 50 µm in minimum dimension and greater than or equal to 10 µm in minimum dimension; and discharge of the indicator microbes shall not exceed the specified concentrations.

The indicator microbes, as a human health standard, include, but are not be limited to:

a. Toxicogenic *Vibrio cholerae* (O1 and O139) with less than 1 colony forming unit (cfu) per 100 mL or less than 1 cfu per 1 gram (wet weight) zooplankton samples;
b. *Escherichia coli* less than 250 cfu per 100 mL; and
c. Intestinal *Enterococci* less than 100 cfu per 100 mL.

Ballast Water Management systems must be approved by the IMO in accordance with IMO Guidelines (Regulation D-3). These include systems that make use of chemicals or biocides; make use of organisms or biological mechanisms; or which alter the chemical or physical characteristics of the ballast water.

The implementation requirements differ depending on the ballast capacity and date of construction as specified in Regulation B-3. Ships constructed in or after 2012, with a ballast water capacity of 5,000 m^3 or more, must conduct ballast water management that at least meets the Ballast Water Performance Standard.

3.2.1.3 Espoo Convention

The Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention), which entered into force on 10 September 1997, requires Parties to assess the environmental impact of activities that are "likely to cause significant adverse transboundary impact" in another state. Activities that are listed in Appendix I as having the potential for significant transboundary impacts include "offshore hydrocarbon production" and "large-diameter oil and gas pipelines." The Party of origin must ensure that an EIA is undertaken prior to a decision to authorize or undertake the proposed activity. Appendix II lists the elements to be covered by the EIA. The Convention also includes provisions for notification of affected States, post-project analysis, bilateral and mutual cooperation, research programs, and settlement of disputes.

The following Barcelona Convention parties are also parties to the Espoo Convention: Albania, Bosnia and Herzegovina, Croatia, Cyprus, France, Greece, Italy, Malta, Montenegro, Slovenia, and Spain.

3.2.1.4 Aarhus Convention

The United Nations Economic Commission for Europe Convention on Access to Information, Public Participation in Decision-Making, and Access to Justice in Environmental Matters (Aarhus Convention) entered into force on 30 October 2001. The Convention sets requirements pertaining to the right of the public to access environmental information held by public authorities, the right to participate in environmental decision-making, and access to justice in environmental matters.

The Aarhus Convention establishes a number of rights of the public (individuals and their associations) with regard to the environment. The Parties to the Convention are required to make the necessary provisions so that public authorities (at national, regional, or local level) will contribute to these rights to become effective. The Convention provides for:

- Access to environmental information – the right of everyone to receive environmental information that is held by public authorities. This can include information on the state of the environment, but also on policies or measures taken, or on the state of human health and safety where this can be affected by the state of the environment. Applicants are entitled to obtain this information within one month of the request and without having to say why they require it. In addition, public authorities are obliged, under the Convention, to actively disseminate environmental information in their possession;
- Public participation in environmental decision-making – the right to participate in environmental decision-making. Arrangements are to be made by public authorities to enable the public affected and environmental non-governmental organisations to comment on, for example, proposals for projects affecting the environment, or plans and programs relating to the environment, these comments to be taken into due account in decision-making, and information to be provided on the final decisions and the reasons for it; and
- Access to justice – the right to review procedures to challenge public decisions that have been made without respecting the two aforementioned rights or environmental law in general.

The following Barcelona Convention parties are also parties to the Aarhus Convention: Albania, Bosnia and Herzegovina, Croatia, Cyprus, France, Greece, Italy, Malta, Monaco, Montenegro, Slovenia, and Spain.

3.2.2 European Legal Instruments

The following parties to the Barcelona Convention are also EU member states: Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain. Montenegro and Turkey are listed by the EU as candidate countries and Albania and Bosnia and Herzegovina are listed as potential candidates (European Union, 2013a). The following Barcelona Convention parties are not EU members, candidates, or potential candidates: Algeria, Egypt, Israel, Lebanon, Libya, Monaco, Morocco, Syria, and Tunisia.

The aims set out in the EU treaties are achieved through several types of legal instruments. Some are binding, while others are not. Some apply to all EU countries, others to just a few. The most important types of legal instruments are:

- Regulations: A "regulation" is a binding legislative act that must be applied in its entirety across the EU.

- Directives: A “directive” is a legislative act that sets out a goal that all EU countries must achieve. However, it is up to the individual countries to decide how.
- Decisions: A “decision” is binding on those to whom it is addressed (e.g., an EU country or an individual company) and is directly applicable.
- Recommendations: A “recommendation” is not binding. A recommendation allows the institutions to make their views known and to suggest a line of action without imposing any legal obligation on those to whom it is addressed.
- Opinions: An “opinion” is an instrument that allows the institutions to make a statement in a non-binding fashion, without imposing any legal obligation on those to whom it is addressed. An opinion is not binding. It can be issued by the main EU institutions (Commission, Council, Parliament), the Committee of the Regions, and the European Economic and Social Committee. While laws are being made, the committees give opinions from their specific regional or economic and social viewpoint.

The EU has adopted more than 300 directives, regulations, and action plans aimed at environmental protection and the promotion of sustainability within its member states. There is no comprehensive framework for regulating offshore oil and gas activities, but several EU directives are applicable to such activities. A recent report by Milieu Ltd. (2013) reviews EU directives that are relevant to the Offshore Protocol, primarily from the perspective of safety.

3.2.2.1 Offshore Safety Directive

The Offshore Safety Directive *(Directive 2013/30/EU of the European Parliament and of the Council of 12 June 2013 on safety of offshore oil and gas operations and amending Directive 2004/35/EC)* is a direct response to the 2010 Deepwater Horizon spill in the Gulf of Mexico. The Directive’s aim is to reduce the occurrence of major accidents relating to offshore oil and gas operations, and to limit the consequences of such accidents. To achieve this, it sets out the principle that EU Member States must require operators to ensure that all suitable measures are taken to prevent major accidents. It establishes minimum conditions for safe offshore exploration and exploitation, and improves the response mechanisms in the event of such an accident. Consequently, the Directive is expected to increase the protection of the marine environment and coastal economies against pollution. EU Member States with offshore waters must transpose the provisions of the Directive into national legislation within two years of that date, i.e., by 18 July 2015. However, existing installations will have until 19 July 2018 to comply with the new requirements.

3.2.2.2 Hydrocarbons Directive

The Hydrocarbons Directive (*Directive 94/22/EC of the European Parliament and the Council of 30 May 1994 on the conditions for granting and using authorizations for the prospection, exploration and production of hydrocarbons*) introduces a set of common rules to ensure non-discriminatory access to the prospection, exploration, and production of hydrocarbons. Because member states have sovereign rights over hydrocarbon resources within their territories, they also have the power to determine and authorize the geographical areas where such rights may be exercised. The Directive defines “competent authorities” and “authorization” and specifies the minimum requirements for issuing authorizations. Article 5 specifies that member states shall take the necessary measures to ensure that authorizations are granted on the basis of criteria including the technical and financial capability of the entities and the way in which they propose to prospect, to explore, and/or to bring into production the geographical area in question. Article 9 requires that each member state publish and communicate to the European Commission an annual report that includes information on the geographical areas which have been opened for prospecting, exploration and production, authorizations granted, entities holding authorizations and the composition thereof, and the estimated reserves contained in its territory.

3.2.2.3 EIA Directive

The EIA Directive (*Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment*) contains a legal requirement to carry out an environmental impact assessment (EIA) of public or private projects likely to have significant effects on the environment, prior to their authorization. The original EIA Directive (85/337/EEC) came into force in 1985 and has been amended three times. As a result of a recent review process, on 26 October 2012 the Commission adopted a proposal for a revised EIA Directive that is intended to lighten unnecessary administrative burdens and make it easier to assess potential impacts, without weakening existing environmental safeguards. On 9 October 2013, the European Parliament adopted amendments to the

proposal for a revised EIA Directive, and the matter has been sent back to the competent committee for re-consideration.

The EIA Directive applies to a wide range of public and private projects, which are defined in Annexes I and II. Article 4 of the directive states that projects included in Annex I are considered as having significant effects on the environment and require an EIA. For projects listed in Annex II, the national authorities have to decide whether an EIA is needed through a screening procedure.

With regard to oil and gas activities, the EIA Directive indicates that an EIA is mandatory for the "extraction of petroleum and natural gas for commercial purposes where the amount extracted exceeds 500 tonnes/day in the case of petroleum and 500,000 cubic meters/day in the case of gas" (Annex I (14)) and "pipelines with a diameter of more than 800 mm and a length of more than 40 km for the transport of gas and oil" (Annex I (16)). Oil and gas exploitation or extraction activities below the thresholds specified are not specifically identified in Annex I or II. However, Annex II(2)(d) refers to "deep drillings" (for extractive industries) which, if applicable to offshore oil and gas drilling, would mean that the member state determines whether the activity is subject to EIA.

3.2.2.4 Waste Framework Directive

The Waste Framework Directive (*Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives*) provides the legislative framework for the collection, transport, recovery, and disposal of waste. Article 3(1) of the directive defines waste as "any substance or object which the holder discards or intends or is required to discard," and Article 3(9) defines waste management as the collection, transport, recovery and disposal of waste, including the supervision of such operations and the after-care of disposal sites, and including actions taken as a dealer or broker."

The Offshore Protocol regulates the disposal of harmful or noxious substances and materials (Article 9), oil and oily mixtures and drilling fluids and cuttings (Article 10), sewage (Article 11), and garbage (Article 12), which fall under the definition of waste cited above.

However, Recital (15) of the Waste Framework Directive makes a distinction between "the preliminary storage of waste pending its collection, the collection of waste, and the storage of waste pending treatment." It states that "establishments or undertakings that produce waste in the course of their activities should not be regarded as engaged in waste management and subject to authorisation for the storage of their waste pending its collection." This implies that offshore installations only need to obtain a permit if they treat waste (sewage, garbage) themselves.

Article 2(2)(d) of the Waste Framework Directive also states that, to the extent covered by other EU legislation, "waste resulting from prospecting, extraction, treatment and storage of mineral resources and the working of quarries covered by Directive 2006/21/EC" (on the management of waste from extractive industries) is excluded from its scope. However, Article 2(2)(b) of Directive 2006/21/EC specifically excludes "waste resulting from the offshore prospecting, extraction, and treatment of mineral resources." Therefore, waste from offshore oil and gas installations would have to comply with the requirements of the more general Waste Framework Directive.

3.2.2.5 Marine Strategy Framework Directive

The Marine Strategy Framework Directive (*Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy*) was adopted in 2008 to more effectively protect the marine environment across Europe. Its goal is to establish the environmental status of the EU's marine waters by 2020 and to protect the resource base upon which marine-related economic and social activities depend. The Marine Strategy Framework Directive establishes European Marine Regions based on geographical and environmental criteria. The Mediterranean Sea is one of the regions. Each Member State, in cooperation with other Member States and non-EU countries within a marine region, are required to develop strategies for their marine waters.

This Directive is relevant to offshore oil and gas exploration and exploitation activities to the extent that such activities are included in the indicative lists of pressures and impacts (Table 2 of Annex III) used for the initial assessment of marine waters, the determination of good environmental status, the establishment of environmental targets and the monitoring programs.

On 1 September 2010, Commission adopted a decision outlining the criteria necessary to achieve good environmental status for Europe's seas. This will help Member States to develop coordinated

marine strategies within each regional sea, ensuring consistency and allowing progress to be compared between regions.

3.2.2.6 Habitats Directive

The Habitats Directive (*Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora*) (along with the Birds Directive) constitutes the cornerstone of Europe's nature conservation policy. It is built around two pillars: the Natura 2000 network of protected sites and a strict system of species protection. The Habitats Directive was adopted in 1992 for the protection of endangered species and habitats in Europe and was intended to complement the Birds Directive of 1979 and ensure adherence to the Bern Convention. The Habitats Directive required Member States to introduce a range of measures to protect threatened or vulnerable species or habitats. Member States must submit a national list of sites and species for inclusion. If accepted, these sites are then designated as Special Areas of Conservation (SACs).

Together, the Birds Directive and the Habitats Directive form the cornerstone for Natura 2000. Through Special Protected Area (SPA) and SAC designations, Natura 2000 forms a network of protected sites. All EU Member States are required to take steps to ensure that natural habitats and species in the network receive "favorable conservation status" in order to achieve long-term survival. Natura 2000 sites can be designated on both land and water. Marine Natura 2000 areas are protected by conservation measures to ensure that they are not overfished or affected by pollutants from sewage or shipping traffic. To date, there have been relatively few Natura 2000 sites identified for the offshore marine environment.

Article 21 of the Offshore Protocol states that, "For the protection of the areas defined in the Protocol concerning Mediterranean Specially Protected Areas and any other area established by a Party and in furtherance of the goals stated therein, the Parties shall take special measures in conformity with international law, either individually or through multilateral or bilateral cooperation, to prevent, abate, combat and control pollution arising from activities in these areas. In addition, Annex III of the Offshore Protocol specifies that among the factors to be considered in issuing permits is the "effects on marine ecosystems, in particular living resources, endangered species and critical habitats." The Habitats Directive is relevant to the extent that such areas could be affected by offshore oil and gas activities. Potential impacts on protected areas would need to be addressed in the EIA required by Article 5 and Annex IV of the Offshore Protocol.

3.2.2.7 Birds Directive

The Birds Directive (*Directive 2009/147/EC on the conservation of wild birds*) created a comprehensive scheme of protection for all wild bird species naturally occurring in the EU, including their eggs, nests, and habitats. The directive is designed to protect the habitat of endangered and migratory species through a network of SPAs. SPAs form an integral part of the Natura 2000 ecological network.

Birds are not specifically addressed in the Offshore Protocol. However Annex III of the Offshore Protocol specifies that among the factors to be considered in issuing permits is the "effects on marine ecosystems, in particular living resources, endangered species and critical habitats." The Birds Directive is relevant to the extent that birds or their habitats could be affected by offshore oil and gas activities. Potential impacts on birds and their habitats and protected areas would need to be addressed in the EIA required by Article 5 and Annex IV of the Offshore Protocol.

3.2.2.8 Registration, Evaluation, Authorisation, and Restriction of Chemicals (REACH) Regulation

REACH (*Regulation EC 1907/2006 concerning the Registration, Evaluation, Authorisation, and Restriction of Chemicals*), which entered into force on 1 June 2007, is a regulation to improve the protection of human health and the environment from the risks that can be posed by chemicals. REACH places the burden of proof on companies. To comply with the regulation, companies must identify and manage the risks linked to the substances they manufacture and market in the EU. They have to demonstrate how the substance can be safely used, and they must communicate the risk management measures to the users. If the risks cannot be managed, authorities can restrict the use of substances in different ways. In the long run, the most hazardous substances should be substituted with less dangerous ones.

REACH establishes procedures for collecting and assessing information on the properties and hazards of substances. It requires manufacturers and importers of chemicals to evaluate the risk

arising from the use of chemicals and to manage such risks. REACH applies to the manufacture, placing on the market, or use of substances on their own, in mixtures, or in articles and to the placing on the market of mixtures. A "substance" is defined as a chemical element and its compounds in the natural state or obtained by any manufacturing process. Key elements of REACH include registration requirements, whereby it is compulsory to register the manufacture or import of chemicals in quantities of one tonne (metric ton) or more per annum. Substances of extremely high concern are also subject to authorization. Authorities can ban hazardous substances if their risks are unmanageable. They can also decide to restrict a use of a chemical or make it subject to a prior authorization.

3.2.2.9 Classification, Labeling, and Packaging (CLP) Regulation

The Classification, Labeling and Packaging (CLP) Regulation (*Regulation (EC) No 1272/2008 on classification, labeling, and packaging of substances and mixtures*) entered into force on 20 January 2009 and aims to align EU law to the United Nations Globally Harmonised System criteria for classification and labeling of hazards at the global level, in order to facilitate trade while protecting human health and the environment. The CLP Regulation ensures that the hazards presented by chemicals are clearly communicated to workers and consumers in the EU through classification and labeling of chemicals. Before placing chemicals on the market, the industry must establish the potential risks to human health and the environment of such substances and mixtures, classifying them in line with the identified hazards. The hazardous chemicals also have to be labeled according to a standardized system so that workers and consumers know about their effects before they handle them.

Title II of CLP puts in place procedures for classification. Title III provides rules for labelling of substances and mixtures according to any hazard identified. Title IV sets in place requirements for the packaging of hazardous substances or mixtures (design, materials, fastenings). Title V refers to the harmonized classification and labeling of substances and the classification and labeling inventory. The CLP also establishes an inventory for classification and labeling of all substances subject to registration under REACH and other hazardous substances placed on the market (either by themselves or in mixtures).

3.2.2.10 Environmental Liability Directive (ELD)

Environmental Liability Directive (*Directive 2004/35/EC on environmental liability with regard to the prevention and remedying of environmental damage*) addresses liability for damages to the environment also in connection with offshore oil and gas. It applies to waters covered by Directive 2000/60/EC[7] according to which the term "surface waters" also includes territorial waters (Article 2(1) of Directive 2000/60/EC). This means that liability may be attributed for environmental damage occurring only within 12 nautical miles from shore, and not within the totality of waters under Member States' jurisdiction, i.e., within their EEZ (which can be up to 200 nautical miles from shore) or their continental shelf (which can be up to 350 nautical miles from shore). According to ELD, the operator of activities causing significant environmental damage to protected species, natural habitats or water is strictly liable to prevent and remedy the damage and to bear the full costs of it.

3.2.2.11 Health and Safety of Workers Directive

Health and Safety of Workers Directive (*Directive 92/91/EEC concerning the minimum requirements for improving the safety and health protection of workers in the mineral-extracting industry through drilling (eleventh individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC)*) is the principal piece of EU legislation relevant for protection of offshore workers and working environment. In applying Directive 92/91/EEC, employers are required to: apply safety considerations to workplaces right from the design stage; ensure that there is a supervisor in charge; entrust work involving a special risk only to suitably qualified staff; ensure that safety instructions are comprehensible to all the workers concerned; provide first aid facilities and run safety exercises at regular intervals. This Directive is directly relevant with regard to the safety measures and emergency plans mentioned in the Offshore Protocol, as well as the conditions for operating offshore installations laid down in the EU Offshore Safety Directive.

[7] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy,

3.2.2.12 EU Civil Protection Mechanism

The main purpose of the EU Civil Protection Mechanism (Council Decision 2007/779/EC) is to provide, on request, support in the event of major emergencies and to facilitate improved coordination of the assistance provided by the Member States and the EU, taking into account the special needs of the isolated, outermost, and other regions or islands in the EU. The protection ensured by the Mechanism covers primarily people but also the environment and property (Article 1(2)).

3.2.2.13 Machinery Directive

Machinery Directive (*Directive 2006/42/EC of the European Parliament and of the Council of 17 May 2006 on machinery*) is an internal market measure and establishes essential health and safety requirements that the machinery covered by the Directive must satisfy before being placed on the market. In applying Directive 2006/42/EC manufacturers, when producing the machinery, must take into account the following criteria, *inter alia*[8], principles for safety integration, characteristics of materials and products to construct machinery, design of machinery, ergonomics, and control systems. Directive 2006/42/EC requires affixing of CE (Conformité Européenne) marking after the compliance of the machinery with the relevant requirements stipulated by the Directive has been established. The Directive is relevant for the safety measures taken with regard to the installations.

3.2.2.14 Pressure Equipment Directive (PED)

Pressure Equipment Directive (PED, Directive 97/23/EC of the European Parliament and of the Council of 29 May 1997 on the approximation of the laws of the Member States concerning pressure equipment) is another internal market measure and requires Member States to take all appropriate measures to ensure that the pressure equipment covered by the Directive may be placed on the market and put into service only if it does not endanger the health and safety of persons. Health and safety requirements are listed in detail in Annex I to the Directive. The PED covers number of pressure equipment widely used in the oil and gas industry (pressurized storage containers, heat exchangers, steam generators, boilers, industrial piping, safety devices, and pressure accessories). PED is relevant for the safety measures taken with regard to the installations.

3.2.2.15 Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Directive (ATEX)

ATEX Directive (*Directive 94/9/EC of the European Parliament and the Council of 23 March 1994 on the approximation of the laws of the Member States concerning equipment and protective systems intended for use in potentially explosive atmospheres*) is also an internal market measure and applies to equipment and protective systems intended for use in potentially explosive atmospheres. It requires manufacturers of such equipment to satisfy certain health and safety requirements specified in Annex II to the Directive. The Annex II requirements relate to both, all classes of equipment as well as to control systems and specify, *inter alia*, criteria for selection of materials, design and construction, requirements in respect of safety-related devices ATEX is relevant for the safety measures taken with regard to the installations.

3.2.2.16 The Industrial Emissions Directive (IED)

Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) is the successor of the IPPC Directive (described below) and in essence, it is about minimising pollution from various industrial sources throughout the European Union. Operators of industrial installations operating activities covered by Annex I of the IED (e.g., energy industries, production and processing of metals, mineral industry, chemical industry, waste management, and rearing of animals) are required to obtain an integrated permit from the authorities in the EU countries. The IED is based on several principles, namely (1) an integrated approach, (2) best available techniques, (3) flexibility, (4) inspections, and (5) public participation.

3.2.2.17 The Integrated Pollution Prevention and Control Directive (IPPC)

The Directive 2008/1/EC requires industrial and agricultural activities with a high pollution potential to have a permit. This permit can only be issued if certain environmental conditions are met, so that the companies themselves bear responsibility for preventing and reducing any pollution they may cause. The IPPC Directive concerns new or existing industrial and agricultural activities with a high pollution

[8] "among other things"

potential, as defined in Annex I to the Directive (e.g., energy industries, production and processing of metals, mineral industry, chemical industry, waste management, and livestock farming).

The IPPC Directive has been amended four times since it entered in force. The first amendment reinforced public participation in line with the Aarhus Convention. The second amendment clarified the relationship between the permit conditions established in accordance with the IPPC Directive and the EU greenhouse gas Emission Trading Scheme (ETS). The last two amendments relate to changes regarding Comitology procedures and European Pollutant Emission Register (EPER).

3.2.3 Regional Legal Instruments

3.2.3.1 OSPAR Convention

OSPAR is the mechanism by which 15 governments of the western coasts and catchments of Europe, together with the European Community (EC), cooperate to protect the marine environment of the Northeast Atlantic. It started in 1972 with the Oslo Convention against dumping and was broadened to cover land-based sources and the offshore industry by the Paris Convention of 1974. These two conventions were unified, updated, and extended by the 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention), which entered into force on 25 March 1998. An annex on biodiversity and ecosystems was adopted in 1998 to cover non-polluting human activities that can adversely affect the sea.

France and Spain are the only parties to the Barcelona Convention that are also OSPAR parties. Other OSPAR contracting parties are Belgium, Denmark, Finland, Germany, Iceland, Ireland, Luxembourg, the Netherlands, Norway, Portugal, Sweden, Switzerland, and the United Kingdom.

Article 5 of the OSPAR Convention requires the Contracting Parties to take all possible steps to prevent and eliminate pollution from offshore sources in accordance with the provisions of the Convention, in particular as provided for in Annex III of the Convention, which addresses prevention and elimination of pollution from offshore sources. Article 2 of Annex III requires the use of “best available techniques” and “best environmental practice” and requires states to adopt programs and measures for the prevention of pollution from the offshore industry. Under Article 4 of Annex III, the use, discharge, or emission of substances that may affect the marine environment is subject to authorization and strict regulation by the competent authority.

The OSPAR Convention and its strategies are implemented through the adoption of Decisions (which are legally binding on the Contracting Parties), Recommendations, and Agreements. Decisions and Recommendations set out actions to be taken by the Contracting Parties. These measures are complemented by Agreements setting out issues of importance; agreed programs of monitoring, information collection or other work which the Contracting Parties commit to carry out; guidelines or guidance setting out the way that any programme or measure should be implemented; or actions to be taken by the OSPAR Commission on behalf of the Contracting Parties. The OSPAR Commission also issues publications including background documents and data reports on the issues covered by each strategy and the results of evaluations and assessments of data reported to OSPAR by the Contracting Parties.

The offshore oil and gas industry is one of several “work areas” of the OSPAR Commission and is the one that is most relevant to the Offshore Protocol. The following OSPAR Decisions and Recommendations are particularly relevant to the Offshore Protocol:

- OSPAR Recommendation 2011/8 amending OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations;
- OSPAR Recommendation 2010/18 on the Prevention of Significant Acute Oil Pollution from Offshore Drilling Activities;
- OSPAR Recommendation 2010/4 (Harmonised Pre-Screening Scheme for Offshore Chemicals);
- OSPAR Recommendation 2010/3 (Harmonised Offshore Chemical Notification Format (HOCNF);
- OSPAR Decision 2000/3 on the Use of Organic-Phase Drilling Fluids (OPF) and the Discharge of OPF-Contaminated Cuttings;
- OSPAR Decision 2000/2 (Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals, as amended by OSPAR Decision 2005/1); and
- OSPAR Agreement 2013-06 (List of Substances/Preparations Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (PLONOR) – lists

substances whose use and discharge offshore are subject to expert judgment by the competent national authorities or do not need to be strongly regulated.

A complete list of Decisions, Recommendations, and Agreements for the offshore oil and gas work area is provided on the OSPAR web page (OSPAR Commission, 2013a).

3.2.3.2 Helsinki Convention (Baltic Sea)

The Helsinki Convention (Convention on the Protection of the Marine Environment of the Baltic Sea) is a regional treaty designed to address marine pollution issues from various sources affecting the Baltic Sea. The Convention, which entered into force on 17 January 2000, is administered by the Baltic Marine Environment Protection Commission, also known as HELCOM. Contracting parties are Denmark, Estonia, European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden. None of the Barcelona Convention member states are parties to the Helsinki Convention. The Helsinki Convention can be regarded as a parallel to the Barcelona Convention and may be relevant as a source of best practice guidance.

Article 12 of the Helsinki Convention addresses exploration and exploitation of the seabed and its subsoil. It requires that Contracting Parties undertake to implement the procedures and measures set out in Annex VI, as far as they are applicable.

The Baltic Sea Action Plan (HELCOM, 2007) includes provisions regarding offshore activities. It states that all operators shall apply a “zero-discharge” principle not later than 1 January 2010. By 23 April 2008, all operators must have ceased discharges of all “black” chemicals, and operators must continue the process of substituting chemicals so that discharges of “red” chemicals cease no later than 1 January 2010. (The “black” chemicals correspond to the OSPAR list of chemicals for priority action; “red” chemicals are defined separately by HELCOM.)

One of the most important duties of the Helsinki Commission is to make Recommendations on measures to address certain pollution sources or areas of concern. These Recommendations are to be implemented by the Contracting Parties through their national legislation. Since the beginning of the 1980s, HELCOM has adopted some 200 HELCOM Recommendations for the protection of the Baltic Sea. All recommendations are listed on the HELCOM web site (HELCOM, 2013a).

HELCOM activities are divided into six main groups (maritime, response, land, monitoring and assessment, habitat, and gear). HELCOM produces publications, manuals, and guidelines as well as promoting and testing new monitoring and assessment techniques, such as models, geographical information systems, remote sensing, and environmental indicators. Recent publications include the “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)” (HELCOM, 2013b).

3.2.3.3 Kuwait Convention and ROPME

The Kuwait Convention (Regional Convention for Co-operation on the Protection of the Marine Environment from Pollution) was adopted on 24 April 1978 and entered into force on 1 July 1979. Member states are Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates. The Convention binds the eight contracting states to coordinate their activities toward protection of their common marine environment. The Regional Organization for the Protection of the Marine Environment (ROPME), as defined in Article XVI of the Convention, was established on 1 July 1979 to implement the Kuwait Action Plan, as well as the Kuwait Regional Convention and its Protocols (ROPME, 2013a).

None of the Barcelona Convention parties are parties to the Kuwait Convention or members of ROPME. The Kuwait Convention can be regarded as a parallel to the Barcelona Convention and may be relevant as a source of best practice guidance.

The Convention consists of 30 articles broadly dealing with responsibilities of the Contracting States for the protection and preservation of the marine environment. Article VII addresses “Pollution Resulting from Exploration and Exploitation of the Bed of the Territorial Sea and its Sub-Soil and the Continental Shelf.” It states that the contracting states “shall take all appropriate measures to prevent, abate, and combat pollution in the Sea Area resulting from exploration and exploitation of the bed of the territorial sea and its sub-soil and the continental shelf, including the prevention of accidents and the combating of pollution emergencies resulting in damage to the marine environment.”

The Continental Shelf Protocol ("Protocol Concerning Marine Pollution Resulting from Exploration and Exploitation of the Continental Shelf") was adopted on 29 March 1989 and entered into force on 17 February 1990. The Protocol commits the contracting states to take all appropriate measures for the prevention and control of pollution from offshore exploration and production. According to ROPME (2013b), the following guidelines to the Protocol were adopted by the ROPME Council on 21 February 1990:

- Guidelines on requirements for environmental impact surveys and assessments;
- Guidelines on the use and storage of chemicals in offshore operations;
- Guidelines on the conduct of seismic operations; and
- Guidelines on disposal of drill cuttings on the sea-bed.

These guidelines are to assist Contracting States in developing their specific plans and measures in compliance with the provisions of the Protocol. The guidelines are not available online, but we have obtained a copy through ROPME. The ROPME (2013b) website states that "the application of common standards, criteria and regulations, as well as the harmonization of environmental policies, programs, administration and legislation of Contracting States for the fulfillment of their obligations under the Protocol, are major objectives to be achieved in the near future." However, no further information about common standards, criteria, or regulations was identified.

3.2.3.4 Bucharest Convention (Black Sea)

The Bucharest Convention (Convention on the Protection of the Black Sea Against Pollution) was signed in Bucharest in April 1992, and ratified by all six of the Black Sea countries (Bulgaria, Georgia, Romania, Russian Federation, Turkey, and Ukraine) in 1994. It consists of a basic framework of agreement and three Protocols, which are: (1) the control of land-based sources of pollution; (2) dumping of waste; and (3) joint action in the case of accidents (such as oil spills). The implementation of the Bucharest Convention is managed by the Commission for the Protection of the Black Sea Against Pollution (also referred to as the Black Sea Commission), and its Permanent Secretariat in Istanbul, Turkey. Turkey is the only Barcelona Convention party that is also a contracting party to the Bucharest Convention.

The Bucharest Convention can be regarded as a parallel to the Barcelona Convention and may be relevant as a source of best practice guidance. However, relatively little has been developed in the form of standards or guidelines. The Commission adopted an Action Plan in 2009 (Black Sea Commission, 2009) and also produces various manuals, newsletters, and other publications, which are listed on its web site (Black Sea Commission, 2013).

3.2.4 Efficient National Legal Instruments in Place

3.2.4.1 United Kingdom

The Department for Energy and Climate Change (DECC) is the United Kingdom (UK) government department responsible for regulating the offshore oil and gas industry. The DECC is responsible for issuing licenses for oil and gas exploration onshore and on the UK continental shelf; regulating field development and oil and gas pipeline activities; regulating the environmental aspects of the offshore oil and gas industry, including decommissioning; and giving companies access to oil and gas exploration and production data (DECC, 2013). The DECC also provides an oil spill planning regulatory function for the offshore oil and gas industry.

Within the DECC, oil and gas activities are administered by the Energy Development Unit, with two groups managing environmental aspects of offshore oil and gas activities: Licensing Exploration and Development, and Environment & Decommissioning (Oil & Gas UK, 2012). Key petroleum-related legislation and regulations include the following:

- Petroleum Act 1998;
- Pollution Prevention and Control Act 1999;
- Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 and Offshore Production and Pipelines (Assessment of Environmental Effects) (Amendment) Regulations 2007;
- Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001 and Offshore Petroleum Activities (Conservation of Habitats) (Amendment) Regulations 2007;
- Offshore Chemicals Regulations 2002 and Offshore Chemicals (Amendment) Regulations 2011; and

- Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 and Offshore Petroleum Activities (Oil Pollution Prevention and Control) (Amendment) Regulations 2011.
- Additional guidance is provided in the following guidance notes:
- Guidance Notes on the Offshore Petroleum Activities (Conservation of Habitats) Regulations 2001;
- Guidance Notes for Oil and Gas Surveys and Shallow Drilling (October 2005); and
- Guidance Notes on the Offshore Petroleum Production and Pipelines (Assessment of Environmental Effects) Regulations 1999 (October 2011).

3.2.4.2 Norway

A highly coordinated regulatory regime in Norway is administered by the Petroleum Safety Authority (PSA). The PSA administers five sets of regulations:

- The framework regulations apply both offshore and on land, are issued by royal decree and are enforced by the ministries, the PSA, the Norwegian Environment Agency, and the health authorities;
- The management regulations apply both offshore and on land, and are issued and enforced by the PSA, the Norwegian Environment Agency, and the health authorities;
- The facilities regulations apply offshore and are issued, and enforced by the PSA, the Norwegian Environment Agency, and the health authorities;
- The activities regulations apply offshore, and are issued and enforced by the PSA, the Norwegian Environment Agency, and the health authorities; and
- The technical and operational regulations apply to land-based facilities, and are issued and enforced by the PSA and the health authorities.

The most recent versions of the regulations are provided on the PSA web site, along with a set of guidelines for each regulation (PSA, 2013).

3.2.4.3 The Netherlands

In The Netherlands, everything that has to do with the exploration for and the production and storage of oil and gas is regulated in the Mining Act. This legislation and the various rules based on the Mining Decree and Mining Regulations determine what must be done by an applicant to obtain a license, which procedures are applicable, and under which conditions the license can be issued. Depending on the location and the particular circumstances, licenses based on other legislation may also be required, which would be issued by another state or by other provincial or municipal bodies. Other permits may also be necessary, such as in the areas of environmental protection, social security, and spatial planning. Oil and gas companies that are active in the Netherlands or on the Dutch continental shelf also have to take into account EU legislation and the demands of other treaties and agreements applicable in Europe such as the OSPAR Convention.

Oil and gas exploration and production activities require a permit from the Dutch Minister of Economic Affairs. The procedure to apply for such a permit is outlined in Chapter 2 of the Mining Act (Articles 14 to 17 in particular) and detailed in Chapter 1 of the Mining Regulations. Sections 1.2 and 1.3 and Appendices 1 and 2 of the Mining Regulations contain a summary of the information that must be provided with a permit application. For example, if an applicant wishes to drill in an environmentally sensitive area, then in addition to an environmental license, a further license based on the legislation such as the Nature Protection Act or the Flora and Fauna Act may also be required.

The Netherlands maintains an online Oil and Gas Portal that provides information about oil, gas, and geothermal energy exploration and production in the Netherlands and the Dutch sector of the North Sea continental shelf. The site is managed by TNO Geological Survey of the Netherlands (2013).

Additional technical information about oil and gas exploration and development offshore the Netherlands is available from:

- NOGEPA (Nederlandse Olie en Gas Exploratie en Productie Associatie, or Netherlands Oil and Gas Exploration and Production Association), an association founded in 1974 which represents companies possessing permits to drill for and produce oil and gas, both on land and on the Dutch continental shelf. It is managed by a board representing all members, and the board delegates important subjects to committees and working groups. The association

represents the interests of members, associates, and society in general. Developments in safety, sustainability, and climate are followed closely (NOGEPA, 2013).

- The Nederlands Normalisatie Instituut (NEN) is the Dutch network of expertise in the domain of standards and rules, including the oil and gas industry (NEN, 2013).

3.2.4.4 United States (Gulf of Mexico)

The Bureau of Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE) are the main permitting authorities for offshore oil and gas exploration and development on the U.S. outer continental shelf. Their authority is based on the Outer Continental Shelf Lands Act (OCSLA) and Federal regulations under 30 Code of Federal Regulations (CFR) 250 and 30 CFR 550. The two agencies were created from the former Minerals Management Service (MMS) after the Deepwater Horizon spill in the Gulf of Mexico. The functions of BOEM include leasing, exploration and development, plan administration, environmental studies, environmental impact analysis, resource evaluation, economic analysis, and the renewable energy program. The BSEE is responsible for enforcing safety and environmental regulations including inspections, offshore regulatory programs, oil spill response, and training and environmental compliance functions. The following summary is based on oil and gas activities in the Gulf of Mexico, which is the most active region in U.S. waters.

To conduct exploration or development operations on a lease, operators must submit an Exploration Plan (EP) or Development Operations Coordination Document (DOCD) to BOEM in accordance with 30 CFR 550, subpart B (Plans and Information). The required contents of the operator's plan are detailed in Notice to Lessees and Operators (NTL) 2008-G04. The information required in the operator's plan, and BOEM's review of the plan, help to ensure compliance with other laws including the National Environmental Policy Act, Clean Water Act, Clean Air Act, Coastal Zone Management Act, Endangered Species Act, Magnuson Stevens Fishery Conservation and Management Act, Marine Mammal Protection Act, and other laws and regulations.

The BSEE requires owners or operators of facilities to submit an Oil Spill Response Plan (OSRP) for review and approval. Most operators submit a regional OSRP that covers multiple facilities or leases of an owner or operator, including affiliates, which are located in the same region. BSEE provides guidance and instructions for preparing an Oil Spill Response Plan in NTL 2012-N06. The plan must address the Worst Case Discharge scenario developed by the operator based on Federal regulations and the guidance provided in NTL 2010-N06.

Both BOEM and BSEE issue guidance in the form of such NTLs. Other NTLs cover activities and issues such as archaeological surveys, biologically sensitive features, decommissioning, deepwater benthic communities, marine trash and debris awareness, seismic surveys, shallow hazards, spill response, and vessel strike avoidance. Complete listings of NTLs are provided on the web sites of BOEM (2013a) and BSEE (2013a).

BOEM also sponsors research through its Environmental Studies Program, with all publications available online (BOEM, 2013b). BSEE also sponsors research and issues technical reports through its Technology Assessment Program (BSEE, 2013b).

Discharges from offshore oil and gas facilities are regulated separately by the U.S. Environmental Protection Agency (USEPA) under the Clean Water Act. The discharges are permitted on a regional basis through the National Pollutant Discharge Elimination System (NPDES). Most facilities in each region are covered by a general permit that specifies a common set of limitations. Facilities that cannot qualify for coverage under the general permit must obtain an individual permit that may include different or special conditions.

The central and western Gulf of Mexico (USEPA Region 6) offshore of the states of Louisiana and Texas is the most active area for offshore drilling in U.S. waters and is the logical point of reference. Most discharges in this area are authorized under NPDES general permit number GMG290000 (USEPA, 2012a). The current general permit was issued with an effective date of October 1, 2012 and will expire on September 30, 2017. Discharges in the eastern Gulf of Mexico (offshore of the states of Alabama, Florida, and Mississippi) are under Region 4 jurisdiction and are authorized by NPDES general permit GEG460000, which became effective on April 1, 2010 and will expire on March 31, 2015 (USEPA, 2010a). The terms of the two general permits are nearly identical and include detailed specifications for prohibitions, discharge limitations, and monitoring of effluents.

3.2.4.5 Canada

Offshore oil and gas development occurs mainly in two Canadian provinces: Nova Scotia and Newfoundland and Labrador. The activities are regulated by the Offshore Petroleum Boards in the two regions, established by the Canada-Nova Scotia Offshore Petroleum Accord Implementation Acts and the Canada-Newfoundland Atlantic Accord Implementation Act. The Offshore Petroleum Boards are responsible for overseeing operator activity for legislative and regulatory compliance in areas of safety, environmental protection, resource management, and industrial benefits (Canada-Nova Scotia Offshore Petroleum Board, 2013). Because the regulatory framework is similar for the two provinces, this section focuses on Nova Scotia.

A centralized regulatory coordination function has been established within the Offshore Petroleum Boards to provide a consistent and timely review of applications for authorizations and approvals. Before carrying out any work or activity associated with petroleum operations in the offshore areas, an operator must obtain both an operating license and an authorization from the Offshore Petroleum Board. Where an operator seeks an authorization to develop a field, the operator must submit a Development Plan to the Board for approval. The filing requirements for Development Plans are specified in "Guidelines on Plans and Authorizations Required for Development Projects" (Canada-Nova Scotia Offshore Petroleum Board, 1995). Additional information required to be submitted for development projects include a Safety Plan; an Environmental Assessment; an Environmental Protection Plan; a Spill Contingency Plan; Financial Security information; a Summary of Proposed Operations; a Certificate of Fitness (if applicable); and a Declaration of Operator.

The Offshore Petroleum Boards also issue guidelines on preparing some of the elements listed above, as well as other topics, including the following:

- Drilling and Production Guidelines (2011);
- Environmental Protection Plan Guidelines (2011);
- Safety Plan Guidelines (2011);
- Offshore Waste Treatment Guidelines (2010);
- Offshore Chemical Selection Guidelines for Drilling & Production Activities on Frontier Lands (2009); and
- Guidelines on Plans and Authorizations Required for Development Projects (1995).

The Canada-Newfoundland and Labrador Offshore Petroleum Board (2013) web site also lists reports prepared by joint industry groups on topics such as training and qualifications of personnel; safe lifting practices; and escape, evacuation, and rescue.

3.2.5 Multilateral Financial Institution Guidelines

3.2.5.1 World Bank Group/International Finance Corporation

The International Finance Corporation (IFC), a member of the World Bank Group, has developed a Sustainability Framework (IFC, 2012a) consisting of the following three policies: a Policy on Environmental and Social Sustainability, which defines IFC's commitments to environmental and social sustainability; Performance Standards, which define clients' responsibilities for managing their environmental and social risks; and an Access to Information Policy, which articulates IFC's commitment to transparency. The Performance Standards (IFC, 2012b) are used by the IFC to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. The Performance Standards provide guidance to clients on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), the IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. The eight IFC Performance Standards are summarized briefly below (adapted from IFC, 2012b):

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts – Requires the client to conduct a process of environmental and social assessment, and establish and maintain an Environmental and Social Management System (ESMS) appropriate to the nature and scale of the project and commensurate with the level of its environmental and social risks and impacts.

- Performance Standard 2: Labor and Working Conditions – Requires the client to adopt and implement human resources policies and procedures appropriate to its size and workforce that set out its approach to managing workers consistent with the requirements of this Performance Standard and national law.
- Performance Standard 3: Resource Efficiency and Pollution Prevention – Requires the client to apply technically and financially feasible resource efficiency and pollution prevention principles and techniques to avoid, or where avoidance is not possible, to minimize adverse impacts on human health and the environment. The client will refer to the World Bank Group Environmental Health and Safety (EHS) Guidelines or other internationally recognized sources, as appropriate, when evaluating and selecting resource efficiency and pollution prevention and control techniques for the project.
- Performance Standard 4: Community Health, Safety and Security – The client will evaluate the risks and impacts to the health and safety of the affected communities during the project life-cycle and will establish preventive and control measures consistent with good international industry practice, such as in the World Bank Group EHS Guidelines or other internationally recognized sources.
- Performance Standard 5: Land Acquisition and Involuntary Resettlement – The client will consider feasible alternative project designs to avoid or minimize physical and/or economic displacement, while balancing environmental, social, and financial costs and benefits, paying particular attention to impacts on the poor and vulnerable. When displacement cannot be avoided, the client will offer compensation to displaced communities and persons for loss of assets at full replacement cost, and other assistance to help them improve or restore their standards of living or livelihoods.
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources – As a matter of priority, the client should seek to avoid impacts on biodiversity and ecosystem services. When avoidance of impacts is not possible, measures to minimize impacts and restore biodiversity and ecosystem services should be implemented. The client should adopt a practice of adaptive management in which the implementation of mitigation and management measures are responsive to changing conditions and the results of monitoring throughout the project's life-cycle.
- Performance Standard 7: Indigenous Peoples – The client's impact assessment process should identify all communities of Indigenous Peoples within the project area of influence who may be affected by the project, as well as the nature and degree of the expected direct and indirect economic, social, cultural (including cultural heritage), and environmental impacts on them. Adverse impacts on affected communities of Indigenous Peoples should be avoided where possible. Where alternatives have been explored and adverse impacts are unavoidable, the client will minimize, restore, and/or compensate for these impacts in a culturally appropriate manner commensurate with the nature and scale of such impacts and the vulnerability of the affected communities.
- Performance Standard 8: Cultural Heritage – In addition to complying with applicable law on the protection of cultural heritage, including national law implementing the host country's obligations under the Convention Concerning the Protection of the World Cultural and Natural Heritage, the client will identify and protect cultural heritage by ensuring that internationally recognized practices for the protection, field-based study, and documentation of cultural heritage are implemented. Where the risk and identification process determines that there is a chance of impacts to cultural heritage, the client will retain competent professionals to assist in the identification and protection of cultural heritage.

The IFC also issues the most updated versions of the World Bank Group EHS Guidelines (IFC, 2013). The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice as defined in IFC Performance Standard 3. The most relevant are

- General EHS Guidelines (IFC, 2007a); and
- Sector guidelines for offshore oil and gas development (IFC, 2007b).

The offshore oil and gas development guidelines include recommended limits on effluents including drilling fluids and cuttings, produced water, hydrostatic test water, cooling water, desalination brine, sanitary wastewater, bilge and ballast water, and deck drainage. The guidelines also include recommendations concerning air emissions, waste management (hazardous and non-hazardous

materials), noise, spills, decommissioning, occupational health and safety, community health and enviroensafety, and environmental monitoring.

3.2.5.2 The Equator Principles

A number of international financing institutions have adopted the Equator Principles – a set of principles intended to enable projects financed by these institutions to develop in a manner that is socially responsible and that reflects sound environmental management practices. The Equator Principles are intended to serve as a common baseline and framework for the implementation by each Equator Principles Financial Institution (EPFI) of its own internal social and environmental policies, procedures, and standards related to its project financing activities. EPFIs have undertaken not to provide loans to projects where the borrower is unwilling or unable to comply with the institutions' respective social and environmental policies and procedures that implement the Equator Principles. The ten Equator Principles are summarized below (Equator Principles Association, 2013).

- Principle 1: Review and Categorization – When a project is proposed for financing, the EPFI will classify the project as one of three categories on the basis of the magnitude of the project's potential impacts and risks, in accordance with the environmental and social screening criteria of the IFC. The categories are as follows: Category A: Projects with potential significant adverse environmental and social risks and/or impacts that are diverse, irreversible, or unprecedented; Category B: Projects with potential limited adverse environmental and social risks and/or impacts that are few in number, generally site-specific, largely reversible, and readily addressed through mitigation measures; and Category C: Projects with minimal or no adverse environmental and social risks and/or impacts.
- Principle 2: Environmental and Social Assessment – For all Category A and B projects, the EPFI will require the client to conduct an assessment to address the relevant environmental and social risks and impacts of the proposed project. The assessment should also propose measures to minimize, mitigate, and offset adverse impacts in a manner relevant and appropriate to the nature and scale of the proposed project. For Category A, and as appropriate, Category B Projects, the assessment documentation should include an Environmental and Social Impact Assessment (ESIA).
- Principle 3: Applicable Environmental and Social Standards – The assessment process should address compliance with relevant host country laws, regulations, and permits that pertain to environmental and social issues.
- Principle 4: Environmental and Social Management System and Equator Principles Action Plan – For all Category A and B projects, the EPFI will require the client to develop or maintain an Environmental and Social Management System (ESMS). Further, an Environmental and Social Management Plan (ESMP) will be prepared by the client to address issues raised in the assessment process and will incorporate actions required to comply with the applicable standards. Where the applicable standards are not met to the EPFI's satisfaction, the client and the EPFI will agree on an Equator Principles Action Plan. The Action Plan is intended to outline gaps and commitments to meet EPFI requirements in line with the applicable standards.
- Principle 5: Stakeholder Engagement – For all Category A and B projects, the EPFI will require the client to demonstrate effective Stakeholder Engagement as an ongoing process in a structured and culturally appropriate manner with affected communities and, where relevant, other stakeholders.
- Principle 6: Grievance Mechanism – For all Category A and, as appropriate, Category B projects, the EPFI will require the client, as part of the ESMS, to establish a grievance mechanism designed to receive and facilitate resolution of concerns and grievances about the project's environmental and social performance.
- Principle 7: Independent Review – For all Category A and, as appropriate, Category B projects, an Independent Environmental and Social Consultant, not directly associated with the client, will carry out an independent review of the assessment documentation including the ESMPs, the ESMS, and the Stakeholder Engagement process documentation in order to assist the EPFI's due diligence and to assess Equator Principles compliance. The Independent Environmental and Social Consultant will also propose or opine on a suitable Action Plan capable of bringing the project into compliance with the Equator Principles, or indicate when compliance is not possible.
- Principle 8: Covenants – For all projects, the client will covenant in the financing documentation to comply with all relevant host country environmental and social laws,

regulations, and permits in all material respects. Furthermore, for all Category A and Category B projects, the client will covenant in the financial documentation: (a) to comply with the ESMPs and Equator Principles Action Plan (where applicable) during the construction and operation of the project in all material respects; and (b) to provide periodic reports in a format agreed with the EPFI; and (c) to decommission the facilities, where applicable and appropriate, in accordance with an agreed decommissioning plan.

- Principle 9: Independent Monitoring and Reporting – The EPFI will, for all Category A and, as appropriate, Category B projects, require the appointment of an Independent Environmental and Social Consultant, or require that the client retain qualified and experienced external experts to verify its monitoring information which would be shared with the EPFI. For projects in which an Independent Review is required under Principle 7, the EPFI will require the appointment of an Independent Environmental and Social Consultant after Financial Close, or require that the client retain qualified and experienced external experts to verify its monitoring information, which would be shared with the EPFI.
- Principle 10: Reporting and Transparency – The following client reporting requirements are in addition to the disclosure requirements in Principle 5. For all Category A and, as appropriate, Category B projects: (1) the client will ensure that, at a minimum, a summary of the ESIA is accessible and available online; (2) the client will publicly report greenhouse gas emission levels during the operational phase for projects emitting more than 100,000 metric tonnes of CO_2 equivalent annually.

3.2.5.3 IMO Legal Committee

The IMO Legal Committee was established as a permanent subsidiary organ of the IMO Council, meeting twice a year to deal with legal issues raised at IMO. The committee is empowered to deal with any legal matters within the scope of the organization (IMO, 2013d). The Committee consists of all member states of IMO. It was established in 1967 as a subsidiary body to deal with legal questions that arose in the aftermath of the Torrey Canyon spill. The Legal Committee is also empowered to perform any duties within its scope that may be assigned by or under any other international instrument and accepted by the IMO.

3.2.6 Offshore Oil and Gas/Petroleum Industry Standards and Guidelines

3.2.6.1 International Association of Oil and Gas Producers (OGP)

The International Association of Oil & Gas Producers (OGP) is an industry association that was formed in 1974 to develop effective communications between the upstream industry and an increasingly complex network of international regulators (OGP, 2013a). The OGP is a global organization in which members identify and share best practices to achieve improvements in every aspect of health, safety, the environment, security, social responsibility, engineering, and operations. The OGP encompasses most of the world's leading publicly traded oil and gas companies, industry associations, and major upstream service companies, both privately-owned and state-owned. OGP members produce more than half of the world's oil and approximately one-third of its gas (OGP, 2013a).

OGP has developed guidelines for various aspects of oil and gas operations. The publicly available reports are provided on the OGP web site (OGP, 2013b). A list of key reports and guidelines is provided below along with hyperlinks to the web site location (as of November 2013).

- Catalogue of international standards used in the petroleum and natural gas industries. OGP Report No. 362 (February 2012b). http://www.ogp.org.uk/pubs/362.pdf
- Aircraft management guidelines. OGP Report No. 390 (August 2013). http://www.ogp.org.uk/pubs/390.pdf.
- Guidelines for waste management with special focus on areas with limited infrastructure. OGP Report No. 413 (March 2009). http://www.ogp.org.uk/pubs/413.pdf
- Regulators' use of standards. OGP Report No. 426 (March 2010). http://www.ogp.org.uk/pubs/426.pdf
- Alien invasive species and the oil and gas industry: Guidance for prevention and management. OGP Report No. 436 (April 2010). http://www.ogp.org.uk/pubs/436.pdf.
- Managing oil and gas activities in coastal areas: An awareness briefing. OGP Report No. 475 (July 2012). http://www.ogp.org.uk/pubs/475.pdf
- Recommendations for enhancements to well control training, examination and certification. OGP Report No. 476. http://www.ogp.org.uk/pubs/476.pdf

- Standards and guidelines for drilling, well constructions and well operations. OGP Report No. 485 (October 2013). http://www.ogp.org.uk/pubs/485.pdf.
- Mutual aid in large-scale offshore incidents – a framework for the offshore oil and gas industry. OGP Report 487 (June 2013). http://www.ogp.org.uk/pubs/487.pdf.
- Global standards used locally worldwide. OGP Report No. 4210 (August 2011). http://www.ogp.org.uk/pubs/4210.pdf

The development of a new set of international standards for the offshore oil and gas industry is a main focus of the OGP Standards Committee. In addition to the catalog of international standards cited above, OGP has issued a position paper on the development and use of international standards (OGP, 2010a), a review of regulators' use of standards (OGP, 2010b), and a benchmarking survey of members' use of specifications and external standards (OGP, 2011). A poster summarizing the main International Organization for Standardization (ISO) standards used in the oil and gas industry was developed in cooperation with the ISO (OGP, 2012b).

3.2.6.2 IPIECA

IPIECA (formerly the International Petroleum Industry Environmental Conservation Association) is a global oil and gas industry association for environmental and social issues. IPIECA was formed in 1974 and is the only global association involving both the upstream and downstream oil and gas industry on environmental and social issues. IPIECA's membership covers more than half of the world's oil production. IPIECA is the industry's principal channel of communication with the UN (IPIECA, 2013a). IPIECA helps the oil and gas industry improve its environmental and social performance by:

- developing, sharing and promoting good practices and solutions;
- enhancing and communicating knowledge and understanding;
- engaging members and others in the industry; and
- working in partnership with key stakeholders.

Through its member-led working groups IPIECA brings together the collective knowledge and expertise of oil and gas companies and associations. The working groups draw on the skills and experience of their international membership and operate with support from a secretariat. IPIECA currently has working groups that address the following areas: biodiversity, climate change, health, oil spill preparedness, fuels and products, reporting, social responsibility, and water.

IPIECA has developed guidelines for various aspects of oil and gas operations. The publicly available reports are provided on the IPIECA web site (IPIECA, 2013b). Most of the publications that provide guidance are co-productions with OGP and are also listed on the OGP web site. Examples of guidance documents are provided below along with hyperlinks to the web site location (as of November 2013):

- Alien invasive species and the oil and gas industry: Guidance for prevention and management. OGP Report No. 436 (April 2010). http://www.ogp.org.uk/pubs/436.pdf.
- Improving social and environmental performance: Good practice guidance for the oil and gas industry. April 2013. http://www.ipieca.org/sites/default/files/publications/Good_practice_guide_2013_sml_2.pdf.

3.2.6.3 Oil & Gas UK (Formerly UKOOA)

Oil & Gas UK is the leading representative body for the UK offshore oil and gas industry (Oil & Gas UK, 2013a). It is a not-for-profit organization, established in April 2007 based on the former UK Offshore Operators Association (UKOOA).

Oil & Gas UK issues guidelines on operational, environmental, and health and safety issues such as relief well planning, decommissioning cost estimation, suspension and abandonment of wells, subsea blowout preventer systems, well integrity, ship/installation collision avoidance, safe management of offshore supply and anchor handling operations, floating production, storage and offloading (FPSO) vessel design, and other issues. A searchable database of publications is provided on the web site (Oil & Gas UK, 2013b).

Oil & Gas UK also issues informational publications including "Britain's Offshore Oil and Gas Book," which outlines the activities, processes, and advances in UK operations for exploration, development,

production, and decommissioning. It also outlines the principles within which the industry operates regarding health, safety, and the environment and considers the sector's future prospects.

A related environmental legislation web site (Oil & Gas UK, 2012) provides a detailed listing of UK legislation, regulations, and government-issued guidance for each of the following categories of offshore activities: geological surveys, drilling and wells, production, export and pipelines, decommissioning, and onshore and terminals.

3.2.6.4 American Petroleum Institute

The American Petroleum Institute (API) is a trade association that represents all aspects of the U.S. oil and gas industry. API is a leader in developing equipment and operating standards for the oil and gas industry. Each year API works with leading industry subject-matter experts to maintain its inventory of more than 600 standards and recommended practices. API distributes more than 250,000 documents annually worldwide, and continues to strive to enhance safety operations, improve quality assurance, and promote the global acceptance of petroleum products and best practices (API, 2013a). API standards are designed to assist industry professionals with improving the efficiency and cost-effectiveness of their operations, complying with legislative and regulatory requirements, safeguarding health, and protecting the environment.

A catalog of API technical standards, recommended practices, equipment specifications, other technical documents, and reports and studies is provided online (API, 2013b). The main categories relevant to the Offshore Protocol include:

- Exploration and production;
- Petroleum measurement;
- Pipeline transportation;
- Refining;
- Safety and fire protection; and
- Health and environmental issues.

3.2.6.5 Australian Petroleum Production and Exploration Association

The Australian Petroleum Production and Exploration Association (APPEA) is a national organization representing Australia's oil and gas exploration and production industry. It has more than 80 full member companies that are oil and gas explorers and producers active in Australia. APPEA members account for an estimated 98% of the nation's petroleum production. APPEA also represents more than 250 associate member companies that provide a wide range of goods and services to the upstream oil and gas industry.

APPEA works with Australian federal and state governments to help promote the development of the nation's oil and gas resources in a manner that maximizes the return to the Australian industry and community. APPEA aims to secure regulatory and commercial conditions that enable member companies to operate safely, sustainably, and profitably. APPEA also seeks to increase community and government understanding of the upstream petroleum industry by publishing information about the sector's activities and economic importance to the nation. APPEA also hosts several conferences each year to exchange ideas and contribute to the development of the industry's policy positions.

APPEA produces both informational publications and guidelines, which are listed on its web site. Of particular importance is the Code of Environmental Practice (APPEA, 2008).

3.2.6.6 ASTM International

ASTM International, formerly known as the American Society for Testing and Materials (ASTM), is a globally recognized leader in the development and delivery of international voluntary consensus standards. Currently, some 12,000 ASTM standards are used around the world to improve product quality, enhance safety, facilitate market access and trade, and build consumer confidence. More than 7,000 ASTM standards have been adopted as the basis of national standards or referenced in regulations in countries outside the United States (ASTM, 2013a).

ASTM standards are available for several industry sectors relevant to the Offshore Protocol, including chemicals, construction, energy, environmental safety, oil spill response, and petroleum. A searchable database of standards is provided on the ASTM web site (ASTM, 2013b).

3.2.6.7 DNV GL (Formerly Det Norske Veritas)

DNV GL (formerly Det Norske Veritas, DNV) is an independent foundation with the purpose of safeguarding life, property, and the environment. DNV GL's activities are divided into three operating companies, of which DNV Maritime and Oil & Gas is relevant to the Offshore Protocol because it provides classification, verification, risk management, and technical advisory services to the global maritime and oil and gas industries.

Offshore classification establishes basic rule requirements based on theory and experience for mobile offshore units, and later verifies that the required safety standards are designed and built in, observed, and maintained through the offshore unit's life cycle. Activities typically include: setting rules based on the latest development; early engagement with the designer, yard, and owner to ensure that safety standards can be met; identification of safety-critical aspects; certification of safety-critical components and systems, both for marine and industrial use onboard; construction survey through the complete fabrication period; inspections and tests during commissioning; and regular surveys during operation.

DNV GL service specifications, standards, and recommended practices are listed on the DNV GL web site (DNV GL, 2013). They are too numerous to list here but include several categories:

- Service specifications;
- Offshore service specifications (e.g., classification of offshore drilling and support units);
- Offshore standards (e.g., fabrication and testing of offshore structures);
- Recommended practices; and
- Guidance and classification notes.

3.2.6.8 American Bureau of Shipping (ABS)

The American Bureau of Shipping (ABS) is a classification society whose mission is to verify that marine vessels and offshore structures comply with rules that the society has established for design, construction, and periodic survey (ABS, 2013a). Currently ABS is the second largest classification society worldwide and is the leading classification society for mobile offshore drilling units and FPSO vessels. The ABS classification process includes the development of standards, known as rules; technical plan review and design analysis; surveys during construction; source inspection of materials, equipment, and machinery; acceptance by the Classification Committee; subsequent periodic surveys for maintenance of class; and survey of damage, repairs, and modifications.

Rules and guides are publicly available on the ABS web site (ABS, 2013b). Examples of relevant rules include the following, with links to the source:

- Mobile offshore drilling units (effective January 2014);
- Floating production installations (2013);
- Offshore support vessels (2013);
- Classification of drilling systems (2012);
- Crew habitability on mobile offshore drilling units (2012);
- Facilities on offshore installations (2012);
- Environmental protection notation for offshore units, floating installations, and liftboats (2010, updated January 2012);
- Dynamic loading approach for FPSO installations (2010);
- Well test systems (2010);
- Subsea pipeline systems (2006); and
- Offshore installations (1997).

In addition, ABS maintains a regulatory information page (ABS, 2013c) that includes a list of countries that have delegated statutory authority to ABS and a matrix of regulations that have entered into force under the IMO conventions.

3.2.6.9 International Marine Contractors Association (IMCA)

The International Marine Contractors Association (IMCA) is an international trade association representing offshore, marine, and underwater engineering companies. IMCA supports and represents its members as well as offering "good practice" guidance to industry on technical and

commercial topics by way of documents, seminars and dialogue (IMCA, 2013a). IMCA core activities are (1) competence and training; and (2) safety, environment, and legislation.

Its activities are divided into the following four categories (Divisions), all of which are relevant to offshore oil and gas activities: diving, marine, offshore survey, and remote systems and remotely operated vehicles (ROVs). The Diving Division is concerned with offshore diving operations around the world, particularly in support of offshore oil and gas activities. The Marine Division is concerned with all aspects of specialist vessel operations and marine equipment, with a focus on dynamic positioning and general marine construction. The Offshore Survey Division is concerned with underwater surveys such as those involved in the installation of subsea pipelines and cables. The Remote Systems & ROV Division focuses on all aspects of equipment, personnel, and operations relating to remotely operated systems used in support of marine activities.

The IMCA maintains a searchable database of its guidance documents and other publications (IMCA, 2013b).

3.3 DISCUSSION OF BEST PRACTICES BY PROTOCOL ARTICLE

3.3.1 Article 1 – Definitions

The text of Article 1 is provided in full in the shaded box below.

Text of Article 1 – Definitions

For the purposes of this Protocol:
(a) “Convention” means the Convention for the Protection of the Mediterranean Sea against Pollution, adopted at Barcelona on 16 February 1976;
(b) “Organization” means the body referred to in Article 13 of the Convention;
(c) “Resources” means all mineral resources, whether solid, liquid or gaseous;
(d) “Activities concerning exploration and/or exploitation of the resources in the Protocol Area” (hereinafter referred to as “activities”) means:
(i) Activities of scientific research concerning the resources of the seabed and its subsoil;
(ii) Exploration activities: seismological activities; surveys of the seabed and its subsoil; sample taking; Exploration drilling;
(iii) Exploitation activities: establishment of an installation for the purpose of recovering resources, and activities connected therewith; development drilling; recovery, treatment, and storage; transportation to shore by pipeline and loading of ships; maintenance, repair, and other ancillary operations;
(e) “Pollution” is defined as in Article 2, paragraph (a), of the Convention;
(f) “Installation” means any fixed or floating structure, and any integral part thereof, that is engaged in activities, including, in particular:
(i) Fixed or mobile offshore drilling units;
(ii) Fixed or floating production units including dynamically-positioned units;
(iii) Offshore storage facilities including ships used for this purpose;
(iv) Offshore loading terminals and transport systems for the extracted products, such as submarine pipelines;
(v) Apparatus attached to it and equipment for the reloading, processing, storage and disposal of substances removed from the seabed or its subsoil.
(g) “Operator” means:
(i) Any natural or juridical person who is authorized by the Party exercising jurisdiction over the area where the activities are undertaken (hereinafter referred to as the “Contracting Party”) in accordance with this Protocol to carry out activities and/or who carries out such activities; or
(ii) Any person who does not hold an authorization within the meaning of this Protocol but is de facto in control of such activities;
(h) “Safety zone” means a zone established around installations in conformity with the provisions of general international law and technical requirements, with appropriate markings to ensure the safety of both navigation and the installations;
(i) “Wastes” means substances and materials of any kind, form or description resulting from activities covered by this Protocol which are disposed of or are intended for disposal or are required to be disposed of;
(j) “Harmful or noxious substances and materials” means substances and materials of any kind, form or description, which might cause pollution, if introduced into the Protocol Area;
(k) “Chemical Use Plan” means a plan drawn up by the operator of any offshore installation which shows:
(i) The chemicals which the operator intends to use in the operations;
(ii) The purpose or purposes for which the operator intends to use the chemicals;
(iii) The maximum concentrations of the chemicals which the operator intends to use within any other substances, and maximum amounts intended to be used In any specified period;
(iv) The area within which the chemical may escape into the marine environment;
(l) “Oil” means petroleum in any form including crude oil, fuel oil, oily sludge, oil refuse and refined products and, without limiting the generality of the foregoing, includes the substances listed in the Appendix to this Protocol;
(m) “Oily mixture” means a mixture with any oil content;
(n) “Sewage” means:
(i) Drainage and other wastes from any form of toilets, urinals and water-closet scuppers;
(ii) Drainage from medical premises (dispensary, sickbay, etc.) via washbasins, washtubs and scuppers located in such premises;
(iii) Other waste waters when mixed with the drainages defined above;
(o) “Garbage” means all kinds of food, domestic and operational waste generated during the normal operation of the installation and liable to be disposed of continuously or periodically, except those substances which are defined or listed elsewhere in this Protocol;
(p) “Freshwater limit” means the place in watercourses where, at low tides and in a period of low freshwater flow, there is an appreciable increase in salinity due to the presence of sea water.

3.3.1.1 Best Practices for Definitions

Six Conventions (Abidjan, Bucharest, Cartagena, Helsinki, Kuwait, OSPAR) similar to the Offshore Protocol and MARPOL 73/78 and Annexes were reviewed for possible guidance relevant to Article 1. Each of the Conventions has a corresponding article that provides definitions although they differ in the number of definitions provided (e.g., two definitions in the Abidjan and Cartagena Conventions, 18 definitions in the ROPME Protocol, and 19 in OSPAR). The entries in the definitions also differ among

the Conventions. Article 1 of the Offshore Protocol is relatively extensive compared to other Conventions.

No specific "best practice" guidance would be expected for Article 1 due to the nature of the provisions. Clarification of some of the definitions in Article 1 is warranted to facilitate implementation of the Offshore Protocol. Article 1 definitions are provided below in italics with a brief discussion following.

(d) "Activities concerning exploration and/or exploitation of the resources in the Protocol Area" (hereinafter referred to as "activities") means:

(i) Activities of scientific research concerning the resources of the seabed and its subsoil;
(ii) Exploration activities:
- *Seismological activities; surveys of the seabed and its subsoil; sample taking;*
- *Exploration drilling;*

(iii) Exploitation activities:
- *Establishment of an installation for the purpose of recovering resources, and activities connected therewith;*
- *Development drilling;*
- *Recovery, treatment and storage;*
- *Transportation to shore by pipeline and loading of ships;*
- *Maintenance, repair and other ancillary operations;*

The definitions in other Conventions do not address scientific research activities under (d)(i). We recommend clarification of "Activities of scientific research" as this could be construed to mean that baseline and monitoring surveys in support of environmental requirements also would require authorization under the Offshore Protocol although such scientific research activities would not pose a risk of environmental pollution any greater than most other maritime activities in the Protocol Area.

Similarly, we would recommend clarifying "sample taking" under (d)(ii) exploration activities as this is also typically a part of environmental baseline and monitoring surveys. This matter also is not addressed in other conventions.

Clarification of "ancillary operations" under (d)(iii) as they relate to exploitation activities is also recommended to ascertain if this refers to or includes support vessel and helicopter activities. In the ROPME Protocol, "Offshore Operations" includes also "any work of construction, repair, maintenance, inspection or like operation incidental to the main purpose of exploration or exploitation." In the Gulf of Mexico "other ancillary activity" means "those activities not conducted for hydrocarbon detection, but for data collection regarding geological, archaeological, biologic, oceanographic, or other information (30 CFR 250.207(b)) or studies related to discharge modeling (30 CFR 250.207(c))."

(e) "Pollution" is defined as in Article 2, paragraph (a), of the Convention;

The definition of pollution in most of the other Conventions is the same as the definition in the Barcelona Convention.

(f) "Installation" means any fixed or floating structure, and any integral part thereof, that is engaged in activities, including, in particular:

(i) Fixed or mobile offshore drilling units;
(ii) Fixed or floating production units including dynamically-positioned units;
(iii) Offshore storage facilities including ships used for this purpose;
(iv) Offshore loading terminals and transport systems for the extracted products, such as submarine pipelines;
(v) Apparatus attached to it and equipment for the reloading, processing, storage and disposal of substances removed from the seabed or its subsoil;

Clarification of the terms "integral part" and "apparatus attached to it" under (f) as applied to an installation within the definition is recommended. The ROPME Protocol defines an installation to include "any integral part of the structure, plant, equipment or vessel, any attached lifting gear or safety mechanism, and any other part or equipment specified by the Contracting State as part of the installation."

g) "Operator" means:

(i) Any natural or juridical person who is authorized by the Party exercising jurisdiction over the area where the activities are undertaken (hereinafter referred to as the "Contracting Party") in accordance with this Protocol to carry out activities and/or who carries out such activities; or
(ii) Any person who does not hold an authorization within the meaning of this Protocol but is de facto in control of such activities;

Clarification of the term "Operator" is recommended (i.e., does it strictly refer to the lease operator as specified in a Production Sharing Contract or could it apply to the drilling contractor?). Other Conventions do not include Operator in their definitions except for the ROPME Protocol where "Operator" means any natural or juridical person who undertakes offshore operations (which is defined in the ROPME Protocol).

(h) "Safety zone" means a zone established around installations in conformity with the provisions of general international law and technical requirements, with appropriate markings to ensure the safety of both navigation and the installations;

Clarification of the term "appropriate markings" and determining what provisions exist in general international law and technical requirements is recommended.

(j) "Harmful or noxious substances and materials" means substances and materials of any kind, form or description, which might cause pollution, if introduced into the Protocol Area;

Although the term "harmful or noxious substances and materials," originates from the IMO, the definition in Article 1 does not state it does not include oil. There are different Annexes under MARPOL 73/78 that deal with oil (Annex I) and hazardous and noxious substances (Annex II and III). The determination of whether a substance is hazardous or noxious is based on its inclusion in one or more lists in IMO Conventions and Codes designed to ensure maritime safety and prevention of pollution. Chemicals or substances transported that have one or more of following properties are likely to be considered as a "hazardous and noxious substance":

- Flammable;
- Explosive;
- Toxic;
- Corrosive; and
- Reactive.

If the chemical transported has the environment is likely to create hazards to human health, to harm living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

(k) "Chemical Use Plan" means a plan drawn up by the operator of any offshore installation which shows:
(i) The chemicals which the operator intends to use in the operations;
(ii) The purpose or purposes for which the operator intends to use the chemicals;
(iii) The maximum concentrations of the chemicals which the operator intends to use within any other substances, and maximum amounts intended to be used in any specified period;
(iv) The area within which the chemical may escape into the marine environment;

Clarification of the requirement for showing "The maximum concentrations of the chemicals which the operator intends to use within any other substances, and maximum amounts intended to be used in any specified period" is recommended, as this may not be practical or feasible especially for exploration drilling operations when the specific formulation of drilling fluids may change during the course of drilling as conditions and objectives may change.

Of the other conventions only the Kuwait Convention also provides a definition of a Chemical Use Plan. Under the Kuwait Convention, only chemicals with a known danger of escaping into the marine environment need to be included in a Chemical Use Plan. The definition in the Kuwait Convention states that a Chemical Use Plan should show "The area within which the chemical may escape into the marine environment; provided that where there is no known danger of a chemical escaping into the marine environment, it need not be included in the plan."

The ROPME/Continental Shelf Protocol provides detailed Guidelines on the Use and Storage of Chemicals in Offshore Operations. Detailed review of these guidelines and their implementation among the Kuwait Convention Parties is recommended as wholesale adoption may not be warranted.

A discussion of Article 9 (**Section 3.3.9**) discusses the ROPME chemical use guidelines and provides a citation and link.

Chemical use is not treated in other instruments. Regulation of chemical use under OSPAR is based on a different approach. As the use and discharge of hazardous substances in the offshore oil and gas industry have been a cause for great concern. OSPAR adopted a harmonized mandatory control system for use and reduction of discharges of offshore chemicals. OSPAR's system promotes the shift towards the use of less hazardous or preferably non-hazardous substances. Section 3.3.9 describes OSPAR's approach and discusses the Offshore Chemical Notification Scheme (OCNS).

(n) "Sewage" means:

(i) Drainage and other wastes from any form of toilets, urinals and water-closet scuppers;
(ii) Drainage from medical premises (dispensary, sickbay, etc.) via washbasins, washtubs and scuppers located in such premises;
(iii) Other waste waters when mixed with the drainages defined above.

The definition of "sewage" in the Offshore Protocol is in line with Annex IV to MARPOL 73/78 except for not including drainage from spaces containing living animals, which would not be generally applicable.

(o) "Garbage" means all kinds of food, domestic and operational waste generated during the normal operation of the installation and liable to be disposed of continuously or periodically, except those substances which are defined or listed elsewhere in this Protocol.

The definition of "garbage" in the Offshore Protocol is in line with Annex V to MARPOL 73/78 except for not including the exclusion of fresh fish and parts thereof.

(p) "Freshwater limit" means the place in watercourses where, at low tides and in a period of low freshwater flow, there is an appreciable increase in salinity due to the presence of sea water.

Of the Conventions examined only OSPAR includes a definition of "freshwater limit," which means "the place in a watercourse where, at low tide and in a period of low freshwater flow, there is an appreciable increase in salinity due to the presence of seawater."

3.3.2 Article 2 – Geographical Coverage

The text of Article 2 is provided in the shaded box below.

Text of Article 2 – Geographical Coverage

1. The area to which this Protocol applies (referred to in this Protocol as the "Protocol Area") shall be:
(a) The Mediterranean Sea Area as defined in Article 1 of the Convention, including the continental shelf and the seabed and its subsoil;
(b) Waters, including the seabed and its subsoil, on the landward side of the baselines from which the breadth of the territorial sea is measured and extending, in the case of watercourses, up to the freshwater limit.
2. Any of the Contracting Parties to this Protocol (referred to in this Protocol as "the Parties") may also include in the Protocol area wetlands or coastal areas of their territory.
3. Nothing in this Protocol, nor any act adopted on the basis of this Protocol, shall prejudice the rights of any State concerning the delimitation of the continental shelf.

3.3.2.1 Best Practices for Geographical Coverage

Six Conventions (Abidjan, Bucharest, Cartagena, Helsinki, Kuwait, OSPAR) were reviewed for possible guidance relevant to Article 2. Each Convention had corresponding article(s) that described the geographic(al) coverage of the Convention although geographic coverage and degree of treatment differed. Conventions differ in their description or definition of the convention areas and wording and construction of the articles. Terminology also differ, with "Convention Area", "Sea Area", "Maritime Area", and "Protocol Area" being used to denote a geographic coverage of an instrument. The geographic coverage described among the Conventions range from describing geographic and maritime jurisdictions or boundaries (e.g., the marine environment within water bodies and within 200 nautical miles of the Atlantic coasts of contracting parties under the Cartagena Convention without specific reference to territorial seas and contracting parties' exclusive economic zone) to being better defined (e.g., "the Black Sea shall include the territorial sea and exclusive economic zone" of the contracting parties under the Bucharest Convention). The 1989 Protocol Concerning Marine Pollution

Resulting from Exploration and Exploitation of the Continental Shelf under the Kuwait Convention provides specific definition of the Protocol Area.

While most Conventions include internal waters in their coverage, two Conventions (Kuwait and Cartagena) specifically exclude internal waters of the contracting parties. Unlike the Offshore Protocol, most conventions do not specifically refer to the continental shelf and seabed although this would be implied based on the geographic description. Only the OSPAR Convention specifies coverage extending to the seabed and its subsoil in the Convention Area. None of the Conventions address or include wetlands in their geographic(al) coverage.

No specific "best practice" guidance was identified for Article 2 although clarification of the geographic coverage of the Offshore Protocol relative to inland waters of the contracting parties or the freshwater limit may be warranted. Given the nature of Article 2, no industry based best practice would be expected.

3.3.3 Article 3 – General Undertakings

The text of Article 3 is provided in the shaded box below.

Text of Article 3 – General Undertakings

1. The Parties shall take, individually or through bilateral or multilateral cooperation, all appropriate measures to prevent, abate, combat and control pollution in the Protocol Area resulting from activities, *inter alia* by ensuring that the best available techniques, environmentally effective and economically appropriate, are used for this purpose.
2. The Parties shall ensure that all necessary measures are taken so that activities do not cause pollution.

3.3.3.1 Best Practices for General Undertakings

Each of the six Conventions (Abidjan, Bucharest, Cartagena, Helsinki, Kuwait, OSPAR) reviewed for possible guidance have provisions equivalent to Article 3 General Undertakings. The equivalent articles in the Conventions may be titled differently (e.g., General Obligations, General Provisions, or Fundamental Principles and Obligations) and contain more detail. Given the broad and general text under Article 3, the provisions in Article 3, in principle, substantially cover the equivalent provisions in the other Conventions. The articles in other Conventions describing General Undertakings are very similar to each and examination of each of the Conventions would be required to determine which of these provisions could be adopted as best practice. Two of the Conventions (OSPAR and Helsinki) have language that are similar to or expand on use of "best available techniques, environmentally effective and economically appropriate" measures to prevent, abate, combat and control pollution in the Protocol Area resulting from activities.

The provisions in the OSPAR and Helsinki Conventions equivalent to Article 3 appear to present the best exemplar if expanding on or developing/implementing more detailed guidance for Article 3 is desired. Although no specific "best practice" guidance was identified for Article 3, recommendations are offered for consideration, i.e., some provisions in the Conventions that are not present in Article 3. Provisions in other Conventions may be considered for the Offshore Protocol including the following:

- Addressing restoration of marine areas that have been damaged;
- Applying the measures in such a way as to prevent an increase in pollution of the sea outside the maritime area or in other parts of the environment. Avoiding activities or measures so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another.
- Specifying time limits to adopt programs and measures for their completion, where appropriate;
- Adopting the precautionary principle; and
- Adopting the polluter pays principle.

3.3.4 Authorization System

The Competent Authority is able to impose measures and require certain information from the Operator prior to granting an authorization. If there is a breach of obligations, penalties ranging from civil to criminal may be imposed.

The shaded box below specifies the requirements for authorizations as required from the various Articles of the Offshore Protocol. Information to be included within authorization provided by the Competent Authority includes validity, limits, and terms of condition.

Text of Article 4 – General Principles

1. All activities in the Protocol Area, including erection on site of installations, shall be subject to the prior written authorization for exploration or exploitation from the competent authority. Such authority, before granting the authorization, shall be satisfied that the installation has been constructed according to international standards and practice and that the operator has the technical competence and the financial capacity to carry out the activities. Such authorization shall be granted in accordance with the appropriate procedure. as defined by the competent authority.
2. Authorization shall be refused if there are indications that the proposed activities are likely to cause significant adverse effects on the environment that could not be avoided by compliance with the conditions laid down in the authorization and referred to in Article 6, paragraph 3, of this Protocol.
3. When considering approval of the siting of an installation, the Contracting Party shall ensure that no detrimental effects will be caused to existing facilities by such siting, in particular, to pipelines and cables.

Text of Article 5 – Requirements For Authorizations

1. The Contracting Party shall prescribe that any application for authorization or for the renewal of an authorization is subject to the submission of the project by the candidate operator to the competent authority and that any such application must include, in particular, the following:
(a) A survey concerning the effects of the proposed activities on the environment; the competent authority may, in the light of the nature, scope, duration and technical methods employed in the activities and of the characteristics of the area, require that an environmental impact assessment be prepared in accordance with Annex IV to this Protocol;
(b) The precise definition of the geographical areas where the activity is envisaged, including safety zones;
(c) Particulars of the professional and technical qualifications of the candidate operator and personnel on the installation, as well as of the composition of the crew;
(d) The safety measures as specified in Article 16;
(e) The operator's contingency plan as specified in Article 16;
(f) The monitoring procedures as specified in Article 19;
(g) The plans for removal of installations as specified in Article 20;
(h) Precautions for specially protected areas as specified in Article 21;
(i) The insurance or other financial security to cover liability as prescribed in Article 27, paragraph 2 (b).
2. The competent authority may decide, for scientific research and exploration activities, to limit the scope of the requirements laid down in paragraph 1 of this Article, in the light of the nature, scope, duration and technical methods employed in the activities and of the characteristics of the area.

Text of Article 6 – Granting of Authorizations

1. The authorizations referred to in Article 4 shall be granted only after examination by the competent authority of the requirements listed in Article 6 and Annex IV.
2. Each authorization shall specify the activities and the period of validity of the authorization, establish the geographical limits of the area subject to the authorization and specify the technical requirements and the authorized installations. The necessary safety zones shall be established at a later appropriate stage.
3. The authorization may impose conditions regarding measures, techniques or methods designed to reduce to the minimum risks of and damage due to pollution resulting from the activities.
4. The Parties shall notify the Organization as soon as possible of authorizations granted or renewed. The Organization shall keep a register of all the authorized installations in the Protocol Area.

Text of Article 7 – Sanctions

Each Party shall prescribe sanctions to be imposed for breach of obligations arising out of this Protocol, or for non-observance of the national laws or regulations implementing this Protocol, or for non-fulfillment of the specific conditions attached to the authorization.

Text of ANNEX IV – ENVIRONMENTAL IMPACT ASSESSMENT

1. Each Party shall require that the environmental impact assessment contains at least the following:
(a) A description of the geographical boundaries of the area within which the activities are to be carried out, including safety zones where applicable;
(b) A description of the initial state of the environment of the area;
(c) An indication of the nature, aims, scope and duration of the proposed activities;
(d) A description of the methods, installations and other means to be used, possible alternatives to such methods and means;
(e) A description of the foreseeable direct or indirect short and long-term effects of the proposed activities on the environment, including fauna, flora and the ecological balance;
(f) A statement setting out the measures proposed for reducing to the minimum the risk of damage to the environment as a result of carrying out the proposed activities, including possible alternatives to such measures;
(g) An indication of the measures to be taken for the protection of the environment from pollution and other adverse effects during and after the proposed activities;
(h) A reference to the methodology used for the environmental impact assessment;

(i) An indication of whether the environment of any other State is likely to be affected by the proposed activities.
2. Each Party shall promulgate standards taking into account the international rules, standards and recommended practices and procedures, adopted in accordance with Article 23 of the Protocol, by which environmental impact assessments are to be evaluated.

3.3.4.1 Best Practices for Authorization

This section includes a summary of authorization best practices from a few regulatory agencies that govern offshore oil and gas activities.

European Union Offshore Safety Directive

Through the EU Directive 2013/30/EU on the safety of offshore oil and gas operations and amending Directive 2004/35/EC, Member States will be required to request the following submittals and provide authorizations covering:

Design or relocation notification, Report on major hazards, Notification of well operations, Verification scheme, Material change to an installation, including removal of a fixed installation, Notification of combined operations, Corporate major accident prevention policy, Safety and environmental management system, Internal emergency response plan, External emergency response plan, Ongoing reports of well operations, and Provisions by operators and owners for prevention of major accidents (European Union, 2013a).

United Kingdom

Throughout the full lifecycle of the offshore oil and gas activities, the applicable UK regulatory body for offshore oil and gas activities requires several submittal requirements and permits are in place before the requested activity can commence:

Environmental Statement (ES), Environmental Impact Assessment (EIA), Habitats Regulatory Assessment, Oil Pollution Emergency Plan (OPEP), Chemical Permit Application, Application for Consent, Consent to Survey, Notification of Survey, Consent to Drill Well, Certificate of Authorisation for Accumulation and Disposal of Radioactive Waste, Certificate of Registration for any radioactive sources, Pipeline Works Authorisation, Application for Consent to Locate, Application for Consent to Deposit Materials, Application for Reinjection, and Offshore Pollution Prevention and Control (OPPC) Permit, and a Consent to Discharge for all chemicals, including drilling muds.

There are also specific permits required for the production phase and the abandonment/decommissioning. Before production, the DECC requires the following applications:

“Prepare Prevention and Control of Pollution (PPC) Application for any new combustion plant exceeding 50 MW(th) or if substantial change to existing combustion plant due to modification; EU ETS registration and allocation application to DECC; Risk Assessment; Consent to Flare; Consent to Vent; and Ensure valid UK Oil Pollution Prevention Certificate (UKOPP) held for platform for any oily machinery space drainage.”

And for the abandonment/decommissioning phase:

“If there is a need to use explosives in abandonment operation, discussions should be held with JNCC/DECC as early as possible to give consideration to any habitats/species issues under the Habitats Regulations; Summary of chemical use/discharge must be submitted to DECC using PON5 even if already covered in existing drilling (PON15B) or decommissioning (PON15E) submission; Any deliberate release of oil planned must be subject to a OPPC Permit; In exceptional circumstances a license under Part II of FEPA may be required for deposits to the seabed (e.g. rock dumping to cover wellhead); and If planning to leave pipeline in-situ undertake study addressing pipeline exposure and impact on environment.”

Legislation and regulations pertaining to offshore oil and gas activities are available at the Oil & Gas UK Environmental Legislation Website (Oil & Gas UK, 2013c)

United States of America

In the US, the Bureau of Ocean Energy Management (BOEM), Bureau of Safety and Environmental Enforcement (BSEE) are responsible for collecting submittals and providing the following authorizations: Abandonment permits, Air quality compliance, Air quality review, Blowout preventer

requirements, Bottom hole pressure survey, Commingling (downhole and surface), Completion Permits, Conservation Information Document, Containment requirements, Deep water operation plan review coordination, designation of operators, Drill stem test, Drilling permit, End of operations report, Exploration and development plan, Formation test, Geological and geophysical permit, Oil spill contingency plan, Oil spill financial responsibility, Permit to drill, Permit to modify, Production safety systems, Reporting requirements for technical data, Structural permits, Well log, and Well pressure test/Well test records (U.S. Bureau of Safety and Environmental Enforcement, 2013).

Under the new Safety and Environmental Management Systems (SEMS) requirements (NTL No. 2011-N09), the following are required submittals as part of the Operator's SEMS: Environmental information, Policies and objectives concerning environmental impacts, Hazards analysis, Job safety analysis, Management of change procedures, Operating procedures, Safe work practices, Contractor selection criteria, Training requirements, Mechanical integrity, Operator-conducted SEMS audits, including Independent Third Party (I3P) or Designated and Qualified Personnel (DPQ) review, BSEE evaluations of SEMS program, Critical equipment list, Operator SEMS contact, and Guidance document statement (U.S. Bureau of Safety and Environmental Enforcement, 2011.).

3.3.4.2 Best Practices for Sanctions

It is important that compliance and enforcement procedures are sufficiently effective to deter parties from contravening their legislative obligations, potentially resulting in incidents with substantial negative impacts on the environment. This section contains a summary of best practices for sanctions from a few legislative bodies.

European Union

The EU issued Directive 2008/99/EC in 2008 on the protection of the environment through criminal law. This Directive lists environmental offences that must be considered criminal infractions by Member States, if committed intentionally or with serious negligence. It also issued Directive 2009/123/EC, directly aiming at ship-source pollution and introduced of penalties, including criminal penalties, for pollution offences. Under these directives, Member States may choose the category and the degree of sanctions, on the condition that sanctions implemented into national laws have to be effective, dissuasive and proportional (European Union, 2008).

United States of America

A few major pieces of legislation in the United States that allow for penalties to be levied are the Clean Water Act (CWA) 1977, the Oil Pollution Act (OPA) 1990 and the Outer Continental Shelf Lands Act (OCSLA) 1953. In CWA Section 1319, civil, administrative and criminal penalties are set forth for illegal discharges. Covered in §1319(c)(1) are also negligent violation penalties.

OPA also addresses penalties due to illegal discharge, but one of the main points is whether the violation occurred due to gross negligence. If not negligible, OPA puts a monetary cap on damages and has a lower fine amount. The responsible party must show evidence of financial responsibility sufficient to meet its maximum liability under the OPA. Failure to do so will lead to sanctions even without an oil spill; withholding clearance, denying entry to or detaining vessels, and seizure of vessels.

OCSLA was amended after the passage of OPA to reflect changes in civil, administrative and criminal penalties due to negligence, violating the terms of the Act or failure to comply. And under 43 U.S.C. 1334(a)(1) and (2), OCSLA provides for the possible suspension of operations and cancellation of leases or permits.

Norway

The Petroleum Activities Act of 1996, amended 2009 details liability for pollution damage in Chapter 7 and has a further section (Chapter 8) to specifically compensate Norwegian fisherman. And as in other countries, Norway specifically legislates penalties for negligent violation. In Sections 10-17 of the Act, it states that,

"Willful or negligent violation of provisions or decisions issued in or pursuant to this Act shall be punishable by fines or imprisonment for up to three months. In particularly aggravating circumstances, imprisonment for up to two years may be imposed. Complicity is punishable in the same way. These provisions shall not apply if the violation is subject to a more severe penalty under any other statutory provision."

3.3.4.3 Best Practices for Environmental Impact Assessment (EIA)

Environmental Impact Assessments (EIAs) are a useful tool to predict, assess, and mitigate the possible impacts of a potential project so that environmental considerations can inform project decisions. Guidance documents from the EU and from U.S. for the development of EIA's are discussed below.

European Union

EIAs are a key instrument of EU environmental policy. The EIA Directive (85/337/EEC) was first issued in 1985, with an amending EIA Directive (97/11/EC) published in 1997. The EC have issued guidance documents for developing and reviewing an EIA, which include current state of good practice. A selection of these guidance documents, applicable as best practices for the Offshore Protocol, are listed below within references to the applicable web sites.

- Guidance on EIA – EIA Screening 2001 (European Union, 2001a)
  - http://ec.europa.eu/environment/eia/eia-guidelines/g-screening-full-text.pdf
- Guidance on EIA – EIA Scoping 2001 (European Union, 2001b)
  - http://ec.europa.eu/environment/eia/eia-guidelines/g-scoping-full-text.pdf
- Guidelines for the Assessment of Indirect and Cumulative Impacts as well as Impact Interactions 1999 (European Union, 1999)
  - http://ec.europa.eu/environment/eia/eia-studies-and-reports/guidel.pdf
- Guidance on EIA – EIA Review 2001 (European Union, 2001c)
  - http://ec.europa.eu/environment/eia/eia-guidelines/g-review-full-text.pdf

United States

The requirement for an analysis of environmental impacts resulting oil and gas activities in the Gulf of Mexico is covered under regulation 30 CFR 250.1910. This requirement isn't for an EIA as such, but the requirements are to predict, assess and mitigate the possible environmental impacts, hence it is similar to that of an EIA study. The environmental information containing this analysis is incorporated into an Operator's Safety Environmental Management System (SEMS) submission. Guidance on the requirements are provided by BSEE in NTL No. 2011-N09 Section 2, and are summarized below.

- Policies and objectives concerning environmental impacts;
- Environmental requirements must be aimed at preventing environmental impacts (per API RP-75, Section 5.2);
- Environmental requirements must be addressed throughout all phases of operations, including planning, implementation and operation, verification and corrective actions, management review, and continual improvement (per API RP-75, Section 1.1.1); and
- Environmental resources to be considered include but are not limited to:
  - Water quality;
  - Air quality;
  - Biological resources including protected species, chemosynthetic, and benthic communities; and
  - Archeological and cultural resources.

Kuwait Protocol

The "Guidelines to the Protocol Concerning Marine Pollution and Exploitation of the Continental Shelf – Regional Organization for the Protection of the Marine Environment (ROMPE)" provides instructions to the Competent Authority and Operator regarding the licensing and EIA process (UNEP/MAP, 2013). The guideline details:

- Information required in the initial application for assessment on whether of not an EIA is required – guidance for the Operator;
- Criteria on whether of not an EIA is required – guidance for the Competent Authority;
- Terms of reference for the assessment of the EIA, if required – guidance for the Competent Authority;
- Information to be include within the EIA report – guidance for the Operator; and
- Review for completeness of EIA, final approval and determining license conditions.

Within the guidelines is a flow chart that outlines the licensing and EIA process, incorporating details of the various steps to be undertaken by both the Competent Authority and Operator.

3.3.5 Article 8 – General Obligation

The text of Article 8 is provided in the shaded box below.

Text of Article 8 General Obligation

Without prejudice to other standards or obligations referred to in this Section, the Parties shall impose a general obligation upon operators to use the best available, environmentally effective and economically appropriate techniques and to observe internationally accepted standards regarding wastes, as well as the use, storage and discharge of harmful or noxious substances and materials, with a view to minimizing the risk of pollution.

3.3.5.1 Best Practices for General Obligation

The wording of this article is similar to the general requirements of other international legal instruments. However, certain terms such as "best available" techniques may have specific definitions within the context of the EU or OSPAR, as noted below.

European Union

The term "best available techniques" has a specific regulatory meaning within the EU as defined in the Industrial Emissions Directive (IED, Directive 2010/75/EU; European Union, 2010):

> *'Best available techniques' means "the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole:*
>
> *(a) 'techniques' includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;*
>
> *(b) 'available techniques' means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;*
>
> *(c) 'best' means most effective in achieving a high general level of protection of the environment as a whole.*

The EU Joint Research Centre maintain a list of reference documents that have been drawn (or are planned to be drawn) as part of the exchange of information carried out in the framework of Article 13(1) of the IED (Joint Research Centre, 2013b). The list contains the Best Available Techniques reference documents (BREFs), as well as a few other reference documents, that have been adopted under both the Integrated Pollution Prevention and Control (IPPC) Directive (2008/1/EC) and the IED.

OSPAR Convention

Appendix 1 of the OSPAR Convention defines "best available techniques" and "best environmental practice" as follows (OSPAR Commission, 2007):

1. *The use of the best available techniques shall emphasise the use of non-waste technology, if available.*
2. *The term 'best available techniques' means the latest stage of development (state of the art) of processes, of facilities or of methods of operation which indicate the practical suitability of a particular measure for limiting discharges, emissions and waste. In determining whether a set of processes, facilities and methods of operation constitute the best available techniques in general or individual cases, special consideration shall be given to:*
   (a) comparable processes, facilities or methods of operation which have recently been successfully tried out;
   (b) technological advances and changes in scientific knowledge and understanding;
   (c) the economic feasibility of such techniques;
   (d) time limits for installation in both new and existing plants;
   (e) the nature and volume of the discharges and emissions concerned.

3. *It therefore follows that what is "best available techniques" for a particular process will change with time in the light of technological advances, economic and social factors, as well as changes in scientific knowledge and understanding.*
4. *If the reduction of discharges and emissions resulting from the use of best available techniques does not lead to environmentally acceptable results, additional measures have to be applied.*
5. *"Techniques" include both the technology used and the way in which the installation is designed, built, maintained, operated and dismantled.*
6. *The term "best environmental practice" means the application of the most appropriate combination of environmental control measures and strategies. In making a selection for individual cases, at least the following graduated range of measures should be considered:*
   (a) the provision of information and education to the public and to users about the environmental consequences of choice of particular activities and choice of products, their use and ultimate disposal;
   (b) the development and application of codes of good environmental practice which covers all aspect of the activity in the product's life;
   (c) the mandatory application of labels informing users of environmental risks related to a product, its use and ultimate disposal;
   (d) saving resources, including energy;
   (e) making collection and disposal systems available to the public;
   (f) avoiding the use of hazardous substances or products and the generation of hazardous waste;
   (g) recycling, recovery and re-use;
   (h) the application of economic instruments to activities, products or groups of products;
   (i) establishing a system of licensing, involving a range of restrictions or a ban.
7. *In determining what combination of measures constitute best environmental practice, in general or individual cases, particular consideration should be given to:*
   (a) the environmental hazard of the product and its production, use and ultimate disposal;
   (b) the substitution by less polluting activities or substances;
   (c) the scale of use;
   (d) the potential environmental benefit or penalty of substitute materials or activities;
   (e) advances and changes in scientific knowledge and understanding;
   (f) time limits for implementation;
   (g) social and economic implications.
8. *It therefore follows that best environmental practice for a particular source will change with time in the light of technological advances, economic and social factors, as well as changes in scientific knowledge and understanding.*
9. *If the reduction of inputs resulting from the use of best environmental practice does not lead to environmentally acceptable results, additional measures have to be applied and best environmental practice redefined.*

3.3.6 Article 9 – Harmful or Noxious Substances and Materials

The text of Article 9 is provided in the shaded box below.

Text of Article 9 – Harmful or Noxious Substances and Materials

1. The use and storage of chemicals for the activities shall be approved by the competent authority, on the basis of the Chemical Use Plan.
2. The Contracting Party may regulate, limit or prohibit the use of chemicals for the activities in accordance with guidelines to be adopted by the Contracting Parties.
3. For the purpose of protecting the environment, the Parties shall ensure that each substance and material used for activities is accompanied by a compound description provided by the entity producing such substance or material.
4. The disposal into the Protocol Area of harmful or noxious substances and materials resulting from the activities covered by this Protocol and listed in Annex I to this Protocol is prohibited.
5. The disposal into the Protocol Area of harmful or noxious substances and materials resulting from the activities covered by this Protocol and listed in Annex II to this Protocol requires, in each case, a prior special permit from the competent authority.
6. The disposal into the Protocol Area of all other harmful or noxious substances and materials resulting from

the activities covered by this Protocol and which might cause pollution requires a prior general permit from the competent authority.

7. The permits referred to in paragraphs 5 and 6 above shall be issued only after careful consideration of all the factors set forth in Annex III to this Protocol.

3.3.6.1 Best Practices for Harmful or Noxious Substances and Materials

MARPOL 73/78

General MARPOL 73/78 requirements concerning releases of oily waste, noxious liquid substances in bulk, harmful substances carried by sea in packaged form, sewage, garbage, air pollution, and ballast water are discussed in **Section 3.2.1.2**. Additional information about MARPOL 73/78 requirements is provided for oil and oily mixtures and drilling fluids and cuttings under Article 10 (**Section 3.3.10**); for sewage under Article 11 (**Section 3.3.11**), and for garbage under Article 12 (**Section 3.3.12**).

OSPAR

The OSPAR Convention provides a broad framework for regulating the use and discharge of offshore chemicals. The Offshore Chemicals Notification Scheme (OCNS) was originally introduced in 1979. In 1993, the UK Government introduced a revised scheme, which classified chemicals using test protocols approved by OSPAR to assess toxicity, biodegradation and partitioning. This was modified in detail, in early 1996, to meet the requirements of the OSPAR Harmonised Offshore Chemical Notification Format (HOCNF), which co-ordinates the testing requirements for oilfield chemicals throughout the Northeast Atlantic sector. In June 2000, OSPAR introduced OSPAR Decision 2000/2 (Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals, as amended by OSPAR Decision 2005/1). OSPAR Decision 2000/2, along with OSPAR Recommendation 2010/4 (Harmonised Pre-Screening Scheme for Offshore Chemicals), are at the heart of a system that promotes a shift towards the use of less hazardous or preferably non-hazardous substances. There is a common OSPAR interpretation (Reference No. 2002-6) of which chemicals are covered and not covered by the control system. Chemical suppliers must provide the national authorities with data and information about chemicals to be used and discharged offshore according to the Harmonised Offshore Chemical Notification Format (HOCNF) (OSPAR Recommendation 2010/3). Based on the information sent by the chemical supplier the national authorities carries out the pre-screening and takes the appropriate regulatory action, such as issuing discharge permits.

The OSPAR List of Substances/Preparations Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (PLONOR, OSPAR Agreement 2012-06) contains substances whose use and discharge offshore are subject to expert judgment by the competent national authorities or do not need to be strongly regulated.

Under the OCNS system, all offshore chemicals are subject to a pre-screening process. If a chemical is not on the PLONOR list, further evaluation is needed. Any offshore chemical that meets one or more of the following criteria must be substituted if a less hazardous (or preferably non-hazardous) substitute is available:

- on the OSPAR List of Chemicals for Priority Action; or
- considered by the competent authority to be of equivalent concern for the marine environment; or
- inorganic combined with high toxicity; or
- persistent; or
- meets two of the following three criteria: (i) not readily biodegradable; (ii) high bioaccumulation potential; or (iii) high toxicity.

Any offshore chemical, other than those on the PLONOR list, that is not identified by the above criteria must be ranked using the Chemical Hazard Assessment and Risk Management (CHARM) model developed by authorities and offshore industry within the OSPAR Convention area. A detailed explanation of the chemical registration process under the OCNS is provided by the Centre for Environment, Fisheries & Aquaculture Science (CEFAS, 2013a).

OSPAR Implementation – United Kingdom. Key legislation for implementing the OSPAR chemical use requirements in the UK is summarized by Oil & Gas UK (2012) and includes:

- Offshore Chemicals Regulations (2002);

- Offshore Chemicals (Amendment) Regulations (2011);
- Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations (2005); and
- Offshore Petroleum Activities (Oil Pollution Prevention and Control) (Amendment) Regulations (2011).

The Offshore Chemicals Regulations are made under Section 2 of the Pollution Prevention and Control Act 1999 and establish a regime for implementing the U.K.'s obligations under OSPAR. The regulations specify that a permit is required to use and discharge offshore chemicals and detail the procedure for granting permits, the conditions of permits, the requirements for permit applications, the publicity for permit applications and fees. Application for use (and discharge) of chemicals must be made to the Department of Energy and Climate Change using a PON15B application. Only chemicals which have been registered with the Centre for Environment, Fisheries & Aquaculture Science (CEFAS) can be used. The operator must undertake a risk assessment for the use and discharge of each chemical in order to obtain the permit. The effect of these regulatory controls has been to phase out the use of the most hazardous chemicals and to put in place a programme to replace those remaining chemicals which represent a lower but still undesirable hazard.

OSPAR Implementation – Norway. A highly coordinated regulatory regime in Norway is administered by the Petroleum Safety Authority (PSA). The PSA has five applicable sets of regulations, of which the most relevant here are the Activities Regulations (last amended 20 December 2012). Further details are provided in the Guidelines Regarding the Activities Regulations (updated 20 December 2012).

Chapter XI of the Activities Regulations addresses discharges and implements the requirements of OSPAR regarding chemical selection, screening, categorization, use, and discharge. Section 63 of the Activities Regulations uses a color-code scheme to grade all chemicals based on the risk each poses to the marine environment. Green category chemicals are those included on the PLONOR list; these chemicals require no testing and may be used without limitation. All other chemicals must be tested and assessed under OSPAR pre-screening protocols. Yellow category chemicals have been tested, have passed pre-screening, and are considered environmentally acceptable but require a permit for use. The yellow category includes substances that, based on their innate properties, are not defined as red or black, and which do not appear on the PLONOR list. Red category chemicals should be avoided where possible because they have failed the pre-screening due to low biodegradability, high bioaccumulation potential, or high toxicity, and the components involved must be prioritized for replacement. Black category chemicals are either on an exclusion list (such as the OSPAR List of Chemicals for Priority Action) or have ecotoxicological properties such as low biodegradability, high bioaccumulation potential, acute toxicity, or mutagenic properties; they may not be discharged to the environment.

OSPAR Implementation – The Netherlands. Under the Netherlands Regulations, the Minister of Economic Affairs is responsible for the registration of offshore chemicals. The Minister has delegated this responsibility to the Inspector General of Mines, heading the State Supervision of Mines (SSM). CEFAS has been contracted to perform the technical and administrative services necessary to evaluate HOCNF forms and to register this information in an integrated system. In addition, the Minister of Economic Affairs has delegated the Inspector General of Mines with the responsibility to issue permits and or accept notification of the use and discharge of chemicals offshore from the Netherlands. CEFAS (2013a,b) has issued detailed guidelines to assist suppliers of offshore chemicals for use in The Netherlands to comply with the relevant requirements of The Netherlands Mining Regulations.

European Union

Two EU regulations are particularly relevant to chemical use. The REACH Regulation is discussed in **Section 3.2.2.8** and the CLP Regulation is discussed in **Section 3.2.2.9**.

REACH (*Regulation EC 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals*), which entered into force on 1 June 2007, is a regulation to improve the protection of human health and the environment from the risks that can be posed by chemicals. REACH places the burden of proof on companies. To comply with the regulation, companies must identify and manage the risks linked to the substances they manufacture and market in the EU. They have to demonstrate how the substance can be safely used, and they must communicate the risk management measures to the users. If the risks cannot be managed, authorities can restrict the use of substances in different ways. In the long run, the most hazardous substances should be substituted

with less dangerous ones. REACH establishes procedures for collecting and assessing information on the properties and hazards of substances. It requires manufacturers and importers of chemicals to evaluate the risk arising from the use of chemicals and to manage such risks. REACH applies to the manufacture, placing on the marker or use of substances on their own, in mixtures or in articles and to the placing on the market of mixtures. A “substance” is defined as a chemical element and its compounds in the natural state or obtained by any manufacturing process. Key elements of REACH include registration requirements, whereby it is compulsory to register the manufacture or import of chemicals in quantities of one tonne (metric ton) or more per annum. Substances of extremely high concern are also subject to authorization. Authorities can ban hazardous substances if their risks are unmanageable. They can also decide to restrict the use of a chemical or make it subject to a prior authorization.

The Classification, Labeling and Packaging (CLP) Regulation (*Regulation (EC) No 1272/2008 on classification, labeling and packaging of substances and mixtures*) entered into force on 20 January 2009 and aims to align EU law to the U.N. Globally Harmonised System criteria for classification and labeling of hazards at the global level, in order to facilitate trade while protecting human health and the environment. The CLP Regulation ensures that the hazards presented by chemicals are clearly communicated to workers and consumers in the EU through classification and labeling of chemicals. Before placing chemicals on the market, the industry must establish the potential risks to human health and the environment of such substances and mixtures, classifying them in line with the identified hazards. The hazardous chemicals also have to be labeled according to a standardized system so that workers and consumers know about their effects before they handle them.

Kuwait Convention and ROPME

The Kuwait Convention can be regarded as a parallel to the Barcelona Convention and may be relevant as a source of best practice guidance (see **Section 3.2.3.3**). None of the Barcelona Convention parties are parties to the Kuwait Convention or members of ROPME.

As part of implementation of the Continental Shelf Protocol of the Kuwait Convention, ROPME (undated) has adopted “Guidelines on the Use and Storage of Chemicals in Offshore Operations.” These guidelines are to assist Contracting States in developing their specific plans and measures in compliance with the provisions of the Protocol. The guidelines define key terms, identify chemicals that are exempt from notification, and specify the required contents of a Chemical Use Plan, including:

a) Name of any chemical product to be used.

b) Name of supplier.

c) Whether the product is a gas, liquid, solid or a mixture, and their relative characteristics such as:
   i) Specific gravity.
   ii) Proportion of suspended solids to liquid (mg/liter).
   iii) If in liquid state, whether miscible in seawater .
   iv) Constituents, which are soluble in seawater, starting solubility in mg/liter.
   v) Flash point.

d) Chemical name, formula or generic type of active ingredients and applicable of any solvent, in so far as this information is available. To the extent that such information is not available, the chemical hazard data sheets prepared by the manufacturer should be obtained and submitted instead.

e) Details of any toxicity test on any of the chemicals named and their results, as available from the supplier, manufacturer, or other sources. The production of the results of toxicity tests should be compulsory. The minimum required should normally be the results of a 96 hour LC test on brown shrimp (*Crangon crangon*). Where there are sensitive areas or endangered species, the requirement should be stricter, e.g., tests on specified species.

f) If the chemical product is to be discharged into the marine environment:
   i) Rate of degradation in the sea, if known.
   ii) Intended place or places of discharge;
   iii) Estimated rate of discharge, in terms of volume or weight per day and per year;
   iv) Quantity intended to be discharged, on any occasion, i.e. during any particular operation, whether the discharge from that operation, is continuous or intermittent;
   vi) Local conditions which are likely to affect dispersal of the chemical.

g) If the plan is to cover storage of chemicals or products offshore:
   i) The chemicals or products to be stored and whether or not they are to be stored in concentrated form.
   ii) Quantities in which they are to be stored.
   iii) Details of storage vessels.
   iv) Details of any system of automatic alarm in the event of a leak, and any arrangements from preventing the leaked substance from reaching the marine environment.
   v) Details of any precautions to be taken when the chemical is to be transferred to or from vessel.

It also discusses the approval process and factors to be considered in approval of the Chemical Use Plan.

U.S. Gulf of Mexico

In the U.S., discharges from offshore oil and gas facilities are regulated by the USEPA through the NPDES permitting system. The NPDES general permits, such as general permit GMG290000 in the Gulf of Mexico, do not require a Chemical Use Plan. However, for drilling fluids, the permittee is required to maintain a precise chemical inventory of all constituents and their total volume or mass added downhole for each well. For well treatment fluids, completion fluids, and workover fluids, information on the specific chemical composition of any additives containing priority pollutants must be recorded. The discharge or priority pollutants (those chemicals or elements identified by the USEPA pursuant to section 307 of the Clean Water Act) is prohibited.

BOEM requires certain information in exploration and development plans submitted by the operator for approval. As specified in NTL 2008-G04, depending on the type of well and location, the operator may need to provide information on the types (including chemical constituents) and amounts of the drilling fluids they plan to use to drill proposed wells. For any oil-based drilling fluids proposed, the operator must provide a Material Safety Data Sheet (MSDS), MSDS number, or internet address for the MSDS (or equivalent information) for each product. Operators must estimate the amounts of any chemical product waste to be shipped to shore, the onshore disposal location, and the transportation method.

Canada

For oil and gas exploration and development offshore Canada, a Chemical Use Plan is not required. However, operators must keep records of the steps used to evaluate prospective chemicals, and these records may be audited by the appropriate Offshore Petroleum Board. The Canada-Newfoundland and Labrador Offshore Petroleum Board (2009) has issued “Offshore Chemical Selection Guidelines for Drilling and Production Activities on Frontier Lands.” Canadian legislation requires that an operator who proposes to carry on any work or activity related to oil or gas exploration or production must first obtain an authorization from the appropriate Petroleum Board. In an application for an authorization an Operator should demonstrate that they have a chemical selection process incorporated into their management system that meets the minimum expectations outlined in the Guidelines. The Board may conduct periodic audits to ensure compliance with the Guidelines, and operator-specific chemical selection systems. The chemical selection process in the guidelines includes consideration of the product ratings under the Offshore Chemical Notification Scheme (OCNS). The guidelines specify that operators should select chemicals with the least environmental risk where appropriate.

3.3.7 Article 10 – Oil and Oily Mixtures and Drilling Fluids and Cuttings

The text of Article 10 and Annex V is provided in the shaded boxes below.

Text of Article 10 – Oil and Oily Mixtures and Drilling Fluids and Cuttings

1. The Parties shall formulate and adopt common standards for the disposal of oil and oily mixtures from installations into the Protocol Area:
   (a) Such common standards shall be formulated in accordance with the provisions of Annex V, A;
   (b) Such common standards shall not be less restrictive than the following, in particular:
      (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;
   (c) The Parties shall determine by common agreement which method will be used to analyze the oil content.
2. The Parties shall formulate and adopt common standards for the use and disposal of drilling fluids and drill

cuttings into the Protocol Area. Such common standards shall be formulated in accordance with the provisions of Annex V, B.

3. Each Party shall take appropriate measures to enforce the common standards adopted pursuant to this Article or to enforce more restrictive standards that it may have adopted.

Text of Annex V – Oil and Oily Mixtures and Drilling Fluids and Cuttings

The following provisions shall be prescribed by the Parties in accordance with Article 10:

A. Oil and Oily Mixtures:
   1. Spills of high oil content in processing drainage and platform drainage shall be contained, diverted and then treated as part of the product, but the remainder shall be treated to an acceptable level before discharge, in accordance with good oilfield practice;
   2. Oily waste and sludges from separation processes shall be transported to shore;
   3. All the necessary precautions shall be taken to minimize losses of oil into the sea from oil collected or flared from well testing;
   4. All the necessary precautions shall be taken to ensure that any gas resulting from oil activities should be flared or used In an appropriate manner.

B. Drilling Fluids and Drill Cuttings:
   1. Water-based drilling fluids and drill cuttings shall be subject to the following requirements:
      (a) The use and disposal of such drilling fluids shall be subject to the Chemical Use Plan and the provisions of Article 9 of this Protocol;
      (b) The disposal of the drill cuttings shall either be made on land or into the sea in an appropriate site or area as specified by the competent authority.
   2. Oil-based drilling fluids and drill cuttings are subject to the following requirements:
      (a) Such fluids shall only be used if they are of a sufficiently low toxicity and only after the operator has been issued a permit by the competent authority when it has verified such low toxicity;
      (b) The disposal into the sea of such drilling fluids is prohibited;
      (c) The disposal of the drill cuttings into the sea is only permitted on condition that efficient solids control equipment is installed and properly operated, that the discharge point is well below the surface of the water, and that the oil content is less than 100 grams of oil per kilogram dry cuttings;
      (d) The disposal of such drill cuttings in specially protected areas is prohibited;
      (e) In case of production and development drilling, a programme of seabed sampling and analysis relating to the zone of contamination must be undertaken.
   3. Diesel-based drilling fluids: The use of diesel-based drilling fluids is prohibited. Diesel oil may exceptionally be added to drilling fluids in such circumstances as the Parties may specify.

3.3.7.1 Best Practices for Oil Content of Machinery Space Drainage

MARPOL 73/78 Annex I

MARPOL 73/78 Annex I provides the worldwide standard for oil content of machinery space drainage from ships. The Mediterranean Sea is designated as a “Special Area” under Annex I and is subject to more stringent requirements than those that apply outside Special Areas.

Regulation 15 of Annex I specifies requirements for machinery space drainage for all ships having a gross tonnage of 400 or greater. For these ships in Special Areas, any discharge into the sea of oil or oily mixtures is prohibited except when all of the following conditions are satisfied: (1) the ship is proceeding en route; (2) the oily mixture is processed through an oil filtering equipment meeting the requirements of Regulation 14.7 of Annex I; (3) the oil content of the effluent without dilution does not exceed 15 parts per million (ppm); (4) the oily mixture does not originate from cargo pump room bilges on oil tankers; and (5) the oily mixture, in case of oil tankers, is not mixed with oil cargo residues.

Because Regulation 15 of Annex I specifies that the ship must be “en route,” the regulation does not apply to drillships or drilling rigs when they are at a fixed location (wellsite). However, Regulation 39 of Annex I applies to “fixed or floating platforms including drilling rigs, floating production, storage and offloading facilities (FPSOs) used for the offshore production and storage of oil, and floating storage units (FSUs) used for the offshore storage of produced oil.” These fixed or floating platforms must comply with the same requirements applicable to ships having a gross tonnage of 400 or greater. The drilling rig or platform must be equipped “as far as practicable” with the oil filtration equipment specified in Regulations 12 and 14 of Annex I, and the discharge of oil or oily mixtures from machinery drainage spaces is prohibited unless the oil content does not exceed 15 ppm. These facilities are also required to keep a record of all operations involving oil or oily mixture discharges.

Regulation 14 of Annex I specifies that oil filtering equipment must be of a design approved by the Administration, must be provided with an alarm arrangement to indicate when the 15 ppm level cannot be maintained, and must ensure that any discharge of oily mixtures is automatically stopped

when the oil content exceeds 15 ppm. Revised Guidelines and Specifications for Pollution Prevention Equipment for Machinery Space Bilges of Ships are contained in resolution MEPC.107(49). The IMO maintains a list of approved oil filtering equipment.

Implementation in Authorizations for Oil and Gas Exploration and Exploitation

Because the MARPOL 73/78 Annex I standards for machinery space drainage are already implemented worldwide, most authorizations for oil and gas exploration and exploitation generally do not specify detailed requirements for drainage from drilling rigs and platforms.

OSPAR. Requirements for oil content of machinery space drainage are not specified in any OSPAR recommendation or decision. Individual contracting parties have implemented MARPOL 73/78 Annex I requirements. For example, in the U.K., the Prevention of Oil Pollution Regulations 1996 and Prevention of Oil Pollution (Amendment) Regulations 2000 implement the MARPOL 73/78 Annex I requirements.

U.S. Gulf of Mexico. In the U.S. Gulf of Mexico, the NPDES general permit states that deck drainage must contain "no free oil" as determined by a visual sheen test (USEPA, 2012a). There is no reference to MARPOL 73/78 or the 15 ppm standard. In the U.S., MARPOL 73/78 Annex I is primarily implemented by the Act to Prevent Pollution from Ships and the U.S. Coast Guard regulations primarily found at 33 CFR Part 151. To comply with the U.S. Coast Guard regulations, Gulf of Mexico operators are required to use oil/water separators that meet the MARPOL 73/78 requirements.

Canada. The waste guidelines for Newfoundland and Labrador state that if there is potential for deck drainage to be contaminated with oil, it should be collected and treated such that the residual oil concentration does not exceed 15 mg/L (Canada-Newfoundland and Labrador Offshore Petroleum Board, 2010). The guidelines specify that methods for sampling and analysis of oil in water should be in accordance with *Standard Methods for the Examination of Water and Wastewater*, 20th Edition (or as amended or updated), 5520 Oil and Grease, 5520 C Partition-Infrared Method, and 5520 F Hydrocarbons.

World Bank/International Finance Corporation. The IFC (2007b) offshore guidelines state that deck drainage must comply with MARPOL 73/78 requirements.

3.3.7.2 Best Practices for Oil Content of Production Water

Two main sets of best practices were identified as sources of guidance for development of common standards for the Protocol Area. These are from the OSPAR maritime area and the U.S. Gulf of Mexico, both of which have extensive oil and gas production within well-developed regulatory frameworks.

Article 10 of the Protocol refers to "production water" but does not define the term. The term "produced water" is more commonly used worldwide. Two definitions are listed below:

- OSPAR Recommendation 2001/1 defines produced water as "water which is produced in oil and/or gas production operations and includes formation water, condensation water and re-produced injection water; it also includes water used for desalting oil."
- The USEPA (2012a) defines "produced water" as "the water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process."

OSPAR Maritime Area

The oil content of produced water discharges in the OSPAR maritime region is regulated by individual OSPAR contracting parties in accordance with OSPAR Recommendation 2001/1 for the Management of Produced Water from Offshore Installations. The consolidated text of Recommendation 2001/1 includes amended wording adopted in Recommendation 2006/4 and Recommendation 2011/8.

Limits. Under Recommendation 2001/1 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.

Monitoring. Recommendation 2001/1 specifies the sampling requirements for manned installations:

- For offshore installations that discharge continuously, the determination of the quantity of dispersed oil discharged should be based on the results of at least 16 samples per month. Samples should be taken at equal time intervals.
- The sampling point should be immediately after the last item of treatment equipment in, or downstream of, a turbulent region, and in any case before any subsequent dilution.
- Methods of sampling yielding equivalent results, e.g., continuous monitoring, may be used, provided that they are calibrated to the satisfaction of the competent authority against the accepted method.

For discharges of produced water from unmanned installations, batch discharges, and small discharges, the Recommendation states that the frequency and timing of sampling should make sure that samples are representative of the effluent, taking into account operational aspects and logistics.

Analysis Method. The reference method for the determination of dispersed oil content in produced water is provided in OSPAR Agreement 2005/15. The method is a modification of ISO 9377-2 and involves the determination of the oil content using gas chromatography with flame-ionization detection. Recommendation 2001/1 states that oil content should be determined by this reference method "or an alternative method yielding equivalent results."

Other Provisions. Recommendation 2001/1 states that by 2020, Contracting Parties should achieve "a reduction of oil in produced water discharged into the sea to a level which will adequately ensure that each of those discharges will present no harm to the marine environment." It further states that the "prevention and elimination of pollution by oil and other substances caused by discharges of produced water into the sea should be achieved by a reduction of the volume of produced water discharged into the sea (e.g., by injection, downhole separation or water shutoff) and/or a reduction of concentrations of oil and other substances in produced water."

In addition, OSPAR Recommendation 2012/5 for a risk-based approach to the Management of Produced Water Discharges from Offshore Installations states that contracting parties should periodically conduct an environmental risk assessment for produced water discharges from offshore installations into the marine environment. The recommendation specifies methods for data collection including bioassays, produced water discharge information, naturally occurring substances, added chemicals, substance physical and chemical properties, and site-specific conditions where the discharges take place. It also recommends methods for hazard assessment, exposure assessment, risk characterization, risk management, and monitoring.

U.S. Gulf of Mexico (NPDES General Permit)

The western portion of the Gulf of Mexico is the most active area for offshore oil and gas production in U.S. waters. Discharges of produced water (production water) in this area are regulated by the USEPA under NPDES general permit number GMG290000 (USEPA, 2012a). The permit 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.

Two methods are approved for measuring oil and grease: Method 1664 Rev. A or Method 1664 Rev. B (USEPA, 2012b). Detailed methodology for these two methods is provided in USEPA (1999) and USEPA (2010b), respectively. The USEPA (2013) also evaluated an alternative method (ASTM D7575) but has not yet approved it for nationwide use.

Monitoring. The permit requires monitoring of oil and grease by grab sampling of the produced water, at a minimum of once per month. In addition, a produced water sample for oil and grease analysis

must be collected within 2 hours of when a visual sheen is observed in the vicinity of the discharge or within two hours after startup of the system if it is shut down following a sheen discovery. If only one sample is taken for any one month, it must meet both the daily maximum and monthly average limits. Other monitoring includes produced water flow rate (at minimum once per month), toxicity (by bioassay using a mysid shrimp (*Mysidopsis bahia*) and a fish (*Menidia beryllina*), once per calendar year for discharge rates of 0-4,599 bbl/day and once per quarter for higher discharge rates); and visual sheen on the surface of the receiving water (once per day).

Produced Water Characterization Study. The permit includes collection of data to help characterize the chemical composition of produced water to aid in future permitting decisions. Operators can either conduct an individual study (i.e., collect samples in their lease area) or participate in a joint industry study. Produced waters samples must be analyzed for the following metals: dissolved arsenic, dissolved cadmium, dissolved chromium (VI), dissolved copper, free cyanide, dissolved lead, dissolved mercury, dissolved nickel, dissolved selenium, dissolved silver, and dissolved zinc.

Canada (Offshore Waste Treatment Guidelines)

Limits. 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).

Monitoring. The offshore waste treatment guidelines require that, as a minimum, the discharge of produced water should be sampled and analyzed every 12 hours, and the 30-day and 24-hour averages calculated, but the operator may elect to sample and analyze more frequently. Where an operator collects and analyzes samples from the produced water discharge more frequently, it may use samples collected at regular intervals (i.e. every 6 hours, 4 hours etc.), or all of the samples collected during the previous 24-hour period to calculate the average discharge concentration using a methodology that gives appropriate weight to each sample . Operators are encouraged to evaluate the potential utility of in-line automated analyzers to provide oil-in-water analyses, or to provide trending information to aid in treatment system management.

Analysis Method. The methods for sampling and analysis of oil in produced water should be in accordance with *Standard Methods for the Examination of Water and Wastewater*, 20th Edition (or as amended or updated), 5520 Oil and Grease, 5520 C Partition-Infrared Method and 5520 F Hydrocarbons. All samples of produced water, the analysis of which is intended to support compliance monitoring, should be collected at a point that is upstream of the discharge location and downstream of the last treatment unit. The sampling port should be designed to facilitate collection of a representative sample.

Discussion

Article 10 specifies that the oil content of produced water cannot exceed 40 mg/L in any calendar month or 100 mg/L at any time. Either OSPAR Recommendation 2001/1 or the Gulf of Mexico NPDES permit could be adapted to develop common standards under the Protocol. The OSPAR recommendation specifies a monthly average limit, but no maximum for individual measurements; however, it specifies a sampling frequency and analysis methodology that could be adapted to reflect the limit specified in Article 10. The U.S. Gulf of Mexico NPDES permit includes both a monthly and daily limit and specifies a sampling frequency and analysis methodology. OSPAR Recommendation 2001/1 is more narrowly focused on the oil content of produced water than the NPDES permit, which includes multiple waste streams and includes other effluent limits (toxicity).

3.3.7.3 Best Practices for Use and Disposal of Drilling Fluids and Cuttings

Some background information is necessary for this topic. Most drilling in the offshore oil and gas industry is done using water-based drilling fluids (WBFs, also known as water-based muds). However, technical challenges often require the use of non-aqueous drilling fluids (NADFs), which can provide higher lubricity, stability at higher temperatures, and well-bore stability compared with WBFs (OGP, 2003). The OGP (2003) divides NADFs into three groups:

- Group I – NADFs having diesel or conventional mineral oil as a base fluid;
- Group II – NADFs having low-toxicity mineral oil as a base fluid; and
- Group III – Synthetic-based fluids (SBFs) and enhanced mineral oil-based fluids with a low to negligible aromatic content.

Most countries with offshore oil and gas exploration and production activity have developed standards that limit the discharge of drilling fluids and cuttings, especially NADF-associated cuttings. The limitations are summarized below and additional details are provided in **Table 3-2**.

- WBFs and associated cuttings typically are allowed for discharge, subject to limitations that may include chemical screening, toxicity testing, limits on mercury and/or cadmium in stock barite, or other factors. Some countries prohibit WBF discharges or limit discharge rates in certain areas.
- NADF discharges (other than small amounts adhering to cuttings) are not allowed anywhere. Cuttings generated using Group I NADFs also typically are not allowed to be discharged.
- There are several approaches to regulation of NADF cuttings discharges:
- No discharge. NADF cuttings discharges are prohibited in two U.S. offshore regions (southern California and the Alaska North Slope [Beaufort and Chukchi Seas]) and in the Baltic Sea (Helsinki Convention countries). Some countries prohibit NADF cuttings discharges in certain areas (e.g., Ghana in water depths <500 m).
- 1% limit. OSPAR countries (e.g., Norway and the U.K.) limit retention on cuttings to 1% by weight on dry cuttings. Although technologies exist to reach this limit, it appears to have effectively eliminated NADF cuttings discharges in the OSPAR region (OGP, 2012c). The International Finance Corporation (IFC, 2007b) offshore guidelines also specify a 1% limit.
- 6 to 10% limit. The retention limits in the U.S. are 6.9% for internal olefins and 9.4% for esters. Canada specifies 6.9% for any cuttings generated using SBF or enhanced mineral oil based fluids. Trinidad uses 7%. Western Australia also specifies 10%. The Barcelona Convention Offshore Protocol (Annex IV) specifies 100 grams of oil per kilogram dry cuttings (i.e., 10%).

The following sections discuss best practice guidance for the use and disposal of drilling fluids and cuttings, including two main regulatory regimes (OSPAR and U.S. Gulf of Mexico) and selected others.

Table 3-2. Summary of international requirements for retention of non-aqueous drilling fluids (NADFs) on cuttings discharges.

Regulation or Guideline	Geographic Location/States	NADF Retention on Cuttings
Barcelona Convention Offshore Protocol, Annex IV	**Mediterranean Sea** (parties are Albania, Algeria, Bosnia and Herzegovina, Croatia, Cyprus, European Union, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Monaco, Montenegro, Morocco, Slovenia, Spain, Syria, Tunisia, Turkey)	• 10% by weight on dry cuttings ("100 grams of oil per kilogram dry cuttings")
OSPAR Decision 2000/3	**Northeast Atlantic Ocean** (parties are Belgium, Denmark, Finland, France, Germany, Iceland, Ireland, Luxembourg, The Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom)	• 1% by weight on dry cuttings
USEPA NPDES general permits GMG290000 and GEG460000	**Gulf of Mexico** (United States; USEPA Region 6 offshore Louisiana and Texas; USEPA Region 4 offshore Alabama, Florida, and Mississippi)	Applies only to SBF cuttings (other NADFs not authorized for discharge) • Internal olefins: 6.9% by weight on wet cuttings (6.9 g/100 g of wet cuttings) • Esters: 9.4% by weight on wet cuttings (9.4 g/100 g of wet cuttings)
USEPA NPDES general permit AKG-31-5000	**Cook Inlet, Alaska** (United States; USEPA Region 10)	
USEPA NPDES general permit CAG280000	**Pacific Ocean – Southern California** (United States; USEPA Region 9)	• No discharge of NADF cuttings
USEPA NPDES general permits AKG-28-2100 and AKG-28-8100	**Beaufort and Chukchi Seas, Alaska** (United States; USEPA Region 10)	• No discharge of NADF cuttings
Canadian Offshore Waste Treatment Guidelines (2010)	**Northwest Atlantic Ocean offshore Newfoundland and Labrador** (Canada)	• 6.9% by weight on wet cuttings (for SBFs and enhanced mineral oil based fluids)
Government of Western Australia (2012)	**Offshore Western Australia**	• 10% by weight on dry cuttings (SBFs)
Abidjan Convention	**West Africa** (parties are Angola, Benin, Cameroon, Cape Verde, Congo, Cote d'Ivoire, Democratic Republic of Congo, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mauritania, Namibia, Nigeria, Sao Tome and Principe, Senegal, Sierra Leone, and Togo)	• Limit not specified. Individual countries may have limits (e.g., see Ghana and Nigeria below).
Helsinki Convention (HELCOM)	**Baltic Sea** (parties are Denmark, Estonia, European Community, Finland, Germany, Latvia, Lithuania, Poland, Russia and Sweden)	• No discharge of cuttings from "oil-based muds"
Kuwait Convention	**Persian Gulf** (parties are Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates)	• Limit not specified. Individual countries may have limits.
Ghana Environmental Protection Agency (2012)	**Offshore Ghana**	• <500 m depths: no discharge • >500 m depths: 3% by weight
Environmental Guidelines and Standards for the Petroleum Industry in Nigeria	**Offshore Nigeria**	• Low-toxicity mineral oil-based muds: 1% (less than 10 g/kg) • SBFs (non-ester): 5% (less than 50 g/kg) • Esters: 10% (less than 100 g/kg)
Trinidad and Tobago	**Caribbean Sea (offshore Trinidad)**	• 7% (for SBFs)
International Finance Corporation (2007) Guidelines	**Worldwide for projects funded by the World Bank Group**	• 1% by weight on dry cuttings

OSPAR Maritime Area

The use and discharge of organic-phase drilling fluids (OPFs) and associated cuttings in the OSPAR maritime area is regulated by individual OSPAR contracting parties in accordance with OSPAR Decision 2000/3. The term OPF is defined as "organic-phase drilling fluid, which is an emulsion of

water and other additives in which the continuous phase is a water-immiscible organic fluid of animal, vegetable or mineral origin." (The term NADF is more common industry usage for these fluids.)

OSPAR Decision 2000/3 prohibits the discharge of whole OPF and establishes a limit of 1% by weight for residual OPF on dry cuttings. The use of OPF in the upper part of the well is also prohibited, although exceptions may be granted by a competent national authority for geological or safety reasons. The decision prohibits the use of diesel-oil-based drilling fluids.

Although SBFs are within the definition of OPFs, Decision 2000/3 states that the discharge of SBF-contaminated cuttings shall only be authorised in exceptional circumstances. Such authorisations shall be based on the application of BAT/BEP as set out in Appendix 1 of Decision 2000/3.

More broadly, Decision 2000/3 specifies that no OPF shall be used for the purpose of drilling in the course of an offshore activity or discharged to the maritime area without prior authorization from the national competent authority. In reaching a decision on any authorization, contracting parties must apply the principles of the Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals as set out in OSPAR Decision 2000/2; Best Available Techniques (BAT) and Best Environmental Practice (BEP) as set out in Appendix 1 of the OSPAR Convention; and the waste management hierarchy set out in Appendix 1 to Decision 2000/3.

The regulation of drilling fluid and cuttings discharges is part of OSPAR's broader framework for regulating the use and discharge of offshore chemicals. The key documents are OSPAR Decision 2000/2 (Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals, as amended by OSPAR Decision 2005/1) and OSPAR Recommendation 2010/4 (Harmonised Pre-Screening Scheme for Offshore Chemicals). This system promotes the shift towards the use of less hazardous or preferably non-hazardous substances. There is a common OSPAR interpretation (Reference No. 2002-6) of which chemicals are covered and not covered by the control system. Chemical suppliers must provide the national authorities with data and information about chemicals to be used and discharged offshore according to the Harmonised Offshore Chemical Notification Format (HOCNF) (OSPAR Recommendation 2010/3). Based on the information sent by the chemical supplier the national authorities carries out the pre-screening and takes the appropriate regulatory action, such as issuing discharge permits.

The OSPAR List of Substances/Preparations Used and Discharged Offshore which are Considered to Pose Little or No Risk to the Environment (PLONOR, OSPAR Agreement 2012-06) contains substances whose use and discharge offshore are subject to expert judgment by the competent national authorities or do not need to be strongly regulated.

Under the OSPAR system, all offshore chemicals are subject to a pre-screening process. If a chemical is not on the PLONOR list, further evaluation is needed. Any offshore chemical that meets one or more of the following criteria must be substituted if a less hazardous (or preferably non-hazardous) substitute is available:

- on the OSPAR List of Chemicals for Priority Action; or
- considered by the competent authority to be of equivalent concern for the marine environment; or
- inorganic combined with high toxicity; or
- persistent; or
- meets two of the following three criteria: (i) not readily biodegradable; (ii) high bioaccumulation potential; or (iii) high toxicity.

Any offshore chemical, other than those on the PLONOR list, that is not identified by the above criteria must be ranked using the Chemical Hazard Assessment and Risk Management (CHARM) model developed by authorities and offshore industry within the OSPAR Convention area.

OSPAR Implementation – United Kingdom. Key legislation for offshore discharges in the U.K. is summarized by Oil & Gas UK (2012) and includes:

- Offshore Chemicals Regulations (2002)
- Offshore Chemicals (Amendment) Regulations (2011)
- Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations (2005)
- Offshore Petroleum Activities (Oil Pollution Prevention and Control) (Amendment) Regulations (2011)

The Offshore Chemicals Regulations are made under Section 2 of the Pollution Prevention and Control Act 1999 and establish a regime for implementing the U.K.'s obligations under OSPAR. The regulations specify that a permit is required to use and discharge offshore chemicals and detail the procedure for granting permits, the conditions of permits, the requirements for permit applications, the publicity for permit applications and fees. Discharges of OBF/OPF and SBF require authorization under the Offshore Chemicals Regulations (2002). The discharge into the sea of cuttings contaminated with synthetic fluids will only be authorized in exceptional circumstances.

Application for use (and discharge) of chemicals must be made to the Department of Energy and Climate Change using a PON15B application. If offshore cuttings treatment technology is proposed, estimates of the total quantity of NADF being discharged on cuttings and in discharge water streams needs to be included in Section C of the PON15. Contamination of cuttings is not allowed to exceed 1% by dry weight. If discharge or re-injection of cuttings contaminated with reservoir hydrocarbons is likely, a separate permit is also required.

OSPAR Implementation – Norway. A highly coordinated regulatory regime in Norway is administered by the Petroleum Safety Authority (PSA). The PSA has five applicable sets of regulations, of which the most relevant here are the Activities Regulations (last amended 20 December 2012). Further details are provided in the Guidelines Regarding the Activities Regulations (updated 20 December 2012).

Chapter XI of the Activities Regulations addresses discharges and implements the requirements of OSPAR regarding chemical selection, screening, categorization, use, and discharge. Section 68 of the Activities Regulations specifies that "cuttings from drilling and well activities, sand and other solid particles shall not be discharged to sea if the content of formation oil, other oil or base fluid in organic drilling fluid exceeds ten grams per kilo of dry mass" (i.e., 1%).

Section 63 of the Activities Regulations uses a color-code scheme to grade all chemicals based on the risk each poses to the marine environment. Green category chemicals are those included on the PLONOR list; these chemicals require no testing and may be used without limitation. All other chemicals must be tested and assessed under OSPAR pre-screening protocols. Yellow category chemicals have been tested, have passed pre-screening, and are considered environmentally acceptable but require a permit for use. The yellow category includes substances that, based on their innate properties, are not defined as red or black, and which do not appear on the PLONOR list. Red category chemicals should be avoided where possible because they have failed the pre-screening due to low biodegradability, high bioaccumulation potential, or high toxicity, and the components involved must be prioritized for replacement. Black category chemicals are either on an exclusion list (such as the OSPAR List of Chemicals for Priority Action) or have ecotoxicological properties such as low biodegradability, high bioaccumulation potential, acute toxicity, or mutagenic properties; they may not be discharged to the environment.

U.S. Gulf of Mexico (NPDES General Permits)

The USEPA regulates discharges from offshore oil and gas facilities in U.S. waters under the Clean Water Act. The discharges are permitted on a regional basis through the NPDES program. Each USEPA Regional Office issues permits to facilities within Federal waters (typically beyond 3 miles from shore) and may issue permits to facilities in territorial seas (State waters) if the adjoining State does not have an approved NPDES permit program. Most facilities in each region are covered by a general permit that specifies a common set of limitations. Facilities that cannot qualify for coverage under the general permit must obtain an individual permit. Because individual permits can include different or special conditions, only general permit conditions are discussed here.

The central and western Gulf of Mexico (USEPA Region 6) offshore Louisiana and Texas is the most active area for offshore drilling in U.S. waters and is the logical point of reference. The current general permit number GMG290000 was issued with an effective date of October 1, 2012, and will expire on September 30, 2017 (USEPA, 2012a). Discharges in the eastern Gulf of Mexico (offshore Alabama, Florida, and Mississippi) are under Region 4 jurisdiction and are authorized by a separate NPDES general permit that is nearly identical to the Region 6 permit (USEPA, 2010a). Other NPDES permits with somewhat different conditions have been issued for Southern California and three areas in Alaska as summarized previously in **Table 3-2**.

Table 3-3 summarizes the effluent limits for drilling fluids and cuttings in NPDES general permit number GMG290000. The limits are based on the USEPA (1993) effluent guidelines for the offshore

oil and gas industry, as well as the USEPA (2000) development document for SBF cuttings discharges.

- WBFs and associated cuttings can be discharged, subject to limits on free oil, cadmium and mercury in stock barite, and toxicity of the suspended particulate phase. The discharge rate of WBFs is limited to a maximum of 1,000 bbl/h and may be further limited (according to an equation provided in the permit) if the location is within 544 m of Areas of Biological Concern (e.g., offshore topographic features, similar to seamounts).
- SBF discharges are prohibited, but the permit authorizes the discharge of small amounts of SBFs adhering to cuttings, subject to several limitations as indicated in **Table 3-3**. The SBFs must meet the same limits as WBFs for free oil, cadmium and mercury in stock barite, and toxicity of the suspended particulate phase. The stock fluid must meet limits for polynuclear aromatic hydrocarbon (PAH) content, sediment toxicity, and biodegradation rate. In addition, the discharged SBF cuttings are subject to limits on sediment toxicity, base fluid retention on cuttings (6.9% for internal olefins and 9.4% for esters), and formation oil.
- Discharges of other NADFs, including inverse emulsion muds, oil-contaminated muds, and muds to which any diesel oil has been added, are prohibited. Mineral oil may be used only as a carrier fluid (transporter fluid), lubricity additive, or pill in WBFs and may be discharged with those drilling muds provided the discharge continues to meet the no free oil and toxicity limits, and the pill is removed prior to discharge.

Canada (Offshore Waste Treatment Guidelines)

Offshore Waste Treatment Guidelines were issued by the Canada-Newfoundland and Labrador Offshore Petroleum Board (2010). These appear to be based at least in part on the guidelines used in the U.S. Gulf of Mexico. They specify that WBF should be used where technically reasonable, and spent and excess WBF and associated cuttings may be discharged onsite from offshore installations without treatment. Where there is technical justification (e.g., requirements for enhanced lubricity or for gas hydrate mitigation), operators may use SBF or enhanced mineral oil based mud (EMOBM) in the drilling of wells and well sections. Other than residual base fluid retained on cuttings, no whole SBF or EMOBM base fluid, or any whole mud containing these constituents as a base fluid, may be discharged to the sea.

The guidelines specify that the use of OBF will be approved only in exceptional circumstances. Under no circumstances can oil base fluid or whole mud containing oil base fluid be discharged to the sea.

Table 3-3. Effluent limits for drilling fluid and cuttings discharges in the central and western Gulf of Mexico based on NPDES general permit number GMG290000 (USEPA, 2012a).

Regulated Parameter	Discharge Limitation/Provision
Water-based Fluids (WBF)	
Drilling fluid toxicity	30,000 ppm (daily minimum and a monthly average minimum) (96-h LC50 of suspended particulate phase with *Mysidopsis bahia*)
Cadmium in stock barite	3.0 mg/kg (dry weight)
Mercury in stock barite	1.0 mg/kg (dry weight)
Free oil	No discharge (static sheen test)
Discharge rate	1,000 bbl/h maximum (does not apply to drilling fluids discharged prior to the installation of the marine riser)
Discharges near Areas of Biological Concern	No discharge of drilling fluids within Areas of Biological Concern. Drilling fluid discharge rate within 544 m of Areas of Biological Concern limited based on distance and drilling fluid toxicity (equation provided in permit)
Synthetic-based Fluids (SBFs)	
Discharges	No discharge, except that which adheres to cuttings, small volume discharges, and *de minimus* discharges. Small volume discharges include displaced interfaces, accumulated solids in sand traps, pit clean-out solids, and centrifuge discharges made while changing mud weight. Allowable *de minimis* discharges include wind-blown muds from the pipe rack and minor drips and splatters around mud handling and solids control equipment
SBF Cuttings	
Drilling fluid toxicity	30,000 ppm (daily minimum and a monthly average minimum) (96-h LC-50 of suspended particulate phase using *Mysidopsis bahia*)
Cadmium in stock barite	3.0 mg/kg (dry weight)
Mercury in stock barite	1.0 mg/kg (dry weight)
Free oil	No discharge (static sheen test)
Formation oil	No discharge
Polynuclear aromatic hydrocarbon (PAH) content of stock fluid	10 ppm PAH (as phenanthrene) in base fluid
Sediment toxicity of stock fluid	10-day LC50 from sediment toxicity test of the base fluid with *Leptocheirus plumulosus* must not be less than the 10-day LC50 of the internal olefin or ester reference fluid
Biodegradation rate of stock fluid	Cumulative gas production of stock base fluid at 275 days must not be less than that of the internal olefin or ester reference fluid
Base fluid retention on cuttings: C16-C18 internal olefin	6.9 g/100 g of wet drill cuttings (end-of-well maximum weighted mass ratio averaged over all well sections)
Base fluid retention on cuttings: C12-C14 ester or C8 ester	9.4 g/100 g of wet drill cuttings (end-of-well maximum weighted mass ratio averaged over all well sections)
Sediment toxicity ratio of discharged drilling muds	4-day LC50 of sample removed from solids control equipment must not be less than that of the internal olefin or ester reference drilling mud
Other Non-aqueous Drilling Fluids (NADFs)	
Oil-based drilling fluids or oil-contaminated drilling fluids	No discharge of these drilling fluids or associated cuttings
Drilling fluids to which diesel oil has been added	No discharge of these drilling fluids or associated cuttings
Mineral oil	Mineral oil may be used only as a carrier fluid, lubricity additive, or pill. Discharge allowed if it meets the limitations for toxicity and free oil

The guidelines state that proven and practicable best available technologies and practices in waste management and treatment are believed to be capable of achieving a concentration of 6.9 g/100 g or less oil on wet solids. The performance target for “synthetic-on-cuttings” or “enhanced mineral oil-on-cuttings” concentration is stated as follows: the 48-hour mass weighted average of retained “synthetic-on-cuttings” or “enhanced mineral oil-on-cuttings” discharged to sea should not exceed 6.9 g/100 g oil on wet solids.

The operator is encouraged to manage drilling solids in a manner which achieves the lowest concentration of drilling fluid retained on cuttings using proven and practicable best practices. This may include technological approaches to cuttings treatment on the installation, strategies for mud management at the installation, and transfer of materials to onshore facilities for further treatment.

Western Australia

In Western Australia, the government assesses the use of drilling fluids in perspective with environmental risks associated with the whole operation (Cobby and Craddock, 1999; Government of Western Australia, Department of Mines and Petroleum, 2012). This holistic assessment approach takes into account the technical justification for the proposed use of the drilling fluid, environmental sensitivities of the proposed drilling location, the method of cuttings disposal and the drilling fluid environmental performance under standard test protocols. Criteria for assessing the environmental performance of drilling fluids include the ecotoxicity, biodegradation and bioaccumulation properties of the whole and base fluid.

Drilling using OBFs (defined as fluids having aromatic hydrocarbons >1%) is prohibited, but the use of SBFs may be accepted for a well subject to environmental controls. Where the use of SBF is accepted, discharges to the seabed are limited to a maximum amount of 10% by dry weight of base fluid on drilled cuttings for a 311-mm (12 ¼-inch) hole size (Cobby and Craddock, 1999; Government of Western Australia, Department of Mines and Petroleum, 2012).

World Bank Group

The World Bank Group has issued Environmental, Health, and Safety (EHS) Guidelines, which are technical reference documents with general and industry-specific examples of Good International Industry Practice. The EHS Guidelines for Offshore Oil and Gas Development were issued by the International Finance Corporation (IFC), a member of the World Bank Group (IFC, 2007b). The IFC guidelines applicable to drilling discharges are listed in **Table 3-4**.

For both WBFs and NADFs, the IFC guidelines specify limits on cadmium (3 mg/kg dry weight) and mercury (1 mg/kg dry weight) in stock barite. For WBFs, the guidelines specify a toxicity limit of 30,000 ppm (96-h LC50) for the suspended particulate phase. These requirements are identical to (and probably based on) those in the U.S. NPDES permits, except that the IFC guidelines do not specify whether the same toxicity limit applies to NADFs.

The IFC guidelines require shunting of muds and cuttings discharges to 15 m below the sea surface and specify maximum chloride concentrations for WBFs.

With respect to NADFs, the IFC guidelines make no distinction between SBFs or any particular type of NADF. They specify no discharge of NADF except small amounts adhering to cuttings, with the residual oil concentration on cuttings lower than 1% dry weight. This is identical to the OSPAR requirement.

Finally, it should be noted that the IFC guidelines consist of a single table and do not include the level of supporting detail (including testing and monitoring methodology) that is usually needed to serve as the basis for a discharge permit.

Table 3-4. Effluent limits for drilling fluids and cuttings in the International Finance Corporation (IFC, 2007b) Environmental, Safety, and Health Guidelines for Offshore Oil and Gas Development.

Parameter	Guideline
Non-aqueous drilling fluids (NADF) and cuttings	1) NADF – re-inject or ship-to-shore, no discharge to sea. 2) Drilled cuttings – re-inject or ship-to-shore, no discharge to sea except: • Oil concentration lower than 1% by weight on dry cuttings • Cadmium – max 3 mg/kg dry weight in stock barite • Mercury – max 1 mg/kg dry weight in stock barite • Discharge via a caisson at least 15 m below sea surface
Water-based drilling fluids (WBF) and cuttings	1) WBF – re-inject or ship-to-shore, no discharge to sea except: • In compliance with 96 hr. LC-50 of SPP-3% vol. toxicity test first for drilling fluids or alternatively testing based on standard toxicity assessment species (preferably site-specific species); 2) WBF, fluids and cuttings– re-inject or ship-to-shore, no discharge to sea except: • Cadmium – max 3 mg/kg dry weight in stock barite • Mercury – max 1 mg/kg dry weight in stock barite • Maximum chloride concentration must be less than four times ambient concentration of fresh or brackish receiving water • Discharge via a caisson at least 15 m below sea surface

Discussion

Article 10 states that, "[t]he Parties shall formulate and adopt common standards for the use and disposal of drilling fluids and drill cuttings into the Protocol Area. Such common standards shall be formulated in accordance with the provisions of Annex V, B."

Two key sources of best practice guidance were identified in this review: the Gulf of Mexico NPDES general permit GMG290000 (USEPA, 2012a) and OSPAR Decision 2000/3. Both are based on extensive research and development efforts. Other guidelines appear to be based, at least in part, on one of these sources.

U.S. Gulf of Mexico (NPDES General Permit). The Gulf of Mexico NPDES general permit GMG290000 could be adapted to develop common standards under the Protocol. It has the advantage of providing a comprehensive set of standards for drilling fluids and cuttings in a single document. The following aspects of the permit could be especially useful for developing common standards:

- Limits for SBF retention on cuttings (6.9% for internal olefins and 9.4% for esters), including a test method for permit compliance;
- Limits on cadmium and mercury in stock barite, including test methods for permit compliance;
- Requirements for toxicity testing of both the suspended particulate phase and sediment, including test methods for permit compliance;
- Limits on PAH content of drilling fluids, including a test method for permit compliance;
- Limits on formation oil in drilling fluids, including a test method for permit compliance;
- Biodegradation requirements for drilling fluids, including a test method for permit compliance;
- A prohibition on "free oil" in discharges, including a test method for permit compliance;
- A limitation on maximum discharge rate;
- A definition of "de minimis" discharges of NADFs that are allowable; and
- Monitoring and reporting requirements.

However, some aspects of the permit are irrelevant or would need to be revised significantly to make them applicable to the Barcelona Convention Offshore Protocol, such as the following:

- The permit covers a variety of effluents in addition to drilling fluids and cuttings (relevant sections could be excerpted).

- The permit prohibits the discharge of NADF cuttings other than those from SBF systems. It specifically prohibits the discharge of cuttings generated from mineral oil based fluids. This could be problematic because low-toxicity enhanced mineral oil based fluids have been developed that have low aromatic content and environmental characteristics similar to SBFs (OGP, 2003), but they have never been widely used in the U.S. offshore industry.
- The permit specifies test methods and organisms that may not be appropriate for use in the Mediterranean Sea or may require modification or substitution. The analytical methods are generally USEPA methods and biodegradation rate is measured in relation to a USEPA reference fluid. The toxicity tests use organisms that are relevant to U.S. waters such as the mysid shrimp *Mysidopsis bahia* for SPP bioassays and the amphipod *Leptocheirus plumulosus* for sediment toxicity tests.
- Some of the specific agency reporting requirements and forms obviously are not applicable.

OSPAR. OSPAR requirements could also be adapted to develop common standards under the Protocol. Two Barcelona Convention parties are also parties to the OSPAR convention (France and Spain). OSPAR Decision 2000/3 is the key source of guidance for organic phase drilling fluids (i.e., NADF). The following aspects of that document could be especially useful for developing common standards:

- Limits for NADF retention on cuttings (1%);
- The prohibition on the use of NADF in the upper part of the well;
- The prohibition on the use of diesel oil-based drilling fluids and the discharge of whole NADFs;
- A brief appendix on Best Available Techniques and Best Environmental Practice, including a waste management hierarchy.

The following aspects of the OSPAR framework could prove challenging as a basis for drilling fluid and cuttings standards for the Offshore Protocol:

- OSPAR Decision 2000/3 deals only with NADFs and associated cuttings. Unlike the Gulf of Mexico NPDES permit, it 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.
- The requirements specified by OSPAR Decision 2000/3 cannot be considered in isolation, but are part of the broader OSPAR framework, i.e., the Harmonised Mandatory Control System for the Use and Reduction of the Discharge of Offshore Chemicals as set out in OSPAR Decision 2000/2; Best Available Techniques (BAT) and Best Environmental Practice (BEP) as set out in Appendix 1 of the OSPAR Convention; and the waste management hierarchy set out in Appendix 1 to Decision 2000/3.
- 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 (OGP, 2012c).
- OSPAR Decision 2000/3 prohibits the use of SBF except in “exceptional circumstances.” This could be problematic because operators tend to view SBF and low-toxicity mineral oil based fluids as having similar operational uses and environmental properties.

3.3.8 Article 11 – Sewage

The text of Article 11 is provided in the shaded box below.

Text of Article 11 – Sewage

1. The Contracting Party shall prohibit the discharge of sewage from installations permanently manned by 10 or more persons into the Protocol Area except in cases where:
   (a) The installation is discharging sewage after treatment as approved by the competent authority at a distance of at least four nautical miles from the nearest land or fixed fisheries installation, leaving the Contracting Party to decide on a case by case basis; or
   (b) The sewage is not treated, but the discharge is carried out in accordance with international rules and standards; or
   (c) The sewage has passed through an approved sewage treatment plant certified by the competent authority.
2. The Contracting Party shall impose stricter provisions, as appropriate, where deemed necessary, inter alia because of the regime of the currents in the area or proximity to any area referred to in Article 21.
3. The exceptions referred to in paragraph 1 shall not apply if the discharge produces visible floating solids or produces colouration, discolouration or opacity of the surrounding water.
4. If the sewage is mixed with wastes and harmful or noxious substances and materials having different disposal requirements, the more stringent requirements shall apply.

According to Article 1 of the Offshore Protocol, sewage means "(i) drainage and other wastes from any form of toilets, urinals and water-closet scuppers; (ii) drainage from medical premises (dispensary, sick bay, etc.) via wash basins, wash tubs and scuppers located in such premises; or (iii) other waste waters when mixed with the drainages defined above."

3.3.8.1 Best Practices for Sewage

MARPOL 73/78 Annex IV

MARPOL 73/78 Annex IV contains requirements to control pollution of the sea by sewage. It applies to all ships greater than 400 gross tons and all ships less than 400 tons certified to carry 15 or more persons. Unlike Annex I, there are no separate requirements in Annex IV for "fixed or floating platforms."

Under Annex IV, the discharge of sewage into the sea is prohibited, except when a ship is using an IMO-approved sewage treatment plant and discharging comminuted and disinfected sewage at a distance of more than 3 nautical miles from the nearest land. Sewage that is not comminuted or disinfected can be discharged if the ship is at a distance greater than 12 nautical miles from the nearest land and en route at a speed not less than 4 knots, but the discharge must be at a "moderate" rate as defined in Resolution MEPC.157(55).

The IMO maintains a list of approved sewage treatment systems. The requirements for a sewage treatment plant to receive an IMO Certificate of Type Approval are specified in Resolution MEPC.159(55), as follows:

- The effluent shall not produce visible floating solids or cause discoloration of the surrounding water;
- The geometric mean of the thermotolerant coliform count of the samples of effluent taken during the test period should not exceed 100 thermotolerant coliforms/100 mL as determined by membrane filter, multiple tube fermentation or an equivalent analytical procedure;
- The geometric mean of the total suspended solids content of the samples of effluent taken during the test period shall not exceed 35 mg/L;
- The geometric mean of 5-day Biochemical Oxygen Demand (BOD5) of the samples of effluent taken during the test period does not exceed 25 mg/L and the Chemical Oxygen Demand (COD) does not exceed 125 mg/L; and
- The pH of the samples of effluent taken during the test period shall be between 6 and 8.5.

Implementation in Authorizations for Oil and Gas Exploration and Exploitation

Because the MARPOL 73/78 Annex IV standards for sewage are already implemented widely, including most of the Barcelona Convention parties, most authorizations for oil and gas exploration and exploitation do not specify detailed requirements for these discharges from drilling rigs and platforms.

OSPAR. Requirements for sewage discharges from offshore facilities are not specified in any OSPAR recommendation or decision. Individual contracting parties have implemented MARPOL 73/78 Annex IV requirements. For example, in the U.K., the requirements of MARPOL 73/78 Annex IV are

implemented through the "Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008" and the associated Marine Guidance Note 385 (Oil & Gas UK, 2011). All ships to which the sewage requirements apply must have at least one of the following on board:

- A sewage treatment plant that complies with the Merchant Shipping (Marine Equipment) Regulations 1999 as amended;
- A sewage comminuting and disinfecting system which meets the standards for such systems set out in Merchant Shipping Notice (MSN) 1807, and is fitted with facilities for temporary storage of sewage which meet the standards set out in that notice; or
- A holding tank for the retention of sewage which meets the construction standards set out in MSN 1807, and has sufficient capacity, and has a visual indicator of the amount of its contents.

These requirements essentially ensure compliance with MARPOL 73/78 Annex IV.

U.S. Gulf of Mexico. In the U.S. Gulf of Mexico, the NPDES general permit (USEPA, 2012a) includes requirements for discharge of "sanitary waste." The USEPA (1993) defines sanitary waste as "human body waste discharged from toilets and urinals," a definition that is similar to the definition sewage in the Offshore Protocol. Although the permit includes separate wording for "facilities continuously manned for 30 or more consecutive days by 10 or more persons" and "facilities continuously manned for 30 or more consecutive days by 9 or fewer persons, or intermittently by any number," the two sets of requirements are identical.

The USEPA permit specifies that no floating solids can be discharged (as monitored visually once per day) and the residual chlorine concentration must be at least 1 mg/L. Residual chlorine is considered by the USEPA as a surrogate for coliform bacteria. A grab sample must be taken once per month and the chlorine concentration recorded. Analytical methods are specified in the permit.

As an alternative to meeting these specific requirements, the permit states that any facility operator that properly operates and maintains a marine sanitation device (MSD) that complies with pollution control standards and regulations under Section 312 of the Clean Water Act shall be deemed to be in compliance with permit prohibitions and limitations for sanitary waste. The MSD must be tested yearly for proper operation and the test results maintained for three years at the facility or at an alternate site if not practicable.

Although there is no reference to 73/78 MARPOL in the USEPA permit, the requirement to use an approved MSD ensures MARPOL 73/78 Annex IV compliance. The USEPA and the U.S. Coast Guard jointly regulate MSDs under Section 312. The USEPA has issued regulations setting performance standards for MSDs (the standards address fecal coliform and total suspended solids), and the U.S. Coast Guard has issued regulations governing the design, construction, certification, installation, and operation of MSDs, consistent with the USEPA standards.

Canada. The offshore waste treatment guidelines for Newfoundland and Labrador state that sewage (and food wastes) must be macerated before discharge. In some circumstances, the government may require additional treatment. In cases where an installation chemically disinfects sewage prior to discharge, the operator must describe any biocide that may be discharged in sewage and the concentrations to be discharged to the sea (Canada-Newfoundland and Labrador Offshore Petroleum Board, 2010).

World Bank/International Finance Corporation. The IFC (2007b) guidelines state that "gray and black water from showers, toilets, and kitchen facilities should be treated in an appropriate on-site marine sanitary treatment unit in compliance with MARPOL 73/78 requirements." No further guidance is provided.

Discussion

Because the MARPOL 73/78 Annex IV standards for sewage are already implemented widely, including most of the Barcelona Convention parties, it is expected that authorizations for oil and gas exploration and exploitation may not need to specify separate, detailed requirements for sewage. Authorizations could require facilities to comply with MARPOL 73/78 requirements, including the use of IMO-approved sewage treatment plants.

3.3.9 Article 12 – Garbage

The text of Article 12 is provided in the shaded box below.

Text of Article 12 – Garbage

1. The Contracting Party shall prohibit the disposal into the Protocol Area of the following products and materials:
   (a) All plastics, including but not limited to synthetic ropes, synthetic fishing nets and plastic garbage bags;
   (b) All other non-biodegradable garbage, including paper products, rags, glass, metal, bottles, crockery, dunnage, lining and packing materials.
2. Disposal into the Protocol Area of food wastes shall take place as far away as possible from land, in accordance with international rules and standards.
3. If garbage is mixed with other discharges having different disposal or discharge requirements, the more stringent requirements shall apply.

According to Article 1 of the Offshore Protocol, garbage means "all kinds of food, domestic and operational waste generated during the normal operation of the installation and liable to be disposed of continuously or periodically, except those substances which are defined or listed elsewhere in this Protocol."

3.3.9.1 Best Practices for Garbage

MARPOL 73/78 Annex V

MARPOL 73/78 Annex V deals with different types of garbage and specifies the distances from land and the manner in which they may be disposed of. Garbage is defined as "all kinds of food wastes, domestic wastes and operational wastes, all plastics, cargo residues, cooking oil, fishing gear, and animal carcasses generated during the normal operation of the ship and liable to be disposed of continuously or periodically except those substances which are defined or listed in other Annexes to the present Convention." Annex V prohibits the discharge of all garbage into the sea, except as provided otherwise in Regulations 4, 5, 6 and 7 of the Annex.

Regulation 5 (Special Requirements for Discharge of Garbage from Fixed or Floating Platforms). Regulation 5 of Annex V specifies the following regulations for discharge of garbage from fixed or floating platforms (defined as "fixed or floating structures located at sea which are engaged in the exploration, exploitation or associated offshore processing of sea-bed mineral resources"):

1. Subject to the provisions of paragraph 2 of this regulation, the discharge into the sea of any garbage is prohibited from fixed or floating platforms and from all other ships when alongside or within 500 m of such platforms.

2. Food wastes may be discharged into the sea from fixed or floating platforms located more than 12 nautical miles from the nearest land and from all other ships when alongside or within 500 m of such platforms, but only when the wastes have been passed through a comminuter or grinder. Such comminuted or ground food wastes shall be capable of passing through a screen with openings no greater than 25 mm.

Discharge of all other garbage including plastics, domestic wastes, cooking oil, incinerator ashes, operational wastes, and fishing gear is prohibited.

Regulation 6 (Discharge of Garbage within Special Areas). The Mediterranean Sea is a "Special Area" under Annex V. Regulation 6 of Annex V specifies the requirements for discharge of garbage within Special Areas, as follows:

1. Discharge of the following garbage into the sea within Special Areas shall only be permitted while the ship is en route and as follows:

   .1 Discharge into the sea of food wastes as far as practicable from the nearest land, but not less than 12 nautical miles from the nearest land or the nearest ice shelf. Food wastes shall be comminuted or ground and shall be capable of passing through a screen with openings no greater than 25 mm. Food wastes shall not be contaminated by any other garbage type. Discharge of introduced avian products, including poultry and poultry parts, is not permitted in the Antarctic area unless it has been treated to be made sterile.

   .2 Discharge of cargo residues that cannot be recovered using commonly available methods for unloading, where all the following conditions are satisfied:

      .1 Cargo residues, cleaning agents or additives, contained in hold washing water do not include any substances classified as harmful to the marine environment, taking into account guidelines developed by the Organization;

.2 Both the port of departure and the next port of destination are within the Special Area and the ship will not transit outside the Special Area between those ports;

.3 No adequate reception facilities are available at those ports taking into account guidelines developed by the Organization; and

.4 Where the conditions of subparagraphs 2.1, 2.2 and 2.3 of this paragraph have been fulfilled, discharge of cargo hold washing water containing residues shall be made as far as practicable from the nearest land or the nearest ice shelf and not less than 12 nautical miles from the nearest land or the nearest ice shelf.

2. Cleaning agents or additives contained in deck and external surfaces wash water may be discharged into the sea, but only if these substances are not harmful to the marine environment, taking into account guidelines developed by the Organization.

3. *(this item applies only to the Antarctic area)*

4. When garbage is mixed with or contaminated by other substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.

Implementation in Authorizations for Oil and Gas Exploration and Exploitation

Because the 73/78 MARPOL Annex V standards for garbage are already implemented widely, including most of the Barcelona Convention parties, most authorizations for oil and gas exploration and exploitation do not specify detailed requirements for these discharges from drilling rigs and platforms.

OSPAR. Prohibitions or restrictions on the release of garbage are not specified in any OSPAR recommendation or decision. Individual contracting parties have implemented MARPOL 73/78 Annex V requirements. For example, in the U.K., the requirements of MARPOL 73/78 Annex V are implemented through the "Merchant Shipping (Prevention of Pollution by Sewage and Garbage from Ships) Regulations 2008" and Marine Guidance Note 385. The regulations define "garbage" to mean "all kinds of victual, domestic and operational wastes generated during the normal operation of a ship and liable to be disposed of continuously or periodically, but does not include fresh fish and parts thereof or sewage. It also excludes substances and emissions prohibited or controlled under other Annexes to MARPOL 73/78." The "Deposits in the Sea (Exemption) Order 1985" provides a general exemption from the "Food and Environment Protection Act 1985" for the overboard discharge of sewage and ground food waste from offshore installations (Oil & Gas UK, 2011).

U.S. Gulf of Mexico. In the U.S. Gulf of Mexico, the NPDES general permit (USEPA, 2012a) defines garbage as "all kinds of food waste, wastes generated in living areas on the facility, and operational waste, excluding fresh fish and parts thereof, generated during the normal operation of the facility and liable to be disposed of continuously or periodically, except dishwater, graywater, and those substances that are defined or listed in other Annexes to MARPOL 73/78." The permit specifies that the discharge of garbage is prohibited, with the exception of comminuted food waste (able to pass through a screen mesh no larger than 25 mm, which may be discharged when 12 nautical miles or more from land. This essentially ensures compliance with MARPOL 73/78 Annex V.

Canada. The offshore waste treatment guidelines for Newfoundland and Labrador state that food waste (a type of garbage) must be macerated to a particle size of 6 mm or less prior to discharge to sea (Canada-Newfoundland and Labrador Offshore Petroleum Board, 2010). This requirement is more stringent than MARPOL 73/78 Annex V (because of the smaller particle size).

World Bank/International Finance Corporation. The IFC (2007b) guidelines state that "(food) waste from the kitchen should, at a minimum, be macerated to acceptable levels and discharged to sea, in compliance with MARPOL 73/78 requirements." No further guidance is provided.

Discussion

Because the MARPOL 73/78 Annex V standards for garbage are already implemented widely, including most of the Barcelona Convention parties, it is expected that authorizations for oil and gas exploration and exploitation may not need to specify separate, detailed requirements for garbage. Authorizations could require facilities to comply with MARPOL 73/78 requirements including the maceration of food waste.

3.3.10 Article 13 – Reception Facilities, Instructions, and Sanctions

The text of Article 13 is provided in the shaded box below.

Text of Article 13 – Reception Facilities, Instructions and Sanctions
The Parties shall ensure that:
(a) Operators dispose satisfactorily of all wastes and harmful or noxious substances and materials in designated onshore reception facilities, except as otherwise authorized by the Protocol;
(b) Instructions are given to all personnel concerning proper means of disposal;
(c) Sanctions are imposed in respect of illegal disposals.

3.3.10.1 Best Practices for Reception Facilities, Instructions, and Sanctions

MARPOL 73/78

MARPOL 73/78 Annexes I, II, IV, V, and VI include requirements for port reception facilities, which are summarized below. Specific guidelines for ensuring the adequacy of port waste reception facilities are provided in Resolution MEPC.83(44) (IMO, 2000). Resolution MEPC.216(63) allows Small Island Developing States to meet the requirements for reception facilities through regional arrangements (IMO, 2012); however, none of the Barcelona Convention member states are in this category.

Annex I. The Mediterranean Sea is designated as a Special Area under MARPOL 73/78 Annex I. Regulation 38.B of Annex I specifies the requirements for reception facilities for oily wastes in special areas as follows:

4. The Government of each Party to the present Convention the coastline of which borders on any given special area shall ensure that all oil loading terminals and repair ports within the special area are provided with facilities adequate for the reception and treatment of all the dirty ballast and tank washing water from oil tankers. In addition all ports within the special area shall be provided with adequate* reception facilities for other residues and oily mixtures from all ships. Such facilities shall have adequate capacity to meet the needs of the ships using them without causing undue delay.

5. The Government of each Party to the present Convention having under its jurisdiction entrances to seawater courses with low depth contour which might require a reduction of draught by the discharge of ballast shall ensure the provision of the facilities referred to in paragraph 4 of this regulation but with the proviso that ships required to discharge slops or dirty ballast could be subject to some delay.

Annex II. Regulation 18 of Annex II states that each Party undertakes to ensure the provision of reception facilities for residues of noxious liquid substances resulting from compliance with the Annex.

Annex IV. Regulation 12 of Annex IV states that each Party undertakes to ensure the provision of facilities at ports and terminals for the reception of sewage, without causing undue delay to ships, and according to the needs of the ships using them.

Annex V. Regulation 7 of Annex V states that each Party undertakes to ensure the provision of facilities at ports and terminals for the reception of garbage, without causing undue delay to ships, and according to the needs of the ships using them. The Mediterranean Sea is designated as a Special Area under Annex V, and Regulation 5.4(a) states that "the Government of each Party to the Convention, the coastline of which borders a Special Area undertakes to ensure that as soon as possible in all ports within a Special Area, adequate reception facilities are provided in accordance with Regulation 7 of this Annex, taking into account the special needs of ships operating in these areas."

Annex VI. Regulation 17 of Annex VI states that each Party undertakes to ensure the provision of facilities adequate to meet the (1) needs of ships using its repair ports for the reception of ozone depleting substances and equipment containing such substances when removed from ships; (2) needs of ships using its ports, terminals or repair ports for the reception of exhaust gas cleaning residues from an exhaust gas cleaning system, without causing undue delay to ships; and (3) needs in ship-breaking facilities for the reception of ozone depleting substances and equipment containing such substances when removed from ships. If a particular port or terminal of a Party is – taking into account the guidelines to be developed by the IMO – remotely located from, or lacking in, the industrial infrastructure necessary to manage and process those substances and therefore cannot accept such substances, then the Party shall inform the IMO of any such port or terminal so that this

information may be circulated to all Parties and Member States for their information and any appropriate action. Each Party that has provided the Organization with such information shall also notify the Organization of its ports and terminals where reception facilities are available to manage and process such substances.

3.3.11 Article 14 – Exceptions

The text of Article 14 is provided in the shaded box below.

Text of Article 14 – Exceptions

1. The provisions of this Section shall not apply in case of:
   (a) Force majeure and in particular for disposals:
   - to save human life,
   - to ensure the safety of installations,
   - in case of damage to the installation or its equipment,

   on condition that all reasonable precautions have been taken after the damage is discovered or after the disposal has been performed to reduce the negative effects.
   (b) The discharge into the sea of substances containing oil or harmful or noxious substances or materials which, subject to the prior approval of the competent authority, are being used for the purpose of combating specific pollution incidents in order to minimize the damage due to the pollution.
2. However, the provisions of this Section shall apply in any case where the operator acted with the intent to cause damage or recklessly and with knowledge that damage will probably result.
3. Disposals carried out in the circumstances referred to in paragraph 1 of this Article shall be reported immediately to the Organization and, either through the Organization or directly, to any Party or Parties likely to be affected, together with full details of the circumstances and of the nature and quantities of wastes or harmful or noxious substances or materials discharged.

3.3.11.1 Best Practices for Exceptions

MARPOL 73/78

All MARPOL 73/78 Annexes include exceptions, usually with similar wording. For example:

- MARPOL 73/78 Annex I – Regulation 4 of Annex I states that the provisions of Regulations 15 and 34 of this Annex shall not apply to "(1) the discharge into the sea of oil or oily mixture necessary for the purpose of securing the safety of a ship or saving life at sea; or (2) the discharge into the sea of oil or oily mixture resulting from damage to a ship or its equipment, provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge; and except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result." It further states that Regulations 15 and 34 do no apply to "the discharge into the sea of substances containing oil, approved by the Administration, when being used for the purpose of combating specific pollution incidents in order to minimize the damage from pollution. Any such discharge shall be subject to the approval of any Government in whose jurisdiction it is contemplated the discharge will occur."
- MARPOL 73/78 Annex IV – Regulation 3 of Annex IV states that the provisions of Regulation 11 (Discharge of Sewage) do not apply to "(1) the discharge of sewage from a ship necessary for the purpose of securing the safety of a ship and those on board or saving life at sea; or (2) the discharge of sewage resulting from damage to a ship or its equipment if all reasonable precautions have been taken before and after the occurrence of the damage, for the purpose of preventing or minimizing the discharge."
- MARPOL 73/78 Annex V – Regulation 7 of Annex V states that Regulations 3, 4, 5 and 6 of the Annex (the ones specifying the conditions under which garbage can be discharged) shall not apply to (1) the discharge of garbage from a ship necessary for the purpose of securing the safety of a ship and those on board or saving life at sea; or (2) the accidental loss of garbage resulting from damage to a ship or its equipment, provided that all reasonable precautions have been taken before and after the occurrence of the damage, to prevent or minimize the accidental loss; or (3) the accidental loss of fishing gear from a ship provided that all reasonable precautions have been taken to prevent such loss; or (4) the discharge of fishing gear from a ship for the protection of the marine environment or for the safety of that ship or its crew. In addition, "the *en route* requirements of regulations 4 and 6 shall not apply to the discharge of food wastes where it is clear the retention on board of these food wastes presents an imminent health risk to the people on board."

- MARPOL 73/78 Annex VI – Regulation 3 of Annex VI states that the regulations of this Annex do not apply to "(1) any emission necessary for the purpose of securing the safety of a ship or saving life at sea; or (2) any emission resulting from damage to a ship or its equipment, provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the emission for the purpose of preventing or minimizing the emission; and except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result."

U.S. Gulf of Mexico (NPDES General Permit)

In the U.S. Gulf of Mexico, the NPDES general permit includes certain exceptions to the permitted discharge limitation under certain conditions (USEPA, 2012a). For example, the permit includes an exception for "*de minimis*" discharges of nonaqueous drilling fluids (NADFs), which are otherwise prohibited. The permit states that: "*de minimis* discharges [defined as "a small unmeasurable amount"] of NADFs not associated with cuttings shall be contained to the extent practicable to prevent discharge. Allowable *de minimis* discharges can include wind blown drilling fluids from the pipe rack, residual drilling fluids that are adhered to marine risers, diverter systems testing after drilling fluids displacement, and blow-out preventers (BOPs) after drilling fluids displacement, and minor drips and splatters around mud handling and solids control equipment. Such *de minimis* discharges are not likely to be measurable and are not considered in the base fluids retained on cuttings limit."

The NPDES general permit also excludes from permit limitations the discharge of aqueous film-forming foam (AFFF) during a fire emergency. "Any discharge of AFFF associated with regulatory certification and inspection must minimized and a substitute foaming agent (i.e., nonfluorinated) must be used if possible. If vessel maintenance and training discharges are required, AFFF must be collected and stored for onshore disposal unless the vessel uses a non-fluorinated or alternative foaming agent."

3.3.12 Safety Measures

The term "Safety" includes a large number of topics, ranging from a major accident, e.g., a ship collision, to a minor first aid incident, e.g., a small cut on a finger. Setting requirements for "Safety Measures" to meet the intent of the Barcelona Convention, i.e. the "Protection of the Mediterranean Sea Against Pollution", leads to a sub-set of above discussed range, these being safety measures implemented to prevent events that could lead to pollution, e.g., principally measures in place ensuring adequate containment of liquids, among others.

The text of Article 15 and Annex VI is provided in the shaded boxes below. Article 15 and Annex VI of the Offshore Protocol outline the requirements to be considered by the Contracting Party to ensure that adequate safety measures are implemented by the Operator.

Text of Article 15 – Safety Measures

1. The Contracting Party within whose jurisdiction activities are envisaged or are being carried out shall ensure that safety measures are taken with regard to the design, construction, placement, equipment, marking, operation and maintenance of installations.
2. The Contracting Party shall ensure that at all times the operator has on the installations adequate equipment and devices, maintained in good working order, for protecting human life, preventing and combating accidental pollution and facilitating prompt response to an emergency, in accordance with the best available environmentally effective and economically appropriate techniques and the provisions of the operator's contingency plan referred to in Article 16.
3. The competent authority shall require a certificate of safety and fitness for the purpose (hereinafter referred to as "certificate") issued by a recognized body to be submitted in respect of production platforms, mobile offshore drilling units, offshore storage facilities, offshore loading systems and pipelines and in respect of such other installations as may be specified by the Contracting Party.
4. The Parties shall ensure through inspection that the activities are conducted by the operators in accordance with this Article.

Text of Annex VI – Safety Measures

The following provisions shall be prescribed by the Parties in accordance with Article 15:
(a) That the installation must be safe and fit for the purpose for which it is to be used, in particular, that it must be designed and constructed so as to withstand, together with its maximum load, any natural condition, including, more specifically, maximum wind and wave conditions as established by historical weather patterns, earthquake possibilities, seabed conditions and stability, and water depth;
(b) That all phases of the activities, including storage and transport of recovered resources, must be properly prepared, that the whole activity must be open to control for safety reasons and must be conducted in the safest

possible way, and that the operator must apply a monitoring system for all activities;
(c) That the most advanced safety systems must be used and periodically tested in order to minimize the dangers of leakages, spillages, accidental discharges, fire, explosions, blow-outs or any other threat to human safety or the environment, that a trained specialized crew to operate and maintain these systems must be present and that this crew must undertake periodic exercises. In the case of authorized not permanently manned installations, the permanent availability of a specialized crew shall be ensured;
(d) That the installation and, where necessary, the established safety zone, must be marked in accordance with international recommendations so as to give adequate warning of its presence and sufficient details for its identification;
(e) That in accordance with international maritime practice, the installations must be indicated on charts and notified to those concerned;
(f) That, in order to secure observance of the foregoing provisions, the person and/or persons having the responsibility for the installation and/or the activities, including the person responsible for the blow-out preventer, must have the qualifications required by the competent authority, and that sufficient qualified staff must be permanently available. Such qualifications shall include, in particular, training, on a continuing basis, in safety and environmental matters.

These safety measures are summarized below, grouped into topics they will be discussed under later in this section.

- Design, Construction, Equipment and Certification;
    - Safe design and construction of installations, including a certificate of safety and fitness issued by a recognized body;
    - Safe placement, equipment and marking of installations, including establishing and notification of safety zones;
- Management Systems and Associated Safety Plans / Procedures;
    - Safe operation and maintenance of installations, including storage and transport activities;
    - Periodic testing of safety systems;
    - Adequate emergency response equipment and devices, maintained in good working order, facilitating prompt response to an emergency;
    - Operator's contingency plan;
    - Training, competency and periodic exercises of specialist crew, specifically the crew responsible for BOP operations;
- Verification and Inspection;
    - Ensuring activities are conducted in accordance with the requirements.

Per the requirements of the Offshore Protocol, the above measures are to be implemented in line with international practices and recommendations, best available environmentally effective and economically appropriate techniques, and using the most advanced safety systems. Industry recognized best practices that could be drawn on by the Competent Authority in meeting these requirements are discussed below.

3.3.12.1 Best Practices for Design, Construction, Equipment, and Certification

It is international industry best practice for offshore oil and gas Operators to identify the safety critical equipment applicable to the facility and its overall operation. Focus on the operation and maintenance of the equipment is highlighted as critical for maintaining a safe operation. Examples (not considered exhaustive) of safety critical equipment for offshore operations are listed below:

- Critical Structural Integrity and Operational Limits Systems (Hull, Topsides, Jacket, Pipelines, Risers, Helideck);
- Marine Integrity Systems (Ballast, Watertight, Bilge);
- Well Control Critical Systems (Blowout Preventer, Well Design, Cementing);
- Fire and Gas Detection Systems (Equipment: Smoke Detectors, Gas Detectors, Flame Detectors, Thermal Detectors, Fusible Plug Loops);
- Active Fire Protection Systems (Deluge System, Firewater / Foam Hose Reels & Monitor, Fire Extinguishers, Firewater Ring Main, Firewater Pumps);
- Passive Fire and Blast Protection Systems (Fire Walls and Decks, Blast Walls, Fire Rated Coatings on Safety Critical System elements);
- Ignition Prevention Systems (Hazardous Area Ratings, Equipment Grounding, Flame / Spark Arrestors, Diesel Engine Air Intake & Exhaust);

- Hydrocarbon Containment Systems (Piping, Vessels, Rotating Equipment, Drains / Sumps / Bunding, Corrosion Inhibitor / Monitoring, Erosion Management, Pigging Interlocks, Instrument Protective Systems, Risers, Ventilated Process Areas, Riser Guards);
- Emergency Shutdown Systems (Automatic Shutdown Initiators, Manual Shutdown Initiators, Subsea Isolation Valves, Topside Isolation Valves);
- Blowdown, Flare and Relief Systems (Actuated Blowdown Valves, Flare System, Overpressure Protection);
- Dropped Object Prevention / Resistance Systems (Crane / Lifting Operations, Dropped / Swinging Object Protection);
- Mooring Systems (Interfaces, Chains / Tendons, Anchors / Piles);
- Positioning Systems (Controls, Sensors, Thrusters, Propellers);
- Collision Avoidance Systems (Safety Zone Identification and Communication, Radar System, Collision Avoidance Radar, Navigation Aids, Marine Charts Marking);
- Emergency Communication Systems (Onboard Communications – PA Systems and UHF Radio, External Communication – VHF Radios, Satellite and IP Telephones, Satellite Dishes, Emergency Position Indicating Radio Beacons);
- Temporary Refuge Systems (Primary Muster Areas, Incident Command Center, Critical HVAC);
- Emergency Egress and Rescue Systems (Primary Evacuation - TEMPSC / Lifeboat, Secondary Evacuation - Life Rafts / Lifebuoys / Escape Ladders, PPE - Life Jackets/ Firefighter's Kit, Egress Routes, Emergency Lighting, Helicopter Crash Box); and
- Emergency Power Systems (Diesel Generator, Battery Backup System).

There are a large number of international standards addressing design and construction of offshore oil and gas, some examples of standards bodies include:

- Industry standards
    - American Petroleum Institute (API);
    - American Society for Mechanical Engineers (ASME);
    - The Engineering Equipment and Materials Users' Association (EEMUA);
    - National Association of Corrosion Engineers (NACE);
    - Norwegian oil and gas industry standards (NORSOK);
    - Manufacturers Standardization Society of the Valve and Fittings Industry (MSS);
- National standards
    - American National Standards Institute (ANSI);
    - British Standards Institute (BSI);
    - Netherlands Standardization Institute (NEN);
    - Normes Françaises (NF);
- International standards
    - International Electrotechnical Commission (IEC);
    - International Maritime Organization (IMO);
    - International Organization for Standardization (ISO).

Refer to Appendix A1 for a full list of standard organizations used within the industry gathered during a study conducted by the International Association of Oil and Gas Producers (OGP). Also listed, refer to Appendix A2, are the ISO/TC67 Standards applicable to oil and gas operations, which are discussed later in this section.

Rather than listing all of the standards individually within this Article, a number of papers developed by industry organizations summarizing and referencing the applicable standards and regulations are discussed below.

Catalogue of International Standards Used in the Petroleum and Natural Gas Industries OGP Report No. 362 February 2012

The purpose of this catalogue (OGP, 2012a) is to provide International Standards information to the petroleum, petrochemical and natural gas industry and to make potential users aware of the International Standards available to them.

A recognized international Standards Development Organization (SDO) is responsible for preparing International Standards. There are also Standards developed by regional or national SDOs that are

used internationally, which are typically referred to as global standards, however they are not addressed in this catalogue. The two SDOs that this Catalogue focuses on and which have produced standards relating to the petroleum and natural gas industries are the International Organisation for Standardisation (ISO) and the International Electrotechnical Commission (IEC). The ISO or IEC number references each document in the catalogue. Reference is made to OGP Report No. 4210 for the adoption of ISO/TC67 standards.

The content of this catalogue is derived from individual company Standards databases and thus the Standards are all in use or have been used by petroleum and natural gas companies. The catalogue does not take into consideration the frequency or date of usage however, so some of the references are “one-time-use”.

Standards and guidelines for drilling, well construction & well operations OGP Report No. 485 Oct 2013

This report lists documents in the drilling, well construction and well operations areas produced by OGP and other organizations, some of which are still in development. At the time of publication (October 2013) the documents listed in this report are thought to be primary (OGP, 2013c).

Global standards used locally worldwide OGP Report No. 4210 26 August 2011

The ISO/TC67 standard includes materials, equipment and offshore structures for petroleum, petrochemical and natural gas industries. This document (OGP, 2011a) outlines which countries have adopted the ISO/TC67 standards into regulations. See Appendix A2 for this list of standards.

Benchmarking on the use of internal technical specifications and external standards by some oil & gas companies OGP Report No. 450 Feb 2011

This document is the report of a benchmarking study undertaken by OGP in 2008 on company specifications and external standards (OGP, 2011b). It represents 1/3 of the 50 operating companies that have OGP memberships, with headquarters located in North and South America, Asia, Europe, and the Middle East.

The list of standards in Appendix A1 and A2 are from this benchmarking exercise.

Regulators’ use of standards OGP Report No. 426 March 2010

This report focuses on national regulators’ reference and use of regional, national, international, and industry standards in their regulatory documents, particularly Standards for equipment, materials, systems, and structures for the offshore petroleum industry (OGP, 2010).

Code for the construction and equipment of mobile offshore drilling units (MODU Code) IMO ISBN 9280112821

The International Maritime Organization (IMO) MODU Code provides an international standard for the construction of new units intended to engage in offshore drilling operations, Mobile Offshore Drilling Units (MODUs), ensuring a level of safety for such units and for personnel on board, equivalent to that required by the 1974 SOLAS Convention and the Protocol of 1988 relating to the International Convention on Load Lines, 1966, for conventional ships engaged on international voyages (IMO, 2009).

International Association of Classification Societies (IACS) Classification Societies – What, Why, and How?

This document provides an overview of the historical development, future development and guidance on classification, certification, and surveying requirements. A classification society is a non-governmental organization that creates and maintains technical standards for the maritime industry and regulatory bodies in regards to ships and offshore structures. The society carries out regular surveys and provides certifications to ensure that the standards of classification are being met (International Association of Classification Societies, 2011).

ISM Code - Safety Management Certificate

The International Convention for the Safety of Life at Sea (SOLAS; an international maritime safety treaty) adopted the International Safety Management (ISM) Code in 1994. The purpose of the ISM Code is to ensure safety at sea, prevent human injury or loss of life, and to avoid damage to the environmental and to the ship. The ISM Code requires a ship to have a Safety Management System (SMS) consisting of the following elements:

- Management commitment and regular reviews;
- Policy manual;
- Operations and emergency situations procedure manual;
- Internal/External audit procedure;
- An assigned Designated Person Ashore who communicates between vessel and shore, and verifies the SMS implementation; and
- Corrective action system.

An International Safety Management Document of Compliance and a Safety Management Certificate will be issued after surveyor verification of SMS compliance (IMO, 2002).

MLC – Marine Labour Certificate

The Maritime Labour Convention (MLC), developed under the International Labour Organization (ILO), entered into force on 20 August 2013. This convention expands on a number of ILO conventions by setting standards relative to the working and living conditions at sea (International Labour Organization, 2006) .

A Declaration of Maritime Labour Compliance and Marine Labour Certificate will be issued after surveyor verification of compliance with the requirements of the convention.

3.3.12.2 Best Practices for Management Systems and Associated Safety Plans/Procedures

Plans or procedures addressing the safe operations associated with the oil and gas activities are typically combined under an umbrella within an Operator's management system. Topics included within a management system may include:

- Accountabilities and Responsibilities;
- Personnel Training and Competency Requirements;
- Risk Management Objectives and Assessments;
- Monitoring and Measuring Requirements;
- Work Processes and Procedures;
- Facility Maintenance and Testing Requirements;
- Management of Change Processes;
- Validation and Measurement Requirements;
- Periodic Inspections of Equipment and Systems;
- Emergency Response Plans and Procedures;
- Evacuation and Rescue Plans and Procedures; and
- Exercises and Drills.

Management systems are mandated by a number of international legislative systems. A few examples of these, including references to guidelines, are as follows:

- International Standards Organization, 2004 ISO14001: 2004 Environmental Management Systems (International Standards Organization, 2004);
- British Standard, 2007 OHSAS 18001 Occupational Health and Safety Management Systems (British Standard, 2007);
- NOPSEMA GN1052, 2012 Safety Management Systems (NOPSEMA, 2012a);
- U.S. BSEE NTL No. 2011 – N09, 2011 Guidance on the Development, Implementation and Maintenance of a Safety and Environmental Management System (SEMS) Program for Outer Continental Shelf (OCS) Oil, Gas and Sulphur Operations (BSEE, 2011);
- International Association of Drilling Contractors (IADC), 2010 Offshore HSE Case Guidelines (IADC, 2011);
- European Parliament and of the Council 2009, Regulation (EC) No 1221/2009 of the European Parliament and of the Council of 25 November 2009 on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) (European Parliament and of the Council, 2009); and
- OSPAR Commission 2003, Recommendation 2003/5 to promote the use and implementation of Environmental Management Systems by the Offshore Industry (OSPAR Commission, 2003).

Many regulatory agencies require a safety case from the Operator, which provides assurance that the risks of an operation have been identified with management measures are in place to manage the risks. A safety management system is requirement within a safety case. Some examples of best practices for safety case requirements and guidance are as follows:

- *A guide to the [UK] Offshore Installations (Safety Case) Regulations 1992* (Health and Safety Executive, 2006) http://books.hse.gov.uk/hse/public/saleproduct.jsf?catalogueCode=9780717661848
- NOPSEMA, *Safety Case and Risk Assessment Guidance Notes* (NOPSEMA, 2013a)
- NORSOK 2008, *Norsok Standard S-001 Technical Safety* (Standards Norway, 2008.)

3.3.12.3 Best Practices for Verification and Inspection

Verifications and regulator inspections are a required measure to confirm that Operators are conducting their activities within the required parameters; ensuring safety measures and environmental protection measures are adequate. Inspections are covered in **Section 19 Monitoring**. Best practices for international standards and guidance documents for verifications are listed and described below.

Verifications of Safety Critical Systems

Lessons learned from the 2010 Macondo incident in the Gulf of Mexico have resulted in international regulators and industry improving their well control standards, with specific focus on: subsea and surface blowout preventers; well casing and cementing; secondary intervention; unplanned disconnects; recordkeeping; well completion; and well plugging. Best practice standards for verifications of the safety critical well control equipment and processes are captured in a report discussed earlier in this section, “Standards and guidelines for drilling, well construction and well operations OGP Report No. 485” (OGP, 2012).

Verification of other safety critical systems is also well documented within international standards and guidance documents and are discussed in a report discussed earlier in this section, “Catalogue of International Standards Used in the Petroleum and Natural Gas Industries OGP Report No. 362 (OGP 2012).” In addition to the standards, guidelines on verification requirements from three regulatory bodies are listed below:

- Effective implementation of offshore verification requirements Offshore Information Sheet No. 1/2012 (Health and Safety Executive, 2012);
- NOPSEMA N-04200 GL0525, Validation Guidelines (NOPSEMA, 2013a); and
- BSEE 2010 Drilling Safety Rule (BSEE, 2010)

Appendix A1 - Standards Applicable to Oil and Gas Operations

The list below is from OGP’s document Benchmarking on the use of internal technical specifications and external standards by some oil & gas companies, Report Number 450.

1. Aerospace Material Specifications (AMS) - http://www.standards.sae.org
2. Air Conditioning & Refrigeration Institute (ARI) - http://www.ahrinet.org
3. Air Movement & Control Association (AMCA) - http://www.amca.org
4. Alliance for Rural Electrification (ARE) - http://www.ruralelec.org
5. Alliance for Telecommunication Industry Solutions (ATIS) - www.atis.org
6. American Architectural Manufacturers Association (AAMA) - http://www.aamanet.org
7. American Association of State Highway & Transportation Officials (AASHTO) – http://transportation.org
8. American Association of Textile Chemists & Colorists (AATCC) – http://www.aatcc.org
9. American Bearing Manufacturers Association (ABMA) – http://www.americanbearings.org
10. American Concrete Institute (ACI) – http://www.concrete.org
11. American Gas Association (AGA) – http://www.aga.org
12. American Gear Manufacturers' Association (AGMA) – http://www.agma.org
13. American Institute of Steel Construction (AISC) – http://www.aisc.org
14. American Iron & Steel Institute (AISI) – http://www.steel.org
15. American Standards Association (ASA) - see ANSI.
16. American National Standards Institute (ANSI) – http://ansi.org
17. American Petroleum Institute (API) – http://api.org
18. American Society for Mechanical Engineers (ASME) – http://www.asme.org
19. American Society for Non-Destructive Testing (ASNT) – http://www.asnt.org
20. American Society of Civil Engineers (ASCE) – http://www.asce.org
21. American Society of Heating, Refrigerating & Air-Conditioning Engineers (ASHRAE) – http://www.ashrae.org
22. American Society of Sanitary Engineering (ASSE) – http://www.asse-plumbing.org
23. American Water Works Association (AWWA) – http://www.awwa.org
24. American Welding Society (AWS) – http://www.aws.org
25. American Wood Protection Association (AWPA) – http://www.awpa.com
26. Association of Edison Illuminating Companies (AEIC) – http://aiec.org
27. Association Française de Normalisation (AFNOR) – http://www.afnor.org
28. ASTM International (ASTM) – http://www.astm.org
29. British Radiocommunications Agency (MTP)
30. British Standards Institute (BSI) - http://www.bsigroup.com
31. Building Industry Consulting Service International (BICSI) - http://www.bicsi.org
32. Canadian Standards Association (CSA) - http://www.csa.ca
33. Center for Chemical Process Safety (CCPS) - http://www.aiche.org/ccps
34. Centre Scientifique et Technique du Bâtiment (CSTB) - http://www.cstb.fr
35. Chemical Industries Association (CIA) - http://www.cia.org.uk
36. Civil Aviation Authority (CAA) - http://www.caa.co.uk
37. Compressed Gas Association (CGA) - http://www.cganet.com
38. Cooling Technology Institute (CTI) - http://www.cti.org
39. Crane Manufacturers Association of America (CMAA) - http://www.mhia.org/industrygroups/cmaa
40. Defense Standardization UK (DEF)
41. Det Norske Veritas (DNV) - http://www.dnv.com
42. Deutsche Industrie für Normung e.V. (DIN) - http://www.din.de
43. Electrical Apparatus Service Association (EASE) - http://www.easa.com
44. Electricity Association (EA)
45. Electricity Supply Industry (ESI)
46. Electronic Industries Alliance (EIA) - http://www.eia.org
47. Energy Insitute, formerly the Institute of Petroleum (EI, IP) - http://www.energyinst.org
48. Energy Networks Association (ENA) - http://2010.energynetworks.org
49. The Engineering Equipment & Materials Users' Association (EEMUA) - http://www.eemua.co.uk
50. Environmental Protection Agency (EPA)
51. European Committee for Standardization (CEN) - http://www.cen.eu
52. European Computer Manufacturers Association (ECMA) - http://www.ecma-international.org
53. European Conference of Postal & Telecommunications Administrations (CEPT) - http://www.cept.org
54. European Federation of Corrosion (EFC) - http://www.efcweb.org
55. European Industrial Gases Association (EIGA) - http://eiga.org
56. Expansion Joint Manufacturers Association (EJMA) - http://ejma.org
57. Factory Mutual (FM) - http://www.fmglobal.com
58. Federal Communications Commission (FCC) - http://fcc.gov
59. Federal Standard US (FED)
60. Gas Processors Association (GPA) - http://gpaglobal.org

61. IEC Comité International Spéciale des Perturbations Radioélectriques (CISPR) http://www.iec.ch/zone/emc/emc_cis.htm
62. Illuminating Engineering Society (IES) - http://www.iesna.org
63. Institution of Electrical Engineers (IEE)
64. Institution of Engineering & Technology (IET) - http://www.theiet.org
65. Institution of Gas Engineers & Managers (IGEM) - http://www.igem.org.uk
66. Institute of Electrical & Electronics Engineers (IEEE) - http://www.ieee.org
67. Insulated Cable Engineers Association (ICEA) - http://www.icea.net
68. International Agency for Research on Cancer (IARC) - http://www.iarc.fr
69. International Association of Marine Aids to Navigation & Lighthouse Authorities (IALA) http://site.ialathree.org
70. International Association of Plumbing & Mechanical Officials (IAPMO) - http://www.iampo.org
71. International Atomic Energy Authority (IAEA) - http://www.iaea.org
72. International Building Code (IBC)
73. International Civil Aviation Organization (ICAO) - http://www.icao.int
74. International Code Council (ICC) - http://www.iccsafe.org
75. International Commission on Radiological Protection (ICRP) - http://www.icrp.org
76. International Electrotechnical Commission (IEC) - http://www.iec.ch
77. International Marine Contractors Association (IMCA) - http://www.imca-int.com
78. International Maritime Dangerous Goods Code (IMDG)
79. International Maritime Organization (IMO) - http://www.imo.org
80. International Organization for Standardization (ISO) - http://www/iso.org
81. International Safety Guide for Oil Tankers and Terminals (ISGOTT) - http://www.isgott.co.uk
82. International Society for Soil Mechanics & Geotechnical Engineering (ISSMFE) - http://www.issmge.org
83. International Telecommunication Union (ITU) - http://www.itu.int
84. Japanese Industrial Standards Committee (JISC) - http://www.jisc.go.jp/enf/index.html
85. Liquified Petroleum Gas Industry Technical Association (LPGITA)
86. Manufacturers Standardization Society (MSS) of the Valve & Fittings Industry - http://www.mss-hq.org
87. NACE International (National Association of Corrosion Engineers) - http://www.nace.org
88. National Air Duct Cleaners Association (NADCA) - http://nadca.com
89. National Board Inspection Code (NBIC) - http://www.nationalboard.org/Index.aspx?pageID=4
90. National Bureau of Standards (NBS)
91. National Electrical Code (NEC)
92. National Electrical Manufacturers Association (NEMA) - http://nema.org
93. National Fire Protection Association (NFPA) - http://www.nfpa.org
94. National Institute of Standards & Technology (NIST) - http://www.nist.gov
95. Netherlands Standardization Institute (NEN) - http://www.nni.nl
96. Normes Françaises (NF)
97. Norwegian Electrotechnical Committee (NEK) - http://www.standard.no/en/Fagomrader/Elektro
98. Norwegian oil & gas industry standards (NORSOK) - http://www.standard.no/petroleum
99. Nuclear Regulatory Commission (NRC) - http://www.nrc.gov
100. Offshore Mechanics & Arctic Engineering (OMAE)
101. Oil Companies International Marine Forum (OCIMF) - http://www.ocimf.com
102. Oil Companies Materials Association (OCMA)
103. Oil & Gas UK, formerly United Kingdom Oil Operators' Association (OGU K , UKOOA) - http://www.oilandgasuk.co.uk
104. Pipe Fabrication Institute (PFI) - http://www.pfi-institute.org
105. Prestressed Concrete Institute (PCI) - http://prestressedconcreteassociation.com
106. Process Industry Practices (PIP) - http://pip.org
107. Radiocommunications Agency (R A) - http://www.ofcom.org.uk/static/archive/ra/rahome.htm
108. Rural Utilities Service (RUS) - http://www.usda.gov/r us
109. Society of Automotive Engineers (SAE International) - http://www.sae.org
110. Saudi Arabian Standards (SAS)
111. Saudi Arabian Standards Organisation (SASO) - http://www.saso.org.sa
112. Scientific Apparatus Makers Association (SAMA)
113. Sheet Metal & Air Conditioning Contractors' National Association (SMACNA) http://www.smacna.org
114. Society for Protective Coatings (SSPC) - http://sspc.org
115. Society of International Gas Tanker & Terminal Operators (SIGTTO) - http://sigtto.re-invent.net
116. Society of Naval Architects & Marine Engineers (SNAME) - http://www.sname.org
117. Standards Australia (SA) - http://www.standards.org.au
118. Standards Norge (SN) - http://www.standard.no/en
119. Telecommunications Industry Association (TIA) -

http://www.tiaonline.org
120. The Welding Institute (TWI) - http://www.twiprofessional.com
121. Tubular Exchanger Maunfacturers Association (TEMA) - http://www.tema.org
122. Underwriters Laboratories (UL) - http://www.ul.com
123. Union Technique de l'Électricité (UTE) - http://www.ute-fr.com
124. UK Defence Standardization (DSTAN) - http://www.dstan.mod.uk
125. Universal Oil Products (UOP) - http://www.uop.com
126. US Army - http://www.army.mil
127. US Coast Guard - http://www.gocoastguard.com
128. US Environment Protection Agency - http://www.epa.gov
129. US Navy - http://www.navy.mil
130. User Association for Automation in Process Industries (NAMUR)
131. Verein Deutscher Ingenieure (Society of German Engineers - VDI) - http://www.vdi.de
132. Water Environment Federation (WEF) - http://www.wef.org

Appendix A2 – ISO/TC67 Standards Applicable to Oil & Gas Operations

The list below is from OGP's document Benchmarking on the use of internal technical specifications and external standards by some oil and gas companies, Report Number 450 (OGP, 2011b).

No.	SC	Title	Ref. *
13623	2	PNGI -- Pipeline transportation systems	4
13847	2	PNGI - Pipeline transportation systems - Welding of pipelines	3
14313	2	PNGI - Pipeline transportation systems - Pipeline valves	5
14723	2	PNGI - Pipeline transportation systems -- Subsea pipeline valves	4
15589-1	2	PNGI - Cathodic protection of pipeline transportation systems - Part 1: On-land pipelines	2
15589-2	2	PNGI - Cathodic protection of pipeline transportation systems - Part 2: Offshore pipelines	1
15590-1	2	PNGI - Induction bends, fittings and flanges for pipeline transportation systems - Part 1: Induction bends	2
15590-2	2	PNGI - Induction bends, fittings and flanges for pipeline transportation systems - Part 2: Fittings	2
15590-3	2	PNGI - Induction bends, fittings and flanges for pipeline transportation systems - Part 3: Flanges	1
16708	2	PNGI - Pipeline transportation systems - Reliability-based limit state methods	2
3183	2	PNGI - Steel pipe for pipeline transportation systems	5
10414-1	3	PNGI - Field testing of drilling fluids - Part 1: Water-based fluids	2
10414-2	3	PNGI - Field testing of drilling fluids - Part 2: Oil-based fluids	2
10416	3	PNGI - Drilling fluids - Laboratory testing	2
10426-1	3	PNGI - Cements and materials for well cementing - Part 1: Specification	3
10426-2	3	PNGI - Cements and materials for well cementing - Part 2: Testing of well cements	3
10426-3	3	PNGI - Cements and materials for well cementing - Part 3: Testing of deepwater well cement formulations	3
10426-5	3	PNGI - Cements and materials for well cementing - Part 5: Determination of shrinkage and expansion of well cement formulations at atmospheric pressure	2
10427-1	3	PNGI - Equipment for well cementing - Part 1: Casing bow-spring centralizers	3
10427-2	3	PNGI - Equipment for well cementing - Part 2: Centralizer placement and stop-collar testing	3
10427-3	3	PNGI - Equipment for well cementing - Part 3: Performance testing of cementing float equipment	3
13500	3	PNGI - Drilling fluid materials - Specifications and tests	3
13501	3	PGNI - Drilling fluids - Processing systems evaluation	1
13503-1	3	PNGI - Completion fluids and materials - Part 1: Measurement of viscous properties of completion fluids	1
13503-2	3	PNGI - Completion fluids and materials - Part 2: Measurement of properties of proppants used in hydraulic fracturing and gravel-packing operations	1
13503-3	3	PNGI - Completion fluids and materials - Part 3: Testing of heavy brines	2
13503-4	3	PNGI - Completion fluids and materials - Part 4: Procedure for measuring stimulation and gravel-pack fluid leakoff under static conditions	1
13503-5	3	PNGI - Completion fluids and materials - Part 5: Procedures for measuring the long-term conductivity of proppants	1
18165	3	PNGI - Performance testing of cementing float equipment	1
10407	4	PNGI - Drilling and production equipment - Drill stem design and operating limits	2
10423	4	PNGI - Drilling and production equipment - Wellhead and christmas tree equipment	5
10424-1	4	PNGI - Rotary drilling equipment - Part 1: Rotary drill stem elements	2
10424-2	4	PNGI - Rotary drilling equipment - Part 2: Threading and gauging of rotary shouldered thread connections	1
10432	4	PNGI - Downhole equipment - Subsurface safety valve equipment	3
13533	4	PNGI - Drilling and production equipment - Drill-through equipment	2
13534	4	PNGI - Drilling and production equipment - Inspection, maintenance, repair and remanufacture of hoisting equipment	2
13535	4	PNGI - Drilling and production equipment - Hoisting equipment	1
13625	4	PNGI - Drilling and production equipment - Marine drilling riser couplings	1
13626	4	PNGI - Drilling and production equipment - Drilling and well-servicing structures	1
13628-1	4	PNGI - Design and operation of subsea production systems - Part 1: General requirements and recommendations	4
13628-2	4	PNGI - Design and operation of subsea production systems - Part 2: Unbonded flexible pipe systems for subsea and	3
13628-3	4	PNGI - Design and operation of subsea production systems - Part 3: Through flowline (TFL) systems	3
13628-4	4	PNGI - Design and operation of subsea production systems - Part 4: Subsea wellhead and tree equipment	5
13628-5	4	PNGI - Design and operation of subsea production systems - Part 5: Subsea umbilicals	3

No.	SC	Title	Ref. *
13628- 6	4	PNGI - Design and operation of subsea production systems - Part 6: Subsea production control systems	3
13628-7	4	PNGI - Design and operation of subsea production systems - Part 7: Completion/workover riser systems	3
13628-8	4	PNGI - Design and operation of subsea production systems - Part 8: Remotely Operated Vehicle (ROV)	4
13628-9	4	PNGI - Design and operation of subsea production systems - Part 9: Remotely Operated Tool (ROT)	3
13628-10	4	PNGI - Design and operation of subsea production systems - Part 10: Bonded flexible pipe	3
14310	4	PNGI - Downhole equipment - Packers and bridge plugs	3
14693	4	PNGI - Drilling and well-servicing equipment	1
15136-1	4	Downhole equipment for PNGI - Progressing cavity pump systems for artificial lift - Part 1: Pumps	2
15136-2	4	PNGI - Progressing cavity pump systems for artificial lift - Part 2: Surface-drive systems	2
16070	4	PNGI - Downhole equipment - Lock mandrels and landing nipples	2
17078-1	4	PNGI - Drilling and production equipment - Part 1: Side-pocket mandrels	1
10400	5	PNGI - Equations and calculations for the properties of casing, tubing, drill pipe and line pipe used as casing or tubing	2
10405	5	PNGI - Care and use of casing and tubing	3
10422	5	PNGI - Threading, gauging, and thread inspection of casing, tubing and line pipe threads - Specification	1
11960	5	PNGI - Steel pipes for use as casing or tubing for wells	4
11961	5	PNGI - Steel pipes for use as drill pipe - Specification	3
13678	5	PNGI - Evaluation and testing of thread compounds for use with casing, tubing and line pipe	3
13679	5	PNGI - Procedures for testing casing and tubing connections	3
13680	5	PNGI - Corrosion-resistant alloy seamless tubes for use as casing, tubing and coupling stock - Technical delivery conditions	3
15463	5	PNGI - Field inspection of new casing, tubing and plain-end drill pipe	1
10418	6	PNGI - Offshore production installations - Analysis, design, installation and testing of basic surface process safety systems	3
10437	6	PPNGI - Steam turbines - Special-purpose applications	2
10441	6	PPNGI - Flexible couplings for mechanical power transmission - Special-purpose applications	3
13702	6	PNGI - Control and mitigation of fires and explosions on offshore production installations - Requirements and guidelines	3
13703	6	PNGI - Design and installation of piping systems on offshore production platforms	2
13704	6	PNGI - Calculation of heater-tube thickness in petroleum refineries	3
13705	6	PPNGI - Fired heaters for general refinery service	3
13706	6	PPNGI - Air-cooled heat exchangers	3
14691	6	PPNGI - Flexible couplings for mechanical power transmission - - General-purpose applications	1
14692-1	6	PNGI - Glass-reinforced plastics (GRP) piping	3
14692-2	6	PNGI - Glass-reinforced plastics (GRP) piping	3
14692-3	6	PNGI - Glass-reinforced plastics (GRP) piping	3
14692-4	6	PNGI - Glass-reinforced plastics (GRP) piping - Part 4: Fabrication, installation and operation	3
15138	6	PNGI - Offshore production installations - Heating, ventilation and air-conditioning	2
15544	6	PNGI - Offshore production installations - Requirements and guidelines for emergency response	3
15547-1	6	PPNGI - Plate-type heat exchangers - Part 1: Plate & frame type	2
15547-2	6	PPNGI - Plate-type heat exchangers - Part 2: Brazed aluminium plate-fin heat exchangers	2
15649	6	PNGI - Piping	3
16812	6	PPNGI - Shell-and-tube heat exchangers	2
17776	6	PNGI - Offshore production installations - Guidelines on tools and techniques for hazard identification and risk	3
23251	6	PPNGI - Pressure-relieving and depressuring systems	2
13819	7	PNGI - Offshore structures	1
13819-2	7	PNGI - Offshore structures - Part 2: Fixed steel structures	1
19900	7	PNGI - General requirements for offshore structures	2
19901-1	7	PNGI - Specific requirements for offshore structures - Part 1: Metocean design and operating considerations	3
19901-2	7	PNGI - Specific requirements for offshore structures - Part 2: Seismic design procedures and criteria	1
19901-4	7	PNGI - Specific requirements for offshore structures - Part 4: Geotechnical and foundation design considerations	1
19901-5	7	PNGI - Specific requirements for offshore structures - Part 5: Weight control during engineering and construction	2

No.	SC	Title	Ref. *
19901- 6	7	PNGI - Specific requirements for offshore structures - Part 6: Marine operations	2
19901-7	7	PNGI - Specific requirements for offshore structures - - Part 7: Stationkeeping systems for floating offshore structures and mobile offshore units	2
19902	7	PNGI - Fixed steel offshore structures	1
19904-1	7	PNGI - Floating offshore structures - Part 1: Monohulls, semi-submersibles and spars	2
13879		PNGI - Content and drafting of a functional specification	1
13880		PNGI - Content and drafting of a technical specification	1
13881		PNGI - Classification and conformity assessment of products, processes and services	1
14224		PPNGI - Collection and exchange of reliability and maintenance data for equipment	3
15156-1		PNGI - Materials for use in H2S-containing environments in oil and gas production - Part 1: General principles for selection of cracking-resistant materials	5
15156-2		PNGI - Materials for use in H2S-containing environments in oil and gas production - Part 2: Cracking- resistant carbon and low alloy steels, and the use of cast irons	5
15156-3		PNGI - Materials for use in H2S-containing environments in oil and gas production - Part 3: Cracking- resistant CRAs (corrosion-resistant alloys) and other alloys	5
15546		PNGI - Aluminium alloy drill pipe	2
15663-1		PNGI - Life cycle costing - Part 1: Methodology	3
15663-2		PNGI - Life cycle costing - Part 2: Guidance on application of methodology and calculation methods	2
15663-3		PNGI - Life cycle costing - Part 3: Implementation guidelines	2
TS 29001		PPNGI - Sector-specific quality management systems - Requirements for product and service supply organizations	3

3.3.13 Contingency Planning

The text of Article 16 and Annex VII is provided in the shaded boxes below.

Text of Article 16 – Contingency Planning

1. In cases of emergency the Contracting Parties shall implement *mutatis mutandis* the provisions of the Protocol concerning Cooperation in Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency.
2. Each Party shall require operators in charge of installations under its jurisdiction to have a contingency plan to combat accidental pollution, coordinated with the contingency plan of the Contracting Party established in accordance with the Protocol concerning Cooperation In Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency and approved in conformity with the procedures established by the competent authorities.
3. Each Contracting Party shall establish coordination for the development and implementation of contingency plans. Such plans shall be established in accordance with guidelines adopted by the competent international organization. They shall, in particular, be in accordance with the provisions of Annex VII to this Protocol.

Text of Annex VII – Contingency Plan

A. The operator's contingency plan
1. Operators are obliged to ensure:
(a) That the most appropriate alarm system and communication system are available at the installation and they are in good working order;
(b) That the alarm is immediately raised on the occurrence of an emergency and that any emergency is immediately communicated to the competent authority;
(c) That, in coordination with the competent authority, transmission of the alarm and appropriate assistance and coordination of assistance can be organized and supervised without delay;
(d) That immediate information about the nature and extent of the emergency is given to the crew on the installation and to the competent authority;
(e) That the competent authority is constantly informed about the progress of combating the emergency;
(f) That at all times sufficient and most appropriate materials and equipment, including stand-by boats and aircraft, are available to put into effect the emergency plan;
(g) That the most appropriate methods and techniques are known to the specialized crew referred to in Annex VI, paragraph (c), in order to combat leakages, spillages, accidental discharges, fire, explosions, blow-outs and any other threat to human life or the environment;
(h) That the most appropriate methods and techniques are known to the specialized crew responsible for reducing and preventing long-term adverse effects on the environment;
(i) That the crew is thoroughly familiar with the operator's contingency plan, that periodic emergency exercises are held so that the crew has a thorough working knowledge of the equipment and procedures and that each individual knows exactly his role within the plan.
2. The operator shall cooperate, on an institutional basis, with other operators or entities capable of rendering necessary assistance, so as to ensure that, in cases where the magnitude or nature of an emergency creates a

risk for which assistance is or might be required, such assistance can be rendered.
B. National coordination and direction
The competent authority for emergencies of a Contracting Party shall ensure:
(a) The coordination of the national contingency plan and/or procedures and the operator's contingency plan and control of the conduct of actions, especially in case of significant adverse effects of the emergency;
(b) Direction to the operator to take any action it may specify in the course of preventing, abating or combating pollution or in the preparation of further action for that purpose, including placing an order for a relief drilling rig, or to prevent the operator from taking any specified action;
(c) The coordination of actions in the course of preventing, abating or combating pollution or in preparation for further action for that purpose within the national jurisdiction with such actions undertaken within the jurisdiction of other States or by international organizations;
(d) Collection and ready availability of all necessary information concerning the existing activities;
(e) The provision of an up-to-date list of the persons and entities to be alerted and informed about an emergency, its development and the measures taken;
(f) The collection of all necessary information concerning the extent and means of combating contingencies, and the dissemination of this information to interested Parties;
(g) The coordination and supervision of the assistance referred to in Part A above, in cooperation with the operator;
(h) The organization and if necessary, the coordination of specified actions, including intervention by technical experts and trained personnel with the necessary equipment and materials.
(i) Immediate communication to the competent authorities of other Parties which might be affected by a contingency to enable them to take appropriate measures where necessary;
(j) The provision of technical assistance to other Parties, if necessary;
(k) Immediate communication to the competent international organizations with a view to avoiding danger to shipping and other interests.

REMPEC assists the Mediterranean coastal States in ratifying, transposing, implementing and enforcing international maritime conventions related to the prevention of, preparedness for and response to marine pollution from ships." (Ref: http://www.rempec.org/index.asp)

REMPEC already has in place many of the systems and tools that address the requirements of Article 16. The main difference between existing Barcelona Convention Protocols and the Offshore Protocol lies within the requirements for contingency planning for blowout events. This section will focus on best practices related to blowout contingency planning.

3.3.13.1 Best Practice – IPIECA Activities

IPIECA's Oil Spill Working Group (OSWG) was established in 1987 with the objective to help improve oil spill contingency planning and response around the world. The two main areas that IPIECA is working on currently is discussed below.

Oil Spill Report Series

The Oil Spill Response series is a compendium of reports addressing oil spill response preparedness and planning requirements (IPIECA, 2013c). It can be used as a reference in the preparation for, and response to, oil spills at sea and contains best practice guides and responder training resources for oil spill response planning and preparedness in both government and industry. This report series is constantly being updated as new information and techniques are developed. See section below on Oil Spill Response Joint Industry Project for further details.

- Contingency planning for oil spills on water – This report covers an overview of preparations required for oil spill contingency planning.
- Sensitivity mapping for oil spill response – This report contains guidance on developing sensitivity maps for the use of developing strategic response planning guidelines.
- Choosing spill response options to minimize damage – This report covers advantages and disadvantages of various responses to ensure the optimal spill response plan.
- Guidelines for oil spill waste minimization and management – This report describes the waste generation involvement of different oil spill clean-up processes and details options for oiled waste management.
- A guide to oiled wildlife response planning – This report consists of an overview of various response options for wildlife affected by oil spill.
- Dispersants and their role in the oils spill response – This report covers advantages and disadvantages of utilizing dispersants to reduce oil spill damage.

- Guide to oil spill exercise planning – This report provides specific case histories highlighting the importance of oil spill exercise planning.
- Oil spill responder safety guide – This report is an overview of health and safety issues, focusing on key issues to oil spill responders.
- Guide to tiered preparedness and response – This report cover standards of Tiered Preparedness and Response, provides direction on designing oil spill response capabilities, and offers illustrations of the principles in practice.
- A guide to oil spill compensation – This report provides an overview of the 1992 Civil Liability Convention and the 1992 Fund convention and their impact on oils spill compensation.

Global Initiative – Mediterranean Oil Industry Group)

The Mediterranean Oil Industry Group (MOIG) is a forum on oil spill prevention, preparedness and response in the Mediterranean region to ensure industry coordination in the event of an oil spill in the Mediterranean Sea. MOIG is composed of a network of oil spill response industry experts (The Mediterranean Oil Industry Group (MOIG), 2013).

3.3.13.2 Best Practices – Oil Spill Response Joint Industry Project (OSR-JIP)

After the 2010 Macondo incident in the Gulf of Mexico, the International Association of Oil and Gas Producers (OGP) formed the Global Industry Response Group (GIRG). The GIRG were tasked with identifying learning opportunities on both cause of the incident and improving response capabilities for such an incident. The former is discussed elsewhere within this report, see section on Article 15 Safety Measures for details of critical safety equipment standards. The following sections discuss the response capabilities Joint Industry Projects (JIP) undertaken by GIRG.

Response Equipment and Techniques

Dispersants – JIP 1, 2, 3, 4, 14

- Dispersant advocacy JIP1
    - "JIP 1 has been revised to include four items:
      WP 1 – A draft SWRP Subsea Dispersant Injection (SSDI) manual and communications package has been written and is currently being reviewed by JIP 1 members and SWRP.
      WP 2 – This work stream will also oversee a re-write of the OGP-IPIECA Dispersant Good Practice Guide for JIP 12. This document will include API materials and a template for pre-approvals. This document is on the JIP 12 work program for 2013.
      WP 3 – JIP 1 will work with API and their contractor "The Clearing" to produce communication materials on Net Environmental Benefit Analysis (NEBA).
      WP 4 – The JIP will join with API to co-fund the proposed API D2 scientific review panel on dispersant use. "
- Sub-sea dispersant injection (SSDI) effectiveness JIP2
    - "The original JIP 2 Scope of Work was originally written by the JIP 2 group to focus on efficacy of SSDI rather than purely environmental and toxicological issues. JIP 2 work stream members have launched a project to improve bench-scale testing for dispersant effectiveness during sub sea injection using the three most common dispersants in use today. These tests are being carried out by SINTEF in Norway and CEDRE in France."
- Dispersant logistics & supply JIP3
    - "The utilization of dispersant in offshore oil spill response has meant the industry organizing to ensure supplies of these dispersants are available for use in offshore operations. JIP 3 focuses on the logistics and supply issues which are part of the dispersant supply chain and which should be identified as part of the contingency planning process." (IPIECA, 2013d)
- Dispersant effectiveness & post-spill monitoring JIP4
    - "It is now commonplace that regulators, while allowing the use of dispersant in the initial period following a spill, eventually require documented evidence that the application of dispersant is having meaningful results and that the benefits of their use in the incident outweigh the potential disadvantages. The JIP aims to evaluate existing guidelines available for operational and post spill monitoring with the view to recommending any that they find constitute good practice, producing a communications pack to support this recommendation."

- Aerial dispersant platform JIP14
    - "JIP 14 was originally conceived to help OSRL evaluate suitable options for a replacement aerial dispersant delivery system due to the shortage of civilian Hercules aircraft. JIP 14 has helped OSRL prepare an RFP for study of feasibility of jet- based transports for use in dispersant response." (IPIECA, 2013e)
- Completed products to date under this JIP: "The best scenario is the one without an oil spill. If a spill occurs, speed matters - and the industry has its response toolbox ready and is ready to respond to all possible spill scenarios. In four out of five of these scenarios, dispersants are a response tool of choice. Dispersants work just like soaps and shampoos. They clean up spills by breaking oil slicks into very small droplets – smaller than the diameter of a human hair. Dispersants are designed to work in the marine environment and prevent oil from re-coalescing."
    - http://oilspillresponseproject.org/sites/default/files/uploads/Dispersants Glance Scan Product.pptx
    - http://oilspillresponseproject.org/sites/default/files/uploads/JIP-3-Dispersant-logistics.pdf
    - http://oilspillresponseproject.org/sites/default/files/uploads/JIP-14-Airborne-Dispersant-platform-FINAL.pdf

In addition, API released publications regarding dispersant use during a response. These are:

- API Publication 4691 – Fate of Spilled Oil In Marine Waters: Where Does It Go? What Does It Do? How Do Dispersants Affect It? – An Information Booklet for Decision Makers (API, 1999a);
- API Publication 4692 – A Decision Maker's Guide to Dispersants: A Review of the Theory and Operational Requirements (API, 1999b); and
- API Publication 4693 – Effects of Oil and Chemically Dispersed Oil in the Environment (API, 2001).

API publications on this subject are available at their website Ref: http://www.api.org/environment-health-and-safety/clean-water/oil-spill-prevention-and-response/spills-and-releases.aspx

In-situ Burning - JIP 5

"This Work stream has been re-scoped to three component work packages:

- **WP1** – ISB equipment efficiencies;
- **WP2** – Impact assessment document, including burn residue and atmospheric emissions estimation; and
- **WP3** – Writing of a new document in the OGP-IPIECA Good Practice Guide on ISB for JIP 12. Items on pre-approval templates and communication will be rolled into this package."

In addition, API released two publications regarding in-situ burning as a response method. Theses are:

- API Publication 4735 – In-Situ Burning: The Fate of Burned Oil (American Petroleum Institute (API), 2004); and
- API Publication 4740 – In-situ Burning: A Decision-Maker's Guide to In-Situ Burning (API, 2005)
- Surveillance, Modeling & Tracking JIP8,10,11,16 WP 1,2,3,4,5,6,7
- "OGP Committee-managed JIPs: ("Surveillance, Modelling & Tracking"): Co-Chairs: Colin Grant, Richard Wylde, and Roger Abel

This recommendation was originally thought of as only relevant to satellite observation and tracking, the OGP Metocean and Geomatics groups will cover seven separate Work Packages which together address the recommendations of four JIP recommendations:

- **JIP 08** – Surface surveillance & tracking;
- **JIP 10** – Subsea surveillance and tracking;
- **JIP 11** – Common Operating Picture; and
- **JIP 16** – Devices for subsea monitoring.

This work will be broken down into seven Work Packages covering the recommendations are as follows:

- **WP1** – In-Water Surveillance;
- **WP2** – Surface Surveillance;
- **WP3** – Modelling & Prediction;
- **WP4** – Metocean Databases:
- **WP5** – GIS/Mapping and Common Operating Picture;
- **WP6** – Regulatory Issues; and
- **WP7** – Write up and publishing of results & recommendations.

Tier 2/3 Response Equipment Strategy JIP9

"This JIP item examines whether the industry needs to develop more Tier 3 capability globally, or should we be encouraging development of more and better equipped Tier 2 centres through a performance assessment process."

Decanting JIP17

"This JIP is concerned with water pickup and storage following mechanical recovery and whether this can be decanted back into boomed area during a response." (IPIECA, 2013f)

Completed products to date under this JIP: "A document discussing the practicalities involved in successfully using and being able to decant temporary storage within response operations."

Oil Spill Response Crude Database JIP19

"This JIP item refers to the importance of oil characterisation and the oil spill response parameters important in assessing strategy following a spill. This JIP document will highlight the various parameters and test procedures that should be used to characterize oil in order to understand potential strategies for response." (IPIECA, 2013g)

Completed products to date under this JIP: "This document refers to the importance of oil characterisation and the oil spill response parameters important in assessing strategy following a spill."

Response Plans

Upstream Risk Assessments & Resource Planning JIP6

- This work will lead to a good practice guide for risk assessment and response preparedness for offshore operations, providing guidance on:
    - Assessing probability ("likelihood") of an event or multiple events (a scenario-based planning standard) and estimating the associated quantities of spilled oil;
    - Assessing environmental/commercial resources at risk;
    - Assessing response resource inventory/capability and the ability of the operator or other parties to cascade resources in to the spill area;
    - Inculcating the above in contingency planning; and
    - "Proving" the response through drills and exercises"
- Completed products to date: "NEBA is a process used by the response community during an incident for making the best choices to minimize impacts of oil spills on people and the environment. This educational tool clarifies what Net Environmental Benefit Analysis (NEBA) is, why it is important, how it is used to minimize impact during the oil spill response, and how we can work with other stakeholders to affect a more effective and efficient response." (IPIECA, 2013h).

Responder (Volunteer) Management JIP15

- "Based on feedback from the preparedness group, it is proposed that this JIP item should be redirected into a revised OGP-IPIECA document in JIP 12 on use of local workforces. This document is scheduled for production in 2014. The JIP is preparing a short document to highlight existing materials on Volunteer Management."(IPIECA, 2012).

Responder Health and Safety JIP18

- "A Good Practice Guide (GPG) detailing Responder Health and Safety."
- Completed products to date under this JIP are: http://oilspillresponseproject.org/sites/default/files/uploads/Responder-Health-Safety-FINAL.pdf

Responder Indemnification JIP13

- "Through JIP 13, the JIP is developing a global template for use in transferring personnel as part of Mutual Aid agreements."

Training and Exercise Planning JIP 7

"The JIP 7 group will commence when JIP 6 is completed and will revise into the re-write of the current IMO-IPIECA document on Exercise Planning. The JIP is cognisant of the API work and comments to the NRT on "improvements to training and exercises" and will use this as input."

IPIECA "Good Practice Guides for Managing Oil Spill Response" (JIP 12)

IPIECA's report series was discussed earlier in this section. JIP 12 Concerns the rewrite of the Good Practice Guides and the addition of a number of titles to the series. References include:

http://oilspillresponseproject.org/sites/default/files/uploads/JIP%2012%20Sensitivity%20Mapping.pdf
http://oilspillresponseproject.org/completed-products; http://oilspillresponseproject.org/work-program
http://oilspillresponseproject.org/sites/default/files/uploads/JIP%2012%20Sensitivity%20Mapping.pdf

3.3.13.3 Best Practices – Well Containment Response Solutions

Lessons learned from the 2010 Macondo incident were that international capability for capping and containment in order to halt and collect the flow of oil during an incident was critically required as an additional response equipment tool for the industry for responding to blowouts. Below captures best practices regarding development efforts for well containment response solutions.

Helix Well Containment Group

Helix Well Containment Group (HWCG) provides equipment, procedures and processes in the event of a deepwater spill. Each HWCG member company has committed to a mutual aid agreement, with more than 30 service providers who will provide additional services, products and personnel, if needed, in the event of a response (Helix Well Containment Group, 2013).

HWCG created a Deepwater Intervention Technical Committee (DITC), to establish processes and procedures that could be implemented in the event of a deepwater incident. In conjunction with the Bureau of Safety and Environmental Enforcement (BSEE) the DITC developed a generic Well Containment Plan, identifying response protocols for 3 different foreseeable deepwater containment scenarios.

Building upon Helix-owned equipment, the system is currently capable of facilitating control and containment of releases in water depths up to 10,000 feet and capture and processing volumes of 55,000 barrels of oil per day and 95 million cubic feet of gas per day. HWCG has two dual ram capping stacks, a 15,000 psig and a 10,000 psig capping stack. The capping stacks are designed to handle deep, higher-pressure wells and would be used in the event a blowout preventer is ineffective.

Marine Well Containment Group (MWCG)

The Marine Well Containment Company (MWCC) provides containment vessels as well as a temporary containment system that can be used in deepwater U.S. Gulf of Mexico. The temporary containment system is composed of MWCC's equipment along with mutual aid vessels that have been designed for response to an underwater well control incident. These vessels are made available by member companies, when needed. In addition, MWCC has completed a plan, in advance of drilling from a floating structure, to cap a well under a floating structure (TLP/SPAR). This plan involves moving the structure to allow installation of the capping stack or alternatively, pulling the capping stack underneath the structure for installation (Marine Well Containment Group, 2013).

OSPRAG Capping Device

The OSPRAG capping device is designed to shut-in and hold pressure on an uncontrolled subsea oil well (UK Oil Spill Prevention and Response Advisory Group, 2011). The key design features of the OSPRAG capping device are:

- 15,000 psi/250 F rated throughout
- 75,000 bbls/day fluid handling capability – CFD analysed at different well compositions up to a gas/oil ratio (GOR) of 3000, i.e. oil wells
- Modular design, low weight (44 tonnes), transportable and deployable by boats or drilling rigs
- 5 1/8" vertical bore and 5 1/8" wing bore nominal size
- Dual barrier philosophy: manual and actuated valve

- Dimensions: length 4.26m; width 3.71m; height 6.6m; footprint 15.8m^2, if frame fully plated, 9m^2 without plating;
- Water depth spec: 3,500m (10,000ft)
- H2S service material specification
- Wellhead connect H4 mandrel, 18 ¾" 15,000 WP annular piston design, lower gasket VX inlaid with alloy 625;
- Multiple chemical injection and p/t sensing points:
- Hydraulic fluid provision assumed through ROV hot stab delivery and hydrate inhibitor through separate delivery system
- Wire and drill pipe deployable
- 1 year continuous immersion on single application
- 20 year design life

Oil Spill Response Limited – Subsea Well Intervention Service (SWIS)

SWIS provides international subsea well incident intervention capabilities, including well capping and dispersant equipment. This equipment has the capability of being deployed in the event of an international subsea well control incident (Oil Spill Response Limited – Subsea Well Intervention Service (SWIS), 2013).

Wild Well Control – WellCONTAINED Systems

The Wild Well Control WellCONTAINED System is a sub sea response equipment package with design criteria for the system including a depth rating to 10,000 fsw, 15,000 psi shut-in pressure, dual mechanical barriers and the ability for ROV control of all functions. Additionally, the kit is staged near Aberdeen, Scotland and can be rapidly deployed internationally. The System comprises four basic modules Debris removal, Subsea dispersant application, Capping stack and Subsea hydraulic power unit (Wild Well Control, 2013).

3.3.13.4 Best Practices – Training and Exercises

In addition to JIP efforts on training and exercise by the GRIG, below are some best practices examples of emergency response training and exercise requirements specific to the offshore oil and gas industry.

DECC Oil Spill Response Training Guidelines for the UK Offshore Oil Industry

Through this document, the UK Department of Energy and Climate Change (DECC) sets a standard for oil spill response training required (DECC, 2009).

Department of Energy and Climate Change Letter regarding Frequency of Operator/SOSREP exercises

On the 12th December 2012 DECC issued a letter to the oil and gas industry regarding a potential increase in the frequency (every three years) of Operator/SOSREP exercises, specifically NCP exercise involving an offshore oil and gas installation (DECC, 2012).

OPITO Standards for emergency training in the offshore industry

OPITO produces training and/or competency standards covering emergency training requirements in the offshore industry, including a range of topics (OPITO 2013a, 2013b). Refer to the following links for the topics covered.

Ref: http://international.opito.com/library/standards-library#standards_emergencyresponse
Ref: http://international.opito.com/library/standards-library#OPITO_Competence

OGUK Guidelines for the Management of Competence and Training in Emergency Response for Offshore Installations

These Oil & Gas UK guidelines set out recommendations on the management of competence and training in emergency response for all persons who work on, or visit, offshore installations in the UKCS (Oil & Gas UK, 2010).

UKOAA Guidelines for offshore emergency training

This document provides recommendations for all persons who work on, or visit, offshore Installations in the United Kingdom Continental Shelf (UKCS), regarding the Management of Competence and Training in Emergency Response (U.K. Offshore Operators Association (UKOOA), 2004.).

U.S. OSHA Training Marine Oil Spill Response Workers under OSHA's Hazardous Waste Operations and Emergency Response Standard (HAZWOPER)

"The U.S. Occupational Safety & Health administration (OSHA) has developed the Hazardous Waste Operations and Emergency Response Standard (HAZWOPER) training program to protect workers at hazardous sites. This training is required for five distinct groups of employers and their employees;

- Corrective actions involving clean-up operations at sites covered by the **Resource Conservation and Recovery Act of 1976 (RCRA)** as amended (42 U.S.C. 6901 et seq.);
- Voluntary clean-up operations at sites recognized by federal, state, local, or other governmental body as uncontrolled hazardous waste sites;
- Operations involving hazardous wastes that are conducted at treatment, storage, and disposal facilities regulated by **Title 40 Code of Federal Regulations** Parts 264 and 265 pursuant to RCRA, or by agencies under agreement with U.S. Environmental Protection Agency to implement RCRA regulations; and
- Emergency response operations for releases of, or substantial threats of releases of, hazardous substances regardless of the location of the hazard" (OSHA, 2013).

U.S. Coast Guard National Preparedness for Response Exercise Program (PREP) Guidelines

This document outlines the minimum coordinated workplace exercise program required under the U.S. Oil Pollution Act of 1990 for ensuring adequate response preparedness in line with the company's Oil Spill Response Plan (U.S. Department of Transportation U.S. Coast Guard Research and Special Programs Administration et al., 2002).

Ref: http://www.piersystem.com/external/content/document/2783/1440839/1/Prep%20Guidelines.pdf

BSEE Oil Spill Response Research (OSRR) Program

The U.S. Bureau of Safety and Environmental Enforcement (BSEE) initiated project is reviewing existing American Society for Testing and Materials (ASTM) standards to determine those that may be applicable to assist in BSEE's regulatory mandate for oil spill response activities, including training and exercises. Suggestions will be made to the ASTM committee to modify standards where appropriate, and depending on need, will initiate up to six new standards (Bureau of Safety and Environmental Enforcement, 2013).

API Recommended Practices Training for Offshore Personnel

API have developed recommended practices for a variety of training topics specific for offshore personnel (API, 2013a). Topics include:

- RP T-1 Orientation Programs for Personnel Going Offshore for the First Time
- RP T-2 Qualification Programs for Offshore Production Personnel Who Work with Safety Devices
- RP T-4 Training of Offshore Personnel in Non-operating Emergencies
- RP T-6 Recommended Practice for Training and Qualification of Personnel in Well Control Equipment and Techniques for Wireline Operations on Offshore Locations
- RP T-7 Training of Personnel in Rescue of Person in Water

IADC Competence Assurance Accreditation Program

The accreditation system for drilling and service company Competence Assurance programs is designed to ensure these programs meet accepted practices (IADC, 2013). According to the IADC, "an organization that applies for IADC Accreditation will be reviewed according to the following criteria:

- Training Policy and Procedures Document
- Identification of Job Positions to be deemed competent through the program
- Process for defining competencies
- Training Resources and Methods to support the training and development process
- Assessment System – a means to assess an employee's competence
- Records System – a means of documenting satisfactory completion of training and assessments
- Quality Assurance – a formal means of self directed auditing for adherence to the published policies and procedures and reporting on a periodic basis"

3.3.13.5 Best Practices – Contingency Plans

In addition to JIP efforts on contingency plans by the GRIG, listed below are some best practices examples of contingency plan development guidelines from both industry and regulators of the offshore oil and gas industry.

- NOPSEMA N-040700-GN0940 Oil Spill Contingency Plan Preparation Guidance (NOPSEMA, 2012b)
- DECC Guidance Notes to Operators of UK Offshore Oil and Gas Installations (including pipelines) on Oil Pollution Emergency Plan Requirements (UK Department of Energy and Climate Change (DECC), 2012)
- BSEE NTL 2012-N06 Guidance to Owners and Operators of Offshore Facilities Seaward of the Coast Line Concerning Regional Oil Spill Response Plans (U.S. Bureau of Safety and Environmental Enforcement, 2012)
- API Technical Report 1145 Guidelines for Offshore Oil Spill Response Plans Guidance for Offshore Oil and Gas Exploration, Production and Pipeline Facility Operators (API, 2013)
- ISO 15544 2010 Petroleum and natural gas industries — Offshore production installations — Requirements and guidelines for emergency response (International Organization for Standardization, 2013)
- NOFO 2013 Effective and Robust Oil Spill Response Tailored to the Operator's Preparedness Plans (Norwegian Clean Seas Association (NOFO), 2013)

3.3.14 Notifications

The text of Article 17 is provided in the shaded box below.

Text of Article 17 – Notifications
Each Party shall require operators in charge of installations under its jurisdiction to report without delay to the competent authority:
(a) Any event on their installation causing or likely to cause pollution in the Protocol Area;
(b) Any observed event at sea causing or likely to cause pollution in the Protocol Area.

Article 17 (a) states that immediate notification to the Competent Authority is required by an Operator for any self or observed others' event causing pollution or an event likely to cause pollution.

Defining the type and magnitude of an event requiring a notification is a critical clarification in order to successfully implement the requirements of this Article. Making the requirements too broad will not only be cumbersome for the Operator making the notification, but also for the Competent Authority in terms of availability to take a report (operations are typically 24/7) and the resources to receive the report (documentation and responses).

"Pollution", as defined in Article 2, paragraph (a), of the Convention is defined as:

"…the introduction by man, directly or indirectly, of substances or energy into the marine environment resulting in such deleterious effects as harm to living resources, hazards to human health, hindrance to marine activities including fishing, impairment of quality for use of sea water and reduction of amenities."

See sections below for notifications requirements per MARPOL 73/78 legislation and two examples of notifications requirements to a regulatory body governing offshore oil and gas operations.

3.3.14.1 Notifications

Notifications – MARPOL 73/78

The following are the reporting requirements per MARPOL 73/78 Article 8 and Protocol I:

- A discharge above the permitted level or probable discharge of oil or of noxious liquid substances for whatever reason including those for the purpose of securing the safety of the ship or for saving life at sea;
- A discharge or probable discharge of harmful substances in packaged form, including those in freight containers, portable tanks, road and rail vehicles and shipborne barges; and
- A discharge during the operation of the ship of oil or noxious liquid substances in excess of the quantity or instantaneous rate permitted under the present Convention.

Per IMO Resolution A.851(20), the probability of a discharge of dangerous goods, harmful substances and/or marine pollutants resulting from damage to the ship or its equipment is a reason for making a report. As a guide, these are defined as:

- "Damage, failure or breakdown of a ship of 15 metres in length or above which:
    - affects the safety of the ship including but not limited to collision, grounding, fire, explosion, structural failure, flooding and cargo shifting; and
    - results in impairment of the safety of navigation including but not limited to, failure or breakdown of steering gear, propulsion plant, electrical generating system, and essential shipborne navigational aids"

Section 1, part 5 of IMO Resolution A.851(20) states that "safety or pollution-related reports should be made without delay; however, the time and place of making non-urgent reports should be sufficiently flexible to avoid interference with essential navigational duties".

Content required in reports is outlined in IMO Resolution A.851(20), Section 2 Standard Reporting Format and Procedures and Section 3 Guidelines for Detailed Reporting Requirements.

Notifications – Australia

For activities in the commonwealth waters of Australia, NOPSEMA's notifications requirements for environmental incidents are regulated per the Australian Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (OGPPS Regulation, Australian Government, 2009).

In the event of an environmental incident, Operators must notify and report to the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEMA). This is due to Regulations 26, 26A, 26AA and 26B of the Commonwealth Offshore Petroleum and Greenhouse Gas Storage (Environment) Regulations 2009 (NOPSEMA, 2012c, 2013c).

OGPPS Regulation clearly defines the difference between a "recordable incident" and a "reportable incident" in Regulation 4(1). A recordable incident is an event that breaches a performance objective or standard, determined by the Environmental Plan (EP). A reportable incident is any activity that has caused or has the potential to cause moderate to significant damage according to the EP. The EP should contain distinct definitions of a reportable incident for any particular activity and should be referred to preceding notification of a reportable incident to NOPSEMA.Australian Marine Safety Authority (AMSA) reporting requirements for reportable pollution events from vessels per the MARPOL 73/78 reporting requirements stated above. In addition to the MARPOL 73/78 required reporting requirements, the following ship sourced pollution reports are required if any of the below pollution sightings are made:

- Discharge from a ship involving washings of chemical or dry cargoes;
- Oil, which includes fuel oil, lube oil and additives, waste oil, sludge, etc.; and
- Any plastic material disposed of in the sea.

Any garbage, which includes food, paper, bottles etc., disposed of in the sea within 12 nm of land The timeframes and documentation requirements for environmental incident notifications to NOPSEMA is outlined in the Notification and Reporting of Environmental Incidents, Guidance Note.

Guidance on verbal and written notifications to NOPSEMA, including timing and contents of reports, for dangerous occurrences is outlined in the Reporting of Accidents and Dangerous Occurrences determination .AMSA requires immediate reporting for any maritime oil and chemical spills to the national 24 hour emergency notification contact system (Australian Marine Safety Authority, 2013b).

Notifications – UK

The Offshore Petroleum Activities (Oil Pollution Prevention and Control) Regulations 2005 (OPPC) and the Offshore Chemicals Regulations 2002 (OCR) require a report for any release, discharge or other incident where there has been or may be a significant effect on the environment by means of pollution. For the purposes of the OPPC Regulations and OCR Regulations, a discharge is defined as an intentional emission of oil or chemicals (including, any of the chemical's degradation or transformation products) from an offshore installation; a release is defined as any emission other than by way of discharge. In addition, a petroleum license may state additional requirements to report any event causing escape or waste of petroleum to the sea.

The Merchant Shipping (Oil Pollution Preparedness, Response and Co-operation Convention) Regulations 1998 requires a report for any event involving discharge of oil at sea or observed from

another installation or ship, and any shipping casualty, which is likely to result in the release of oil or other harmful substances into the sea. Notification must be made for all discharges, regardless of quantity, where discharge includes an escape of oil. Guidance for notifications, including reporting obligations and reporting procedures, is provided within the "Petroleum Operations Notice No.1, Guidance for Reporting Oil and Chemical Releases and Permitted Discharge Notifications from offshore installations and pipelines" (DECC, 2011b).

3.3.15 Mutual Assistance in Cases of Emergency

The text of Article 18 is provided in the shaded box below.

Text of Article 18 – Mutual Assistance In Cases Of Emergency
In cases of emergency, a Party requiring assistance in order to prevent, abate or combat pollution resulting from activities may request help from the other Parties, either directly or through the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), which shall do their utmost to provide the assistance requested.
For this purpose, a Party which is also a Party to the Protocol concerning Cooperation In Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency shall apply the pertinent provisions of the said Protocol.

Article 18 states that in the event of an emergency causing pollution or likely to cause pollution, a Party requesting assistance from other Parties, either directly or through REMPEC, must receive aid to the fullest extent that can be provided.

3.3.15.1 Best Practice for Mutual Assistance

Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC) Prevention and Emergency Protocol

REMPEC Prevention and Emergency Protocol is the regional instrument that sets the key principles of co-operation when a threat to the marine environment and coasts (i.e., an accidental release or accumulation of small, operational discharges, of oil or other harmful substances). This Protocol details contingency plans and other means of preventing and combating pollution incidents, cooperation in recovery operations, dissemination and exchange of information in the event of sea pollution, communication and reporting procedures, assistance between parties and operational and emergency measures (Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea, 2013).

Mutual aid in large-scale offshore incidents — a framework for the offshore oil and gas industry, OGP Report No. 487

In this report, OGP sought to create a framework to guide emergency response assistance within the local, regional and basin level. They determined that resources at these levels were more accessible in an emergency, where timely response is key, and Operator's share common ground in regulatory, legal and logistical areas. The report also seeks to assist industry associations and Operators in approaching a mutual aid arrangement within these levels and explains a process for developing mutual aid arrangements (OGP, Undated).

One of the most important resources that this report highlights are the Oil Spill Response Organizations (OSROs). OSROs have Tier 2 and Tier 3 response equipment, materials and other resources stored in supply hubs regionally and globally. Operators maintain retention contracts with OSROs so that during an oil spill response, the Operator has access to a pool of resources adequate for responding to the worst case discharge event. OSROs maintain their equipment for operational assurance so that it is always ready for deployment immediately when called out. They also update their response equipment capabilities as new response techniques are developed by industry.

Operators Co-operative Emergency Services (OCES)

The Operators Co-operative Emergency Services (OCES) is the organisational framework within which the oil and gas companies operating in the waters of the North Sea and adjacent waters of the North West European Continental Shelf can cooperate and share resources in the event of an emergency. OCES provides for an "Emergency Assistance Code" which is divided into five sections: General, Emergency Situations, Provisions for the giving and Receiving of Assistance in Emergency Situations, Confidentiality and Definitions. Section 3, Provisions for the giving and Receiving of Assistance in Emergency Situations, provides details on Member activity when one Member requests the aid of another during an emergency, beginning with when a Member should request aid,

communications between members during the emergency and ending with the release of aid. This organization provides an example of mutual assistance with respect to resource sharing (Norwegian Oil and Gas Association, 2013a).

Emergency Preparedness Offshore Liaison Group (EPOL)

Several Operators in the Northern North Sea Oil and Gas field established the EPOL GROUP in 1995. The goal of EPOL is intra-industry communication, including; imparting learning industry-wide, discussing best practice and identifying areas for improvement. There are now over 30 Oil and Gas companies in the Aberdeen area that participate and it is fully supported by Grampian Police, the Maritime & Coastguard Agency and Oil & Gas UK. This group provides an example of mutual assistance with respect to information sharing (Norwegian Oil and Gas Association, 2013b).

3.3.16 Article 19 – Monitoring

The text of Article 19 is provided in the shaded box below.

Text of Article 19 – Monitoring
1. The operator shall be required to measure, or to have measured by a qualified entity, expert in the matter, the effects of the activities on the environment in the light of the nature, scope, duration and technical methods employed in the activities and of the characteristics of the area and to report on them periodically or upon request by the competent authority for the purpose of an evaluation by such competent authority according to a procedure established by the competent authority in its authorization system.
2. The competent authority shall establish, where appropriate, a national monitoring system in order to be in a position to monitor regularly the installations and the impact of the activities on the environment, so as to ensure that the conditions attached to the grant of the authorization are being fulfilled.

3.3.16.1 Best Practices for Monitoring

Article 19 of the Offshore Protocol, having clear objectives and directing responsibility be vested on a competent authority, is relatively specific compared to other Conventions although specific procedures are not described. Six Conventions (Abidjan, Bucharest, Cartagena, Helsinki, Kuwait, OSPAR) similar to the Offshore Protocol were reviewed for possible guidance relevant to Article 19. Each of the Conventions have provisions addressing monitoring although they differ in the degree of treatment or detail. In most Conventions (Abidjan, Bucharest, Cartagena, Helsinki, Kuwait), the subject of monitoring is briefly discussed under convention articles on scientific and technological co-operation. A thorough description of a monitoring program and requirements is described in Annex IV to the OSPAR Convention.

Nonetheless, the monitoring provisions under Article 19 provide direction on the objectives of monitoring but do not provide details as to the process. Article 19 is very general and broad and is subject to interpretation. Clarification of the requirements for monitoring is recommended included specifying what type and frequency monitoring is required. Given that requirements for monitoring also occur within the EU Offshore Safety Directive, discussions on and development of monitoring programs should also consider those requirements to facilitate efficacy/efficiency and effectivity in implementing the Offshore Protocol and the EU Offshore Safety Directive in the future. Clarification of the requirements for independent and regulator inspections is also recommended.

The most relevant and useful source of guidance for monitoring is Annex IV to the OSPAR Convention. Article 1 provides a specific definition of monitoring that may be considered for adoption in implementing the Offshore Protocol as follows:

1. For the purposes of this Annex "monitoring" means the repeated measurement of:
   (a) the quality of the marine environment and each of its compartments, that is, water, sediments and biota;
   (b) activities or natural and anthropogenic inputs which may affect the quality of the marine environment;
   (c) the effects of such activities and inputs.
2. Monitoring may be undertaken either for the purposes of ensuring compliance with the Convention, with the objective of identifying patterns and trends or for research purposes.

Article 1 of Annex IV to the OSPAR Convention presented above describes two types of monitoring: environmental or field monitoring - 1(a) and compliance or regulatory monitoring -1(b) and 2. Both

types of monitoring are recommended in any monitoring program to address Article 19 of the Offshore Protocol.

Further guidance on monitoring, including provisions in Items 1 and 2 of Article 19, may be obtained from Article 2 of Annex IV to OSPAR, which provides that the Contracting Parties shall:

(a) cooperate in carrying out monitoring programmes and submit the resulting data to the
(b) Commission;
(c) comply with quality assurance prescriptions and participate in intercalibration exercises;
(d) use and develop, individually or preferably jointly, other duly validated scientific assessment tools, such as modelling, remote sensing and progressive risk assessment strategies;
(e) carry out, individually or preferably jointly, research which is considered necessary to assess the quality of the marine environment, and to increase knowledge and scientific understanding of the marine environment and, in particular, of the relationship between inputs, concentration and effects;
(f) take into account scientific progress which is considered to be useful for such assessment purposes and which has been made elsewhere either on the initiative of individual researchers and research institutions, or through other national and international research programmes or under the auspices of the European Economic Community or other regional economic integration organisations.

The provisions of Article 19(2) for developing a national monitoring system can draw on Article 3 of Annex IV to OSPAR that describes as a duty of the OSPAR Commission:

(a) to define and implement programmes of collaborative monitoring and assessment-related research, to draw up codes of practice for the guidance of participants in carrying out these monitoring programmes and to approve the presentation and interpretation of their results;
(b) to carry out assessments taking into account the results of relevant monitoring and research and the data relating to inputs of substances or energy into the maritime area which are provided by virtue of other Annexes to the Convention, as well as other relevant information;
(c) to seek, where appropriate, the advice or services of competent regional organisations and other competent international organisations and competent bodies with a view to incorporating the latest results of scientific research;
(d) to cooperate with competent regional organisations and other competent international organisations in carrying out quality status assessments.

Annex VI to the Helsinki Convention provides guidance for monitoring offshore activities. The potential effects of the exploration phase of the offshore activity may be determined by assessing the following sediment parameters before and after the operation:

- grain size distribution;
- dry matter;
- ignition loss;
- total hydrocarbon content; and
- barium, chromium, lead, copper, mercury, and cadmium content.

To assess potential impacts during the exploitation phase the following parameters are to be determined in addition to the parameters listed previously before, during (annually), and after completion of activities:

- the abundance and diversity of benthic fauna and
- content of selected aliphatic and aromatic hydrocarbons.

In the US Gulf of Mexico (GOM), monitoring requirements are stipulated in the National Pollutant Discharge Elimination System (NPDES) General Permit for the Western GOM (USEPA, 2012).

The monitoring requirements (parameters and methods) under the General Permit maybe considered for meeting monitoring requirements under the Offshore Protocol. For example, the General Permit includes monitoring of the effluent stream (e.g., visual sheen test) and documentation of stock limitations for barite.

In Norway the Department of Climate and Industry issued Guidelines for offshore environmental monitoring (Norway Department of Climate and Industry, 2011). These guidelines provide detailed requirements for environmental monitoring on the Norwegian continental shelf including more detailed instructions on how the requirements can best be met. The guidelines specify the required scope of

the monitoring activities, the parameters that are to be analyzed, the methods that should be used, necessary accreditation, and templates for reports.

There are two other recommended sources of guidance for environmental monitoring of offshore activities: OSPAR and OGP. Each provides detailed guidance on sampling design, sample collection, analysis, and quality assurance.

OSPAR

Contracting Parties to the 1992 OSPAR Convention have a general obligation to collaborate in regular monitoring and assessment of the state of the marine environment in the maritime area. Annex IV to the Convention provides for cooperation in monitoring programs. The Joint Assessment and Monitoring Programme (JAMP) sets out the basis on which the OSPAR Contracting Parties are to work together in fulfilling these obligations. The OSPAR Guidelines for Monitoring the Environmental Impact of Offshore Oil and Gas Activities (Reference number: 2004-11; OSPAR Commission, 2004) provides guidance on sampling strategy, quality assurance, and reporting with the attached technical annexes:

- Technical Annex 1: OSPAR Guidelines and International Standards of Relevance to Sediment and Water Column Monitoring Related to Offshore Activities;
  - JAMP Eutrophication Monitoring Guidelines: Benthos (Ref no 1997 - 06);
  - JAMP Guidelines for Monitoring Contaminants in Sediments (Ref no 2002-16);
  - JAMP Guidelines for General Biological Effects Monitoring. OSPAR; Commission, (Ref no 1997-07);
  - JAMP Guidelines for Contaminant-Specific Biological Effects Monitoring. OSPAR Commission. (Ref no 2003-10);
  - EN-ISO 5667-19: 2004: Water Quality – Sampling – Part 19: Guidance on sampling in marine sediments;
  - ISO/TC/147/SC5/WG11: Water Quality: Guidelines for quantitative investigations of soft bottom benthos in the marine environment;
  - ISO 11277:1998: Soil quality - Determination of particle size distribution in mineral soil material -- Method by sieving and sedimentation;
- Technical Annex 2: Recommended Procedures for Sediment Monitoring Related to Offshore Activities; and
- Technical Annex 3: Recommended Procedures for Water Column Monitoring Related to Offshore Activities.

Monitoring guidance also is provided in the OSPAR Coordinated Environmental Monitoring Programme (CEMP) Monitoring Manual available (OSPAR Commission, 2013b).

Through the CEMP monitoring of the marine environment by OSPAR Contracting Parties is coordinated using monitoring guidance and quality assurance procedures adopted by the OSPAR Commission. This ensures that comparable and quality assured datasets are available from across the OSPAR maritime area. The CEMP Monitoring Manual webpage provides access to the latest versions of the OSPAR monitoring guidelines that apply under the CEMP. These include the following documents:

- Guidelines for monitoring of hazardous substances;
- JAMP Guidelines for Monitoring Contaminants in Biota (agreement 1999-2);
- JAMP Guidelines for Monitoring Contaminants in Sediments (agreement 2002-16);
- Guidelines for monitoring the biological effects of hazardous substances;
- JAMP Guidelines for Contaminant-specific Biological Effects Monitoring (agreement 2008-9);
- JAMP Guidelines for General Biological Effects Monitoring (agreement 1997-7);
- JAMP Guidelines for the Integrated Monitoring and Assessment of Contaminants and their effects;
- Guidelines for monitoring of nutrients and eutrophication effects; and
- JAMP guidelines on Quality Assurance for biological monitoring in the OSPAR area (agreement 2002-15).

OGP

OGP – The International Association of Oil & Gas Producers provides detailed guidance on monitoring activities though its publication Offshore Environmental Monitoring for the oil and gas industry (OGP, 2012c). The publication includes guidance on the following:

- Evolution of data needs throughout the lifecycle of an offshore project;
- Measurement variables and sampling techniques that may be addressed in monitoring programs;
- Use of established methods for monitoring;
- Data management and quality assurance methods to improve confidence in monitoring results and ensure the long-term usability of data;
- Use of numerical modelling in the design of monitoring programmes;
- Application of results from monitoring programmes; and
- Measurement variable and sampling techniques.

Offshore environmental monitoring typically involves sampling the sediment and water column for selected physical, chemical, and biological parameters (**Figure 3-1**).

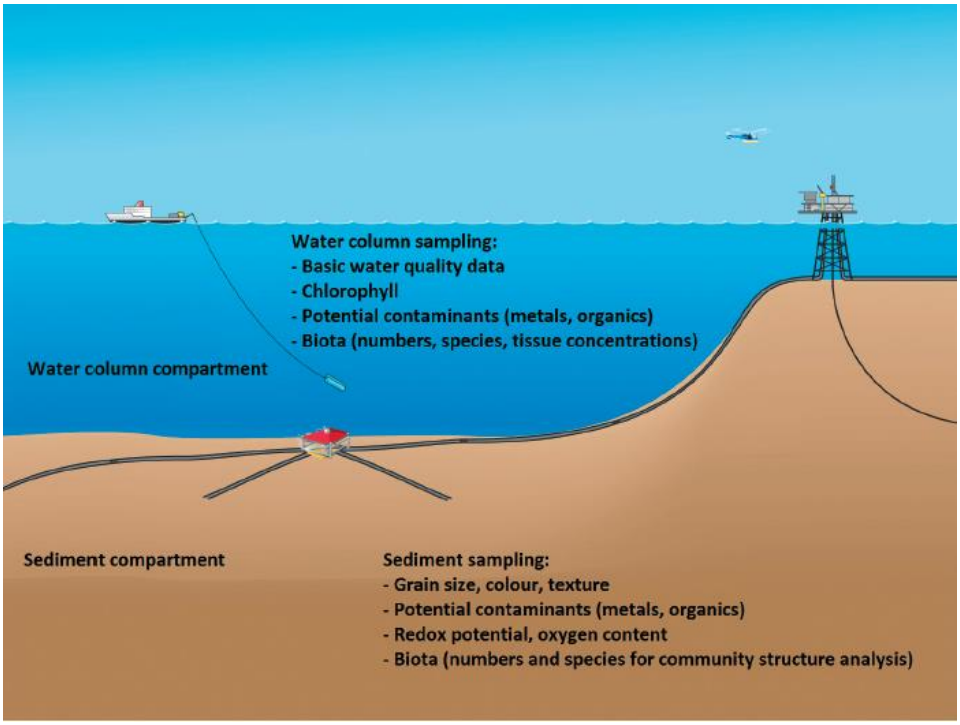

Figure 3-1. Environmental compartments typically sampled during offshore monitoring surveys (OGP, 2012).

3.3.17 Article 20 – Removal of Installations

The text of Article 20 is provided in the shaded box below.

Text of Article 20 – Removal of Installations

1. The operator shall be required by the competent authority to remove any installation which is abandoned or disused, in order to ensure safety of navigation, taking into account the guidelines and standards adopted by the competent international organization. Such removal shall also have due regard to other legitimate uses of the sea, in particular fishing, the protection of the marine environment and the rights and duties of other Contracting Parties. Prior to such removal, the operator under its responsibility shall take all necessary measures to prevent spillage or leakage from the site of the activities.
2. The competent authority shall require the operator to remove abandoned or disused pipelines in accordance with paragraph 1 of this Article or to clean them inside and abandon them or to clean them inside and bury them so that they neither cause pollution, endanger navigation, hinder fishing, threaten the marine environment, nor interfere with other legitimate uses of the sea or with the rights and duties of other Contracting Parties. The competent authority shall ensure that appropriate publicity is given to the depth, position and dimensions of any buried pipeline and that such Information is indicated on charts and notified to the Organization and other competent international organizations and the Parties.
3. The provisions of this Article apply also to installations disused or abandoned by any operator whose authorization may have been withdrawn or suspended in compliance with Article 7.
4. The competent authority may indicate eventual modifications to be made to the level of activities and to the measures for the protection of the marine environment which had initially been provided for.
5. The competent authority may regulate the cession or transfer of authorized activities to other persons.
6. Where the operator fails to comply with the provisions of this Article, the competent authority shall undertake, at the operator's expense, such action or actions as may be necessary to remedy the operator's failure to act.

3.3.17.1 Best Practices for Removal of Installations

A review of Conventions, relevant national regulations, and industry guidance documents identified sources of guidance on removal of installations (i.e., decommissioning) relevant to the Offshore Protocol. Of the Conventions reviewed only the Kuwait and OSPAR Conventions provide equal or greater guidance on removal of installations compared to the Offshore Protocol. Each has annexes or other instruments that require removal of installations. The Helsinki Convention has a requirement for removal of abandoned, disused offshore units and accidentally wrecked offshore units under the responsibility of the owner. Owners also are responsible for ensuring disused drilling wells are plugged.

Kuwait Convention

Under the Article XIII of the Continental Shelf Protocol to the Kuwait Convention, Contracting States must ensure that the Competent State Authority are empowered to require Operators of an offshore installation such as pipelines, platforms and other sea-bed apparatus and structures to remove the installation in whole or in part to ensure the safety of navigation and the interests of fishing. Whether pipelines are removed or not, any residual pollutants must be flushed out and removed from a pipeline and the pipeline buried, wholly or in part, or removed to eliminate any risks to navigation or fishing. Floating installations cannot be disposed of on the seabed when decommissioned. The Continental Shelf Protocol also contains a requirement for a seabed survey of the vicinity of an installation and removal of any debris resulting from the operations that might interfere with lawful fishing. This seabed survey also applies to pipelines or other sub-sea apparatus immediately following completion of installation. For production platform, a seabed survey is required immediately following its removal.

OSPAR

OSPAR guidance on removal of installations is provided in Decision 98/3 on the Disposal of Disused Offshore Installations. The dumping and the leaving, wholly or partly in place, of disused offshore installations within the maritime area is prohibited. Derogation (variances) from the prohibition, subject to certain conditions, is allowed if the competent authority of the relevant Contracting Party is satisfied that an assessment shows that there are significant reasons why an alternative disposal is preferable to reuse or recycling or final disposal (OSPAR Commission, 1998).

Additionally, the Annexes to OSPAR Convention contain articles that address removal/abandonment of vessels and aircraft caused by accidents. Disused offshore installations or a disused offshore pipelines may not be placed in the maritime area for a purpose other than that for which it was originally designed or constructed without authorization or regulation by the competent authority of the relevant Contracting Party. Relevant applicable criteria, guidelines and procedures adopted by the Kuwait Commission need to be met. This provision does permit the disposal of disused offshore installations or disused offshore pipelines in contravention of the provisions of the Annex.

IMO

Article 60 of UNCLOS prescribes that any installations or structures that are abandoned or disused must be removed to ensure safety of navigation and to prevent any potential effect on the marine environment. In 1989 through IMO Resolution A.672(16), the IMO issued Guidelines and Standards for the Removal of Offshore Installations and Structures (the 1989 IMO Guidelines), representing the "generally accepted international standards" mentioned in UNCLOS. All installations are to be removed except where non-removal or partial removal is consistent with the Guidelines and Standards (IMO, 1989).

UK

The UK Department of Energy and Climate Change (DECC) provides Guidance Notes Decommissioning of Offshore Oil and Gas Installations and Pipeline under the Petroleum Act 1998 with highly detailed guidance for operators. The guidance note reviews government policy and international obligations, applicable legislation, requirements under the Petroleum Act, and describes the decommissioning program (DECC, 2011a).

OGP

The International Association of Oil & Gas Producers has conducted or sponsored studies and produced a number of reports that provide guidance on decommissioning and removal of installations, including the following:

- Decommissioning of Offshore Structures - Energy Use Considerations (OGP, 1997a).
- Creating Artificial Reefs from Decommissioned Platforms in the North Sea (OGP, 1997b). OGP Report No. 5011, September 1997.
- Assessment and evaluation of the safety aspects of offshore platform decommissioning options OGP, 1997)
- Workshop: The future of decommissioning (OGP, 2000). Report No. 312. December, 2000
- Decommissioning of Offshore Concrete Gravity Based Structures (CGBS) in the OSPAR Maritime Area/Other Global Regions (OGP, 2012e). Report No. 484, November 2012.

BOEM

In the U.S., disposal of offshore installations are covered under the Bureau of Ocean Energy Management Notices to Lessees and Operators: NTL No. 2010-G05 Decommissioning Guidance for Wells and Platforms (Gulf of Mexico) (U.S. Bureau of Safety and Environmental Enforcement (USBSEE), 2010); and NTL No. 2009-P04 Decommissioning of Pacific OCS Facilities (BOEM, 2009). The NTLs provides guidance regarding decommissioning of wells, platforms, and pipelines listed by regulatory reference. For example, operators must remove a platform or other facility that is no longer useful for operations (including a toppled platform) as soon as possible but no later than 5 years after effective date of the NTL or within 5 years of the platform meeting the definition of no longer useful for operations, whichever is later. If operators propose to use explosives to perform well/casing severance, a discussion of the reason(s) for use explosives and not some other method is required. Use of explosive for removal of installations must be evaluated due to potential noise impacts on marine mammals and turtles.

In the US recognizing oil and natural gas platforms benefit marine life on and around them by providing habitat, a “rigs-to-reefs” policy allows converting some platforms into artificial reefs in designated areas to support or promote marine habitat (U.S. Bureau of Safety and Environmental Enforcement, 2010). “Rigs-to-reefs” is a term used for a policy allowing obsolete, nonproductive offshore oil and gas platforms to be converted as artificial reefs. A variance to an operator’s contractual obligations for the decommissioning of some offshore platforms under Notice to Lessees (NTL 10-5) can be requested with approval by the other regulatory agencies (BSEE, 2010).

3.3.18 Article 21 – Specially Protected Areas

The text of Article 21 is provided in the shaded box below.

Text of Article 21 – Specially Protected Areas
For the protection of the areas defined in the Protocol concerning Mediterranean Specially Protected Areas and any other area established by a Party and in furtherance of the goals stated therein, the Parties shall take special measures in conformity with international law, either individually or through multilateral or bilateral cooperation, to prevent, abate, combat and control pollution arising from activities in these areas.
In addition to the measures referred to in the Protocol concerning Mediterranean Specially Protected Areas for the granting of authorization, such measures may include, inter alia:
(a) Special restrictions or conditions when granting authorizations for such areas:
(i) The preparation and evaluation of environmental impact assessments;
(ii) The elaboration of special provisions in such areas concerning monitoring, removal of installations and prohibition of any discharge.
(b) Intensified exchange of information among operators, the competent authorities, Parties and the Organization regarding matters which may affect such areas.

3.3.18.1 Best Practices for Specially Protected Areas

Article 21 of the Offshore Protocol provides requirements for measures to prevent pollution of specially protected areas. Of the 6 conventions reviewed only the Abidjan and Cartagena Conventions included an article on Specially Protected Areas. Other conventions contained provisions concerning protecting ecosystems and biodiversity (Kuwait, OSPAR, Helsinki) and protection of the marine living resources (Bucharest) in the convention area. Compared to other conventions, OSPAR provides relatively more guidance with Annex V On the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area although these are not focused on protected areas but generally on protecting ecosystems and biodiversity.

Further guidance is available in the Protocol Concerning Special Protection Areas and Biological Diversity in the Mediterranean (Agence des Aires Marines Protégées, 2013). There is already an

organization implementing the Special Protection Areas Protocol. The Regional Activity Centre for Specially Protected Areas (RAC/SPA) was established by the Contracting Parties to the Barcelona Convention and its Protocols in order to assist Mediterranean countries in implementing the Protocol concerning Specially Protected Areas and Biological Diversity (SPA/BD) in the Mediterranean (Regional Activity Centre for Specially Protected Areas, 2013a; 2013b).

Article 21 of the Offshore Protocol may be sufficient given other existing regulations. Additional guidance is presented in Article 6 of the SPA/BD Protocol specifies protection measures as follows:

(a) the strengthening of the application of the other Protocols to the Convention and of other relevant treaties to which they are Parties;

(b) the prohibition of the dumping or discharge of wastes and other substances likely directly or indirectly to impair the integrity of the specially protected area;

(c) the regulation of the passage of ships and any stopping or anchoring;

(d) the regulation of the introduction of any species not indigenous to the specially protected area in question, or of genetically modified species, as well as the introduction or reintroduction of species which are or have been present in the specially protected area;

(e) the regulation or prohibition of any activity involving the exploration or modification of the soil or the exploitation of the subsoil of the land part, the seabed or its subsoil;

(f) the regulation of any scientific research activity;

(g) the regulation or prohibition of fishing, hunting, taking of animals and harvesting of plants or their destruction, as well as trade in animals, parts of animals, plants, parts of plants, which originate in specially protected areas;

(h) the regulation and if necessary the prohibition of any other activity or act likely to harm or disturb the species or that might endanger the state of conservation of the ecosystems or species or might impair the natural or cultural characteristics of the specially protected area; and

(i) any other measure aimed at safeguarding ecological and biological processes and the landscape.

In the US GOM, offshore operations are regulated to avoid or minimize effects to the equivalent of Specially Protected Areas and sensitive seabed resources. Operators are required to avoid impacts to sensitive seabed resources, e.g., deepwater benthic communities such as deepwater corals and chemosynthetic communities, and protected areas such as the Flower Garden Banks National Marine Sanctuary. Protection of sensitive resources on the seabed is through Notices to Lessees and Operators (NTL, e.g., NTL No. 2009-G40 Deepwater Benthic Communities (BOEM, 2009b), NTL No. 2011-JOINT-G01 Revisions to the List of OCS Blocks Requiring Archaeological Resource Surveys and Reports (BOEM. 2011) and NTL No. 2009-G39 Biologically-Sensitive Underwater Features and Areas, and Archaeological Resource Surveys and Reports (BOEM, 2009c). NTLs are available at http://www.boem.gov/Notices-to-Lessees-and-Operators/.

3.3.19 Article 22 – Studies and Research Programmes

The text of Article 21 is provided in the shaded box below.

Text of Article 22 – Studies and Research Programmes
In conformity with Article 11 of the Convention, the Parties shall, where appropriate, cooperate in promoting studies and undertaking programmes of scientific and technological research for the purpose of developing new methods of:
(a) Carrying out activities in a way that minimizes the risk of pollution;
(b) Preventing, abating, combating and controlling pollution, especially in cases of emergency.

3.3.19.1 Article 22 – Best Practices for Studies and Research Programmes

Activities involved in implementing Article 22 could include establishment of a research and development programme or network; identification of ongoing and planned research projects by member states or other organizations on behalf of member states; and development of potential funding mechanisms.

The review of legal instruments in **Section 3.2** identified several international organizations (and national governments) that conduct programs of scientific and technological research in support of

offshore oil and gas activities. A few potential sources of guidance and research cooperation are discussed below.

Joint Research Centre (European Union). The Joint Research Centre (JRC) is the scientific and technical arm of the EU (Joint Research Centre, 2013a). It provides scientific advice and technical know-how to support a wide range of EU policies. Its status as a Commission service, which guarantees independence from private or national interests, is crucial for pursuing its mission. As the Commission's in-house science service, the JRC's mission is to provide EU policies with independent, evidence-based scientific and technical support throughout the whole policy cycle. The JRC addresses key societal challenges while stimulating innovation through developing new methods, tools and standards, and sharing its know-how with the Member States, the scientific community and international partners. The JRC has seven scientific institutes, located at five different sites in Belgium, Germany, Italy, the Netherlands and Spain, with a wide range of laboratories and unique research facilities. Through numerous collaborations, access to many facilities is granted to scientists from partner organisations.

OSPAR Commission. The OSPAR Commission conducts research and development in several work areas including assessment and monitoring; biological diversity and ecosystems; eutrophication; hazardous substances; offshore oil and gas industry; radioactive substances; and climate change. The OSPAR Commission is an active member of the global group of Regional Management Organisations and cooperates closely with its partner organisations, e.g., HELCOM for the Baltic Sea and the different programs established under the UNEP Regional Seas Programme. The OSPAR Commission works jointly with other competent management authorities for the northeast Atlantic to counter marine pollution and deliver sustainable ocean management in a consensual and robust way. The Commission also contributes to the global discussions on marine conservation and provides regional approaches to protecting the marine environment and managing natural resources.

Industry Groups. Several international industry organizations such as OGP and IPIECA support research programs that include operational, safety, health, environmental issues and other related topics. **Section 3.2.6** provides more information about the activities of industry organizations.

BOEM and BSEE (U.S. Government Agencies). Two U.S. government agencies sponsor research and development related to offshore oil and gas development. BOEM sponsors research on environmental and socioeconomic aspects of offshore oil and gas activities through its Environmental Studies Program, with all publications available online (BOEM, 2013b). BSEE is focused more on safety and technological development, sponsoring research and issuing reports through its Technology Assessment Program (BSEE, 2013b). Although most of the research focuses on U.S. regions, some projects have been conducted by international partners and/or are applicable industry-wide.

3.3.20 Article 23 – International Rules, Standards, Recommended Practices, and Procedures

The text of Article 23 is provided in the shaded box below.

Text of Article 23 – International Rules, Standards and Recommended Practices and Procedures

1. The Parties shall cooperate, either directly or through the Organization or other competent international organizations, in order to:
   (a) Establish appropriate scientific criteria for the formulation and elaboration of international rules, standards and recommended practices and procedures for achieving the aims of this Protocol;
   (b) Formulate and elaborate such international rules, standards and recommended practices and procedures;
   (c) Formulate and adopt guidelines in accordance with international practices and procedures to ensure observance of the provisions of Annex VI.
2. The Parties shall, as soon as possible, endeavour to harmonize their laws and regulations with the international rules, standards and recommended practices and procedures referred to in paragraph 1 of this Article.
3. The Parties shall endeavour, as far as possible, to exchange information relevant to their domestic policies, laws and regulations and the harmonization referred to in paragraph 2 of this Article.

3.3.20.1 Best Practices for International Rules, Standards, Recommended Practices, and Procedures

The review of legal instruments in **Section 3.2** identified several sources of international standards, rules, and best practice guidance relevant to the Offshore Protocol.

International Maritime Organization (IMO)

The IMO is a U.N. agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships (IMO, 2013e). As the administering agency for MARPOL 73/78, the IMO is a source of best practice guidance for ship-related pollution including:

- Annex I – Regulations for the Prevention of Pollution by Oil;
- Annex II – Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk;
- Annex III – Prevention of Pollution by Harmful Substances Carried by Sea in Packaged Form;
- Annex IV – Regulations for the Prevention of Pollution by Sewage from Ships;
- Annex V – Regulations for the Prevention of Pollution by Garbage from Ships;
- Annex VI – Prevention of Air Pollution from Ships; and
- IMO Ballast Water Convention.

The IMO has promoted the adoption of some 50 conventions and protocols and adopted more than 1,000 codes and recommendations concerning maritime safety and security, the prevention of pollution and related matters (IMO, 2013e). Most of the IMO's work is carried out in a number of committees and sub-committees. Of particular importance is the Marine Environment Protection Committee (MEPC), which is responsible for coordinating the IMO's activities in the prevention and control of pollution from ships.

Individual MARPOL 73/78 Annexes are discussed further in **Section 3.2.1.2**. MARPOL 73/78 Annexes, technical reports, and other documents are available through the IMO web site (IMO, 2013f). A useful (but unofficial) source of MARPOL 73/78 documents is posted online by the Australian Maritime Safety Authority (2013b).

European Union

As reviewed in **Section 3.2.2**, the EU has adopted more than 300 directives, regulations, and action plans aimed at environmental protection and the promotion of sustainability within its member states. There is no comprehensive framework for regulating offshore oil and gas activities, but several EU directives are applicable to such activities. A recent report by Milieu Ltd. (2013) reviews EU directives that are relevant to the Offshore Protocol, primarily from the perspective of safety. The following EU legal instruments that are of particular relevance as a source of best practice guidance are summarized in **Section 3.2.2**:

- The Offshore Safety Directive (2013/30/EU);
- The Hydrocarbons Directive (94/22/EC);
- The EIA Directive (2011/92/EU);
- The Waste Framework Directive (2008/98/EC);
- The Marine Strategy Framework Directive (2008/56/EC);
- The Habitats Directive (92/43/EEC) and the Birds Directive (2009/147/EC);
- The REACH Regulation (EC 1907/2006);
- The CLP Regulation (EC 1272/2008);
- Environmental Liability Directive (2004/35/EC);
- Health and Safety of Workers Directive (92/91/EEC);
- Civil Protection Mechanism (Decision 2007/779/EC);
- Machinery Directive (2006/42/EC);
- Pressure Equipment Directive (97/23/EC); and
- ATEX Directive (94/9/EC).

OSPAR Commission

OSPAR is the mechanism by which 15 governments of the western coasts and catchments of Europe, together with the EC, cooperate to protect the marine environment of the Northeast Atlantic. Background information is presented in **Section 3.2.3.1**.

The offshore oil and gas industry is one of several "work areas" of the OSPAR Commission and is the one that is most relevant to the Offshore Protocol. Because oil and gas development in the North Sea has been ongoing for decades, the OSPAR Commission and member states have developed a large body of information that could serve as best practice guidance. The OSPAR Convention and its strategies are implemented through the adoption of Decisions (which are legally binding on the Contracting Parties), Recommendations, and Agreements. Decisions and Recommendations set out

actions to be taken by the Contracting Parties. These measures are complemented by Agreements setting out issues of importance; agreed programs of monitoring, information collection or other work which the Contracting Parties commit to carry out; guidelines or guidance setting out the way that any programme or measure should be implemented; or actions to be taken by the OSPAR Commission on behalf of the Contracting Parties. The OSPAR Commission also issues publications including background documents and data reports on the issues covered by each strategy and the results of evaluations and assessments of data reported to OSPAR by the Contracting Parties.

The offshore oil and gas industry is one of several "work areas" of the OSPAR Commission and is the one that is most relevant to the Offshore Protocol. OSPAR Decisions and Recommendations that are particularly relevant to the Offshore Protocol have been listed and referenced in **Section 3.2.3.1**. A complete list of Decisions, Recommendations, and Agreements for the offshore oil and gas work area is provided on the OSPAR web page (OSPAR Commission, 2013).

U.S. Gulf of Mexico (BOEM, BSEE, and USEPA)

The BOEM and BSEE are the main permitting authorities for offshore oil and gas exploration and development on the U.S. outer continental shelf. In addition, the USEPA is responsible for authorizing effluent discharges from offshore facilities through the NPDES permitting system.

Authorizations for Exploration and Development. Both BOEM and BSEE may be sources of best practice guidance for authorization of offshore activities. The functions of BOEM include leasing, exploration and development, plan administration, environmental studies, environmental impact analysis, resource evaluation, economic analysis, and the renewable energy program. The BSEE is responsible for enforcing safety and environmental regulations including inspections, offshore regulatory programs, oil spill response, and training and environmental compliance functions.

The BOEM framework for permitting exploration or development operations on a lease may be useful for implementing authorizations under the Offshore Protocol. BOEM requires operators to submit an Exploration Plan or Development Operations Coordination Document in accordance with 30 CFR 550, subpart B (Plans and Information). The required contents of the operator's plan are detailed in Notice to Lessees and Operators (NTL) 2008-G04. The detailed information required in the operator's plan helps BOEM (as the competent authority) to ensure compliance with other laws and regulations.

BSEE requires owners or operators of facilities to submit an Oil Spill Response Plan for review and approval. Most operators submit a regional Oil Spill Response Plan that covers multiple facilities or leases of an owner or operator, including affiliates, which are located in the same region. BSEE provides guidance and instructions for preparing an Oil Spill Response Plan in NTL 2012-N06. The plan must address the Worst Case Discharge scenario developed by the operator based on Federal regulations and the guidance provided in NTL 2010-N06.

Both BOEM and BSEE issue guidance in the form of Notices to Lessees and Operators (NTLs), two of which have been cited previously. Other NTLs cover activities and issues such as archaeological surveys, biologically sensitive features, decommissioning, deepwater benthic communities, marine trash and debris awareness, seismic surveys, shallow hazards, spill response, and vessel strike avoidance. Complete listings of NTLs are provided on the web sites of BOEM (2013a) and BSEE (2013a).

BOEM sponsors research through its Environmental Studies Program, with all publications available online (BOEM, 2013b). BSEE also sponsors research and issues technical reports through its Technology Assessment Program (BSEE, 2013b).

NPDES General Permit. The NPDES general permit for the central and western Gulf of Mexico (USEPA, 2012a) is a source of best practice guidance for effluent discharges from offshore facilities. The current NPDES general permit (GMG290000) includes detailed specifications for prohibitions, discharge limitations, and monitoring of effluents. The following aspects of the permit could be especially useful for developing common standards for drilling fluids and cuttings:

- Limits for synthetic based fluid (SBF) retention on cuttings (6.9% for internal olefins and 9.4% for esters), including a test method for permit compliance;
- Limits on cadmium and mercury in stock barite (3 mg/kg and 1 mg/kg, respectively), including test methods for permit compliance;
- Requirements for toxicity testing of both the suspended particulate phase and sediment, including test methods for permit compliance;
- Limits on PAH content of drilling fluids, including a test method for permit compliance;

- Limits on formation oil in drilling fluids, including a test method for permit compliance;
- Biodegradation requirements for drilling fluids, including a test method for permit compliance;
- A prohibition on “free oil” in discharges, including a test method for permit compliance;
- A limitation on maximum discharge rate;
- A definition of “de minimis” discharges of NADFs that are allowable; and
- Monitoring and reporting requirements.

Additional considerations regarding the applicability of the NPDES general permit to the Offshore Protocol are discussed in **Section 3.3.10**.

IFC/World Bank

The IFC, a member of the World Bank Group, has developed a Sustainability Framework (IFC, 2012a) consisting of a Policy on Environmental and Social Sustainability, which defines IFC’s commitments to environmental and social sustainability; Performance Standards, which define clients' responsibilities for managing their environmental and social risks; and an Access to Information Policy, which articulates IFC's commitment to transparency. The Performance Standards (IFC, 2012b) are used by the IFC to manage social and environmental risks and impacts and to enhance development opportunities in its private sector financing in its member countries eligible for financing. The Performance Standards provide guidance to clients on how to identify risks and impacts, and are designed to help avoid, mitigate, and manage risks and impacts as a way of doing business in a sustainable way, including stakeholder engagement and disclosure obligations of the client in relation to project-level activities. In the case of its direct investments (including project and corporate finance provided through financial intermediaries), IFC requires its clients to apply the Performance Standards to manage environmental and social risks and impacts so that development opportunities are enhanced. The eight IFC Performance Standards have been summarized in **Section 3.2.5.1**.

The IFC also issues the most updated versions of the World Bank Group EHS Guidelines (IFC, 2013). The EHS Guidelines are technical reference documents with general and industry-specific examples of Good International Industry Practice as defined in IFC Performance Standard 3. The most relevant are

- General EHS Guidelines (IFC, 2007a); and
- Sector guidelines for offshore oil and gas development (IFC, 2007b).

The offshore oil and gas development guidelines include recommended limits on effluents including drilling fluids and cuttings, produced water, hydrostatic test water, cooling water, desalination brine, sanitary wastewater, bilge and ballast water, and deck drainage. The guidelines also include recommendations concerning air emissions, waste management (hazardous and non-hazardous materials), noise, spills, decommissioning, occupational health and safety, community health and safety, and environmental monitoring.

Industry Groups

Several industry organizations are reviewed in **Section 3.2.6**. The most important potential sources of standards and best practice guidance are discussed below.

OGP - The International Association of Oil & Gas Producers. The OGP is a global organization whose members share best practices to achieve improvements in every aspect of health, safety, the environment, security, social responsibility, engineering, and operations. OGP encompasses most of the world's leading publicly-traded, private and state-owned oil and gas companies, industry associations, and major upstream service companies (OGP, 2013a). OGP has developed guidelines for various aspects of oil and gas operations. The publicly available reports are provided on the OGP web site (OGP, 2013b) and key reports are cited in **Section 3.2.6.1**.

The development of a new set of international standards for the offshore oil and gas industry is a main focus of the OGP Standards Committee. In addition to a catalog of international standards (OGP, 2012a), OGP has issued a position paper on the development and use of international standards (OGP, 2010a), a review of regulators’ use of standards (OGP, 2010b), and a benchmarking survey of members’ use of specifications and external standards (OGP, 2011). A poster summarizing the main ISO standards used in the oil and gas industry was developed in cooperation with the ISO (OGP, 2012d).

IPIECA. IPIECA is a global association whose membership covers over half of the world's oil production and which is the industry's principal channel of communication with the UN (IPIECA, 2013a). IPIECA has working groups that address the following areas: biodiversity; climate change; health; oil spill preparedness; fuels and products; reporting; social responsibility, and water. IPIECA has developed guidelines for various aspects of oil and gas operations. The publicly available reports are provided on the IPIECA web site (IPIECA, 2013b). Most of the publications that provide guidance are co-productions with OGP and are also listed on the OGP web site.

Oil and & Gas UK. Oil & Gas UK is the leading representative body for the UK offshore oil and gas industry (Oil and & Gas UK, 2013a). It issues guidelines on operational, environmental, and health and safety issues such as relief well planning, decommissioning cost estimation, suspension and abandonment of wells, subsea BOP systems, well integrity, ship/installation collision avoidance, safe management of offshore supply and anchor handling operations, FPSO design, and other issues. A searchable database of publications is provided on the web site (Oil and & Gas UK, 2013b). A related environmental legislation web site (Oil and & Gas UK, 2012) provides a detailed listing of UK legislation, regulations, and government-issued guidance for each of the following categories of offshore activities: geological surveys; drilling and wells; production; export and pipelines; decommissioning; and onshore and terminals.

API. The API is a trade association that represents all aspects of the U.S. oil and gas industry. API is a leader in developing equipment and operating standards for the oil and gas industry worldwide. Each year, API works with leading industry subject-matter experts to maintain its inventory of over 600 standards and recommended practices. API distributes over 250,000 documents annually worldwide, and continues to strive to enhance safety operations, improve quality assurance, and promote the global acceptance of petroleum products and best practices (API, 2013a). API standards are designed to assist industry professionals improve the efficiency and cost-effectiveness of their operations, comply with legislative and regulatory requirements, safeguard health, and protect the environment.

A catalog of API technical standards, recommended practices, equipment specifications, other technical documents, and reports and studies is provided online (API, 2013b). The main categories relevant to the Offshore Protocol include exploration and production; petroleum measurement; pipeline transportation; refining; safety and fire protection; and health and environmental issues.

ASTM International. ASTM International is a globally recognized leader in the development and delivery of international voluntary consensus standards. Currently, some 12,000 ASTM standards are used around the world to improve product quality, enhance safety, facilitate market access and trade, and build consumer confidence. More than 7,000 ASTM standards have been adopted as the basis of national standards or referenced in regulations in countries outside the United States (ASTM, 2013a). ASTM standards are available for several industry sectors relevant to the Offshore Protocol, including chemicals, construction, energy, environmental safety, oil spill response, and petroleum. A searchable database of standards is provided on the ASTM web site (ASTM, 2013b).

DNV GL. DNV GL (formerly Det Norske Veritas) is an independent foundation with the purpose of safeguarding life, property, and the environment. DNV GL's activities are divided into three operating companies, of which DNV Maritime and Oil & Gas is relevant to the Offshore Protocol as it provides classification, verification, risk management, and technical advisory services to the global maritime and oil and gas industries. DNV GL's offshore classification process establishes basic rule requirements based on theory and experience for mobile offshore units, and later verifies that the required safety standards are designed and built in, observed, and maintained through the offshore unit's life cycle. Activities typically include setting rules based on the latest development; early engagement with the designer, yard and owner to ensure that safety standards can be met; identification of safety-critical aspects; certification of safety-critical components and systems, both for marine and industrial use onboard; construction survey through the complete fabrication period; inspections and tests during commissioning; and regular surveys during operation. DNV GL service specifications, standards, and recommended practices are listed on their web site (DNV GL, 2013). Categories include service specifications; offshore service specifications (e.g., classification of offshore drilling and support units); offshore standards (e.g., fabrication and testing of offshore structures); recommended practices; and guidance and classification notes.

ABS. The ABS is a classification society whose mission is to verify that marine vessels and offshore structures comply with rules that the society has established for design, construction and periodic survey (ABS, 2013a). Currently ABS is the second largest classification society worldwide and is the

leading classification society for mobile offshore drilling units and FPSO vessels. The ABS classification process includes the development of standards, known as rules; technical plan review and design analysis; surveys during construction; source inspection of materials, equipment and machinery; acceptance by the Classification Committee; subsequent periodic surveys for maintenance of class; and survey of damage, repairs and modifications. Rules and guides are publicly available on the ABS web site (ABS, 2013b). Examples of particularly relevant rules are listed in **Section 3.2.6.8**. In addition, ABS maintains a regulatory information page (ABS, 2013c) that includes a list of countries that have delegated statutory authority to ABS and a matrix of regulations that have entered into force under the IMO conventions.

IMCA. The IMCA is an international trade association representing offshore, marine, and underwater engineering companies. IMCA supports and represents its members as well as offering "good practice" guidance to industry on technical and commercial topics by way of documents, seminars and dialogue (IMCA, 2013a). IMCA core activities are (1) competence and training; and (2) safety, environment and legislation. IMCA's activities are divided into four categories, all of which are relevant to offshore oil and gas activities: diving; marine; offshore survey; and remote systems and remotely operated vehicles (ROVs). The IMCA maintains a searchable database of its guidance documents and other publications (IMCA, 2013b).

APPEA. APPEA is an organization representing Australia's oil and gas exploration and production industry. It has more than 80 full member companies that are oil and gas explorers and producers active in Australia. APPEA works with Australian governments to help promote the development of the nation's oil and gas resources in a manner that maximizes the return to the Australian industry and community. APPEA aims to secure regulatory and commercial conditions that enable member companies to operate safely, sustainably, and profitably. The Association also seeks to increase community and government understanding of the upstream petroleum industry by publishing information about the sector's activities and economic importance to the nation. APPEA also hosts several conferences each year to exchange ideas and contribute to the development of the industry's policy positions. APPEA produces both informational publications and guidelines, which are listed on its web site. Of particular importance is the Code of Environmental Practice (APPEA, 2008).

3.3.21 Article 24 – Scientific and Technical Assistance to Developing Countries

The text of Article 23 is provided in the shaded box below.

Text of Article 24 – Scientific and Technical Assistance to Developing Countries

1. The Parties shall, directly or with the assistance of competent regional or other international organizations, cooperate with a view to formulating and, as far as possible, implementing programmes of assistance to developing countries, particularly in the fields of science, law, education and technology, in order to prevent, abate, combat and control pollution due to activities in the Protocol Area.
2. Technical assistance shall include, in particular, the training of scientific, legal and technical personnel, as well as the acquisition, utilization and production by those countries of appropriate equipment on advantageous terms to be agreed upon among the Parties concerned.

No specific "best practice" guidance was identified for Article 24. Assistance may be available through international organizations such as UNEP and the EU.

3.3.22 Article 25 – Mutual Information

The text of Article 25 is provided in the shaded box below.

Text of Article 25 – Mutual Information

The Parties shall inform one another directly or through the Organization of measures taken, of results achieved and, if the case arises, of difficulties encountered in the application of this Protocol. Procedures for the collection and submission of such information shall be determined at the meetings of the Parties.

No specific "best practice" guidance was identified for Article 25. REMPEC provides the framework for the exchange of information among Barcelona Convention parties on operational, technical, scientific, legal and financial matters related to the Convention and its Protocols. The implementation of Article 25 would require the integration of the Offshore Protocol into the existing reporting system operated by REMPEC.

3.3.23 Article 26 – Transboundary Pollution

The text of Article 26 is provided in the shaded box below.

Text of Article 26 – Transboundary Pollution

1. Each Party shall take all measures necessary to ensure that activities under its jurisdiction are so conducted as not to cause pollution beyond the limits of its jurisdiction.
2. A Party within whose jurisdiction activities are being envisaged or carried out shall take into account any adverse environmental effects, without discrimination as to whether such effects are likely to occur within the limits of its jurisdiction or beyond such limits.
3. If a Party becomes aware of cases in which the marine environment is in imminent danger of being damaged, or has been damaged, by pollution, it shall immediately notify other Parties which in its opinion are likely to be affected by such damage, as well as the Regional Marine Pollution Emergency Response Centre for the Mediterranean Sea (REMPEC), and provide them with timely information that would enable them, where necessary, to take appropriate measures. REMPEC shall distribute the information immediately to all relevant Parties.
4. The Parties shall endeavour, in accordance with their legal systems and, where appropriate, on the basis of an agreement, to grant equal access to and treatment in administrative proceedings to persons in other States who may be affected by pollution or other adverse effects resulting from proposed or existing operations.
5. Where pollution originates in the territory of a State which is not a Contracting Party to this Protocol, any Contracting Party affected shall endeavour to cooperate with the said State so as to make possible the application of the Protocol.

3.3.23.1 Best Practices for Transboundary Pollution

With respect to transboundary pollution from oil spills, the Prevention and Emergency Protocol to the Barcelona Convention provides the foundation for regional cooperation in the fields of prevention of, preparedness for, and response to such pollution. The Prevention and Emergency Protocol is the regional instrument that sets the main principles of cooperation in dealing with threats to the marine environment, the coasts and related interests of the Contracting Parties posed by accidental releases or by accumulations of small, operational discharges, of oil or other harmful substances. REMPEC is the organization mandated by the Contracting Parties to strengthen the capacities of coastal States in the Mediterranean region and to facilitate cooperation among them in order to combat massive marine pollution by oil, particularly by developing national capacities to combat oil pollution and by establishing a regional information system with a view to dealing with marine pollution emergencies.

Certain aspects of Article 26 of the Offshore Protocol are expected to be addressed within the framework of the EIA process required by the Offshore Protocol. This includes the provision stating that each Party “shall take all measures necessary to ensure that activities under its jurisdiction are so conducted as not to cause pollution beyond the limits of its jurisdiction.” Similarly, each Party is required to “take into account any adverse environmental effects, without discrimination as to whether such effects are likely to occur within the limits of its jurisdiction or beyond such limits.” Two sources of best practice guidance for EIA in a transboundary context are discussed below: the Espoo Convention and the EU EIA Directive.

Espoo Convention

The following Barcelona Convention parties are also parties to the Convention on Environmental Impact Assessment in a Transboundary Context (Espoo Convention): Albania, Bosnia and Herzegovina, Croatia, Cyprus, France, Greece, Italy, Malta, Montenegro, Slovenia, Spain.

The Espoo Convention requires Parties to assess the environmental impact of activities that are “likely to cause significant adverse transboundary impact” in another state. Activities that are listed in Appendix I as having the potential for significant transboundary impacts include “offshore hydrocarbon production” and “large-diameter oil and gas pipelines.” The Party of origin must ensure that an EIA is undertaken prior to a decision to authorize or undertake the proposed activity. Appendix II lists the elements to be covered by the EIA. The Convention also includes provisions for notification of affected States, post-project analysis, bilateral and mutual cooperation, research programs, and settlement of disputes.

The U.N. Economic Commission for Europe (UNECE) has established regional work groups on the practical application of the Espoo Convention, including one for the Mediterranean Sea. A subregional workshop was held in 2010 and report is available (UNECE, 2010).

European Union

The following parties to the Barcelona Convention are also EU member states: Croatia, Cyprus, France, Greece, Italy, Malta, Slovenia, and Spain. Montenegro and Turkey are listed by the EU as candidate countries and Albania, Bosnia and Herzegovina are listed as potential candidates (EU, 2013a). The following Barcelona Convention parties are not EU members, candidates, or potential candidates: Algeria, Egypt, Israel, Lebanon, Libya, Monaco, Morocco, Syria, and Tunisia.

The EIA Directive (2011/92/EU) includes special provisions for cases in which a project implemented in one Member State is likely to have significant effects on the environment of another Member State (Article 7). Environmental impact assessment of transboundary projects has been carried out for many years under the EIA Directive and the Espoo Convention. However, transboundary projects create challenges for the usual EIA procedures (when applicable) and raise new issues that have to be addressed using the existing legal provisions and instruments. The European Union (2013c) has produced an EIA guide for large-scale transboundary projects.

3.3.24 Article 27 – Liability and Compensation

The text of Article 27 is provided in the shaded box below.

Text of Article 27 – Liability and Compensation

1. The Parties undertake to cooperate as soon as possible in formulating and adopting appropriate rules and procedures for the determination of liability and compensation for damage resulting from the activities dealt with in this Protocol, in conformity with Article 12 of the Convention.
2. Pending development of such procedures, each Party:
 (a) Shall take all measures necessary to ensure that liability for damage caused by activities is imposed on operators, and they shall be required to pay prompt and adequate compensation;
 (b) Shall take all measures necessary to ensure that operators shall have and maintain insurance cover or other financial security of such type and under such terms as the Contracting Party shall specify in order to ensure compensation for damages caused by the activities covered by this Protocol.

The short-term requirements of Article 27 can be summarized as:

- Liability is to be imposed on Operators by Competent Authorities;
- Competent Authorities require compensation assurances from Operators; and
- Operators must maintain insurance or other financial security to cover any potential compensation arising from an accident.

In the longer term, Article 27 requires the parties to formulate and adopt appropriate rules and procedures for the determination of liability and compensation, in conformity with Article 12 of the Barcelona Convention. Article 12 of the Barcelona Convention requires Contracting Parties to, "cooperate as soon as possible in the formulation and adoption of appropriate procedures for the determination of liability and compensation for damage resulting from the pollution of the marine environment deriving from violations of the provisions of this Convention and applicable Protocols". Best practices covering Liability and Compensation within the oil and gas industry are discussed below

3.3.24.1 Best Practices for Liability and Compensation in International Agreements

United Nations Convention on the Law of the Sea (UNCLOS) 1982

The United Nations Convention on the Law of the Sea (UNCLOS) 1982 grants coastal states the right to explore and exploit the mineral resources in their exclusive economic zone (EEZ) and continental shelves. It also details the states obligation to protect the marine environment and seeks to allow states methods of recompense, should any be necessary. Two specific Articles of this Convention seek to clarify the issues of liability and compensation.

In Article 235 of UNCLOS, states must "ensure that recourse is available in accordance with their legal systems for prompt and adequate compensation or other relief in respect of damage caused by pollution of the marine environment by natural or juridical persons under jurisdiction." This includes working with international legal bodies to make certain there is appropriate framework for the assessment of damages and for the manner and time of compensation.

Also of note, Article 22, Annex III highlights that the contractor and the state authority shall be liable to the full extent and actual amount of damage caused by a wrongful act during operations:

> *"The contractor shall have responsibility or liability for any damage arising out of wrongful acts in the conduct of its operations, account being taken of contributory acts or omissions by the Authority. Similarly, the Authority shall have responsibility or liability for any damage arising out of wrongful acts in the exercise of its powers and functions, including violations under article 168, paragraph 2, account being taken of contributory acts or omissions by the contractor. Liability in every case shall be for the actual amount of damage."*

MARPOL 73/78

The International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) seeks to regulate pollution caused by ships and fixed or floating platforms through accidental spills/leaks and routine operations. While Article 2 excludes the "release of harmful substances directly arising from the exploration, exploitation and associated offshore processing of sea-bed mineral resources" from the definition of prohibited discharges, Annex I states that, "subject to the provisions of regulations 10 and 11 of this annex and paragraph (2) of this regulation, any discharge into the sea of oil or oily mixtures from ships to which this Annex applies shall be prohibited".

International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990

The International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990 was developed to ensure emergency response preparedness for offshore pollution incidents. All ships, including "fixed or floating offshore installation or structure engaged in gas or oil exploration, exploitation or production activities, or loading or unloading of oil,"(Article 2) are required to have oil pollution emergency plans. It also mandates regional and national systems are in place in the event of an oil pollution incident and international pollution response cooperation by all signing parties.

International Maritime Organization (IMO)

The Indonesian delegation to the International Maritime Organization (IMO) in proposed in September 2010 the possibility of a global liability and compensation regime for offshore oil and gas falling under the IMO. This proposal was re-examined at the 99th session of the IMO Legal Committee in April 2012 where it was decided that IMO would not pursue this even though it was recognized that bilateral and regional arrangements are the most appropriate means to address the matter.

3.3.24.2 Best Practices for Liability and Compensation in the EU

The current EU regime covering potential pollution issues arising from offshore activities are covered predominantly under the following legislative texts:

- Council Directive 92/91 EEC which covers the minimum requirements for improving the safety and health protection of workers in the mineral extracting industries through drilling;
- Hydrocarbons Licensing Directive 1994 (94/22/EC) which establishes common rules that member states must follow when issuing petroleum licenses;
- Communication 2010 which assessed the risks in the offshore oil and gas industry in European waters following the 2010 Macondo incident;
    - Focused on licensing, controls by public authorities and spill response;
    - Reviewed liability issues as the existing Environmental Liability Directive (2004/35/EC) does not cover offshore oil and gas activities as it only covers environmental damage to marine waters as covered by the Water Framework Directive (2000/60/EC);
    - Reviewed the Marine Strategy Framework Directive (2008/56/EC) which aims to protect the health of EU's marine waters therefore is applicable to offshore oil and gas activities, however has no provision for liability for environmental damages;
    - Reviewed issues regarding financial cap on the liability and the possibility of mandatory financial security;
- Directive on Safety of Offshore Oil and Gas Operations (2013/30/EU);
    - Developed as a response to the Communication 2010;
    - Objective is "to reduce as far as possible the occurrence of major accidents relating to offshore oil and gas operations and to limit their consequences and to improve the response mechanisms in case of an accident";

- Sets requirements in which companies will be held liable for environment damages by stating that the licensee shall be held liable for the prevention and remediation of environmental damage;
- Applies to offshore operations on fixed and mobile installations, including connecting infrastructure (pipelines), covering full lifecycle of oil and gas activities from construction through to decommissioning;
- Requires the licensing authority to consider technical and financial capacity of an licencee when issuing a licence (per the requirements of Directive 94/22/EC); and
- Requires the licencee to provide evidence to the licensing authority proving that they hold (and maintain) adequate provisions to cover their liability from damage, remediation and compensation costs resulting from major accidents.

3.3.24.3 Best Practices for Liability and Compensation in Other Countries

Table 3-5 summarizes the legal regimes for liability and compensation for offshore activities in a number of countries with major offshore oil and gas operations, namely U.K., Denmark, Norway, U.S., Australia and Canada.

The information above is from "*Civil Liability and Financial Security for Offshore Oil and Gas Activities*" which describes in detail the offshore liability regime topic and includes various models for potential implementation.

There currently is no international or national legal framework that adequately covers the liability and compensation requirements for offshore oil and gas related incidents. There are many regional agreements in place related to offshore safety and emergency response but these do not fully cover liability and compensation. Some countries have a strict liability rule in place but do not have the legal systems in place to require financial security as a precondition of granting a license.

3.3.25 Article 28 – Appointment of Competent Authorities

The text of Article 28 is shown in the shaded box below.

Text of Article 28 – Appointment of Competent Authorities
Each Contracting Party shall appoint one or more competent authorities to:
(a) Grant, renew and register the authorizations provided for in Section II of this Protocol;
(b) Issue and register the special and general permits referred to in Article 9 of this Protocol;
(c) Issue the permits referred to in Annex V to this Protocol;
(d) Approve the treatment system and certify the sewage treatment plant referred to in Article 11, paragraph 1, of this Protocol;
(e) Give the prior approval for exceptional discharges referred to in Article 14, paragraph 1(b), of this Protocol;
(f) Carry out the duties regarding safety measures referred to in Article 15, paragraphs 3 and 4, of this Protocol;
(g) Perform the functions relating to contingency planning described in Article 16 and Annex VII to this Protocol;
(h) Establish monitoring procedures as provided in Article 19 of this Protocol;

Table 3-5. Legal regimes for liability and compensation for offshore activities in countries with major offshore oil and gas operations.

	UK	Norway	Denmark	US	Australia	Canada
Basis liability	Strict Liability exception: war/force majeure	Strict Liability exclusion: force majeure	Strict Liability	Strict Liability	Escape of oil is a Strict Liability offence	Strict Liability
Relation with regulation	Compliance with regulation not excluding liability	Liability is strict, not based on breach of regulation	Compliance no exception	Compliance with regulation not excluding liability; Breach of regulation leads to loss of rights to limited liability	Only an offence if breach of regulation; No liability if all reasonable steps to comply taken	-
Causation	Proof on victim	Burden on claimant plus in causal uncertainty: joint and several liability	-	-	-	-
Attribution	Joint and several liability (J&S) under OPOL for insolvency	Channelling to licensee or operator; Joint venture: J&S toward third parties	Channelling to licensee; If several parties: J&S	Liability on responsible party and lessee; If more: J&S	Liability on title holder and J&S	Licensee is liable plus J&S
Damages	Pollution damage (if direct) plus remedial measures; OPOL not personal injury	Also: losses to fishermen	All	Removal costs plus damages	Costs of public auth	Actual loss and cost of public auth
Cap	OPOL $250 m	No cap	Only for MODs	$75m plus removal costs; loss of cap if gross negligence or violation of regulation plus no pre-emption of state law	No cap	Cap
Compensation mechanism	OPOL membership mandatory	Rapid claims settlement for fishermen; Mandatory security for production licensees, not exploration licence, and detailed regulation of what insurance should cover	Financial capacity condition for licence	Financial security max. $150 m plus details and different methods can be used; Fund (OSLTF) $l billion financed via tax	Mandatory insurance is a condition for licence	Proof of financial responsibility required
Criminal Liability	Imprisonment plus fine	Imprisonment plus fine	Imprisonment plus fine	Imprisonment plus fine	Imprisonment plus fine	Imprisonment plus fine

3.3.25.1 Appointment of Competent Authorities

Guidance applicable to Article 28 was not identified during the review of the Conventions. Most conventions did not provide explicit provisions on the appointment of competent authorities, define "Competent Authority", or contain consolidated provisions relative to appointment or responsibilities of competent authorities. Terms of reference for related competent authorities were not available. No specific "best practice" guidance was identified for Article 28. The Offshore Protocol may be the exemplar among the Conventions for this provision.

The Kuwait Convention defines "National Authority" as "the authority designated by each Contracting States as responsible for the co-ordination of national efforts for implementing the Convention and its protocols. Under the Continental Shelf Protocol to the Kuwait Convention, the "Competent State Authority" is defined as "any Government department, Agency or other Authority in the Contracting State designated to exercise the power or discharge the function referred to in this Protocol, with such designation to be formally communicated to the Organization".

Consideration of whether the competent authority for permitting offshore activities under the Offshore Protocol should be independent of other government agencies that promote oil and gas development is recommended. For example, the Mineral Management Service (MMS) in the US was divided into the Bureau Ocean Energy Management (BOEM) and the Bureau of Safety and Environmental Enforcement (BSEE), separating functions accordingly. A similar separation of competent authorities is present under the EU Offshore Safety Directive.

Consideration of the establishment of a network of competent authorities under the Offshore Protocol by the Contracting Parties to promote communications, coordination, and competencies in the implementation of its provisions is recommended.

3.3.26 Article 29 – Transitional Measures

The text of Article 29 is shown in the shaded box below.

Text of Article 29 – Transitional Measures
Each Party shall elaborate procedures and regulations regarding activities, whether authorized or not, initiated before the entry into force of this Protocol, to ensure their conformity, as far as practicable, with the provisions of this Protocol.

3.3.26.1 Best Practices for Transitional Measures

A review of the Conventions did not result in guidance applicable to Article 29. No specific best practice guidance for Article 29 was identified. Implementation of transitional measures, i.e., procedures and regulations regarding activities, should have been implemented prior to the Protocol coming into force, therefore additional guidance is not warranted.

3.3.27 Article 30 – Meetings

The text of Article 30 is shown in the shaded boxes below.

Text of Article 30 – Meetings
Each Party shall elaborate procedures and regulations regarding activities, whether authorized or not, initiated before the entry into force of this Protocol, to ensure their conformity, as far as practicable, with the provisions of this Protocol.
1. Ordinary meetings of the Parties shall take place in conjunction with ordinary meetings of the Contracting Parties to the Convention held pursuant to Article 14 of the Convention. The Parties may also hold extraordinary meetings in accordance with Article 14 of the Convention.

Text of Article 30 – Meetings (cont)

2. The functions of the meetings of the Parties to this Protocol shall be, inter alia:

(a) To keep under review the implementation of this Protocol and to consider the efficacy of the measures adopted and the advisability of any other measures, in particular in the form of annexes and appendices;

(b) To revise and amend any annex or appendix to this Protocol;

(c) To consider the information concerning authorizations granted or renewed in accordance with Section II of this Protocol;

(d) To consider the Information concerning the permits issued and approvals given in accordance with Section III of this Protocol;

(e) To adopt the guidelines referred to In Article 9, paragraph 2, and Article 23, paragraph 1(c), of this Protocol;

(f) To consider the records of the contingency plans and means of intervention in emergencies adopted in accordance with Article 16 of this Protocol;

(g) To establish criteria and formulate international rules, standards and recommended practices and procedures in accordance with Article 23, paragraph 1, of this Protocol, in whatever form the Parties may agree;

(h) To facilitate the implementation of the policies and the achievement of the objectives referred to in Section V, in particular the harmonization of national and European Community legislation in accordance with Article 23, paragraph 2, of this Protocol;

(i) To review progress made In the implementation of Article 27 of this Protocol;

(j) To discharge such other functions as may be appropriate for the application of this Protocol.

3.3.27.1 Best Practices for Meetings

Article 30 addresses frequency and functions of meetings of the Contracting Parties. A review of the Conventions did not result in guidance applicable to Article 30. Only the Abidjan and Cartagena Conventions include specific articles concerning meetings of the contracting parties whose contents are very similar to Article 30 of the Offshore Protocol. Other Conventions address meetings within various articles of the Convention without a separate article on meetings. As the Offshore Protocol or the Barcelona Convention may be the exemplar among the Conventions for this provision no specific best practice guidance was identified for Article 30. Although the most of the provisions in Article 30 are similar to those of the Abidjan and Cartagena Conventions, addition of the provision for meetings to also function to periodically assess the state of the environment or review the state of pollution in the Protocol area is recommended.

3.3.28 Article 31 – Relations with the Convention

The text of Article 31 is shown in the shaded box below.

Text of Article 31 – Relations with the Convention

1. The provisions of the Convention relating to any Protocol shall apply with respect to this Protocol.
2. The rules of procedure and the financial rules adopted pursuant to Article 18 of the Convention shall apply with respect to this Protocol, unless the Parties to this Protocol agree otherwise.

3.3.28.1 Best Practices for Relations with the Convention

Article 31 defines how the Offshore Protocol relate to the Barcelona Convention and its other protocols. Other conventions include provisions for the rules of procedure and the financial rules similar to the Barcelona Convention. No specific best practice guidance was identified for Article 31.

3.3.29 Article 32 – Final Clause

The text of Article 31 is shown in the shaded box below.

Text of Article 32 – Final Clause
1. This Protocol shall be open for signature at Madrid from 14 October 1994 to 14 October 1995, by any State Party to the Convention invited to the Conference of Plenipotentiaries of the Coastal States of the Mediterranean Region on the Protocol for the Protection of the Mediterranean Sea against Pollution resulting from Exploration and Exploitation of the Seabed and its Subsoil, held at Madrid on 13 and 14 October 1994. It shall also be open until the same dates for signature by the European Community and by any similar regional economic grouping of which at least one member Is a coastal State of the Protocol Area and which exercises competence in fields covered by this Protocol in conformity with Article 24 of the Convention.
2. This Protocol shall be subject to ratification, acceptance or approval. Instruments of ratification, acceptance or approval shall be deposited with the Government of Spain, which will assume the functions of Depositary.
3. As from 15 October 1995, this Protocol shall be open for accession by the States referred to in paragraph 1 above, by the European Community and by any grouping referred to in that paragraph.
4. This Protocol shall enter into force on the thirtieth day following the date of deposit of at least six instruments of ratification, acceptance or approval of, or accession to, the Protocol by the Parties referred to in paragraph 1 of this Article.
IN WITNESS WHEREOF the undersigned, being duly authorized, have signed this Protocol.

3.3.29.1 Best Practices for Final Clause

Article 32 is a recitation of the Protocol adoption process (e.g., signature, ratification, acceptance or approval), accession, and entry into force. No specific “best practice” guidance was identified for Article 32.

4.0 NATIONAL QUESTIONNAIRE ANALYSIS (TASK 2)

4.1 METHODS

One of the objectives of this study was to compare the Offshore Protocol (OP) with the existing national framework of the Contracting Parties (i.e., entity who enters into a binding agreement with one or more other Contracting Parties and thus accepts the benefits and obligations specified therein) and identify convergence and divergence.

Task 2 focused on national-level implementation of the OP. Stock-taking of the existing regulatory framework among the Contracting Parties was accomplished mainly through the analysis of the responses in questionnaires provided to Competent Authorities (i.e., the official organization that has the legally delegated or invested authority, capacity, or power to perform a designated function) of the Contracting Parties, the online reports of the Contracting Parties under the Barcelona Convention Reporting System (BCRS) and a study prepared by Milieu Ltd. for the Director General (DG) Environment of the European Commission (EC study)[9].

In order to achieve this task's objective, the aforementioned questionnaire was prepared with the goal of defining the existing legislative and administrative framework in the Mediterranean region. The questionnaire covered, in a thematic approach, all issues raised in the different sections, articles, and annexes of the OP (authorization system, disposal and discharges [i.e., wastes and hazardous and noxious substances and materials; oil and oily mixtures, drilling fluids, and cuttings; sewage; garbage; reception facilities, instructions and sanctions; and exceptions], safety measures, monitoring of environment-related issues, and preparedness and response [i.e., contingency planning; cooperation and liability; and compensation]). Following the First Offshore Protocol Working Group Meeting held in Valletta on the 13 and 14 June 2013, during which several Contracting Parties made comments on the format of the questionnaire, a finalized questionnaire was prepared and sent to the Contracting Parties.

Completed questionnaires are provided in **Appendix B**. The analysis of the completed questionnaires and the information obtained from the other sources (BCRS and EC studies) allowed us to conduct a comparative analysis of the existing national legislative and administrative framework in the Mediterranean region (**Section 4.2.2**) and highlight potential gaps and differences between the OP provisions and requirements relative to the existing national laws and practices (**Section 4.3**), presented through comparative tables.

4.2. RESULTS

4.2.1 Completed Responses

The extent of the analysis was dependent on the number of responsive questionnaires received. Unfortunately, the number of the questionnaires received was less than satisfactory because only 10 Contracting Parties (Algeria, Cyprus, France, Greece, Israel, Italy, Libya, Morocco, Spain, and Turkey) out of the 22 queried actually responded. Of these 10 respondents, six sent the first and four reviewed questionnaire.

Under the BCRS, online reports from five countries were extracted (Bosnia-Herzegovina, Cyprus, Israel, Italy, and Spain), and from the EC Study, information for five Contracting Parties were taken (European Union [EU], France, Italy, Spain, and Croatia). For nine Contracting Parties (Albania, Croatia, Egypt, Lebanon, Malta, Monaco, Montenegro, Syria, and Tunisia), we have no information from any source. A summary of the information sources available for each Contracting Party is provided in **Table 4-1**.

To date, the Offshore Protocol has been signed by 12 Contracting Parties to the Barcelona Convention, but has been ratified only by Tunisia, Morocco, Albania, Cyprus, Libya, Syria, and the European Union (**Table 4-2**). The OP entered into force on 24 March 2011, after its ratification by Syria.

[9] EC study: "Safety of offshore exploration and exploitation activities in the Mediterranean: creating synergies between the forthcoming EU Regulation and the Protocol to the Barcelona Convention."
http://ec.europa.eu/environment/marine/international-cooperation/regional-sea-conventions/barcelona-convention/pdf/Final%20Report%20Offshore%20Safety%20Barcelona%20Protocol%20.pdf (last accessed Nov. 15, 2013)

4.2.2 Existing National Legislative and Administrative Framework (Measures in Place that Satisfy the Offshore Protocol Requirements and their Transposition in National Legislation)

The aim of this section was to identify the points of convergence between the existing national legislative and administrative framework applicable to the exploitation of mineral resources of the Contracting Parties and the provisions of the OP. This was achieved mainly by analyzing the received questionnaires and to a lesser extent by analyzing the online reports of the BCRS and the EC Study.

In the sections that follow, results from individual countries are summarized in tables and text. For Croatia and Bosnia-Herzegovina, for which our sources of information were the online reports of the BCRS and/or EC Studies, the available content of those reports did not permit us to prepare an in-depth assessment of the existing practical measures in place with respect to offshore activities.

Table 4-1 Summary of the information sources available for each Contracting Party.

Contracting Party	**SOURCES**			
	Questionnaire		**Barcelona Convention Reporting System (BCRS)**	**European Commission (EC)**
	First	**Reviewed**		
Albania	-	-	-	-
Algeria	-	X	-	-
Bosnia and	-	-	X	-
Croatia	-	-	X	X
Cyprus	X	-	X	-
European Union	-	-	-	X
Egypt	-	-	-	-
France	-	X	-	X
Greece	X	-	-	-
Israel	X	-	X	-
Italy	-	X	X	X
Lebanon	-	-	-	-
Libya	X	-	-	-
Malta	-	-	-	-
Monaco	-	-	-	-
Montenegro	-	-	-	-
Morocco	X	-	-	-
Slovenia	-	-	-	-
Spain	X	-	X	X
Syria	-	-	-	-
Tunisia	-	-	-	-
Turkey	-	X	-	-

Table 4-2. Signature and ratification of the Offshore Protocol by the Contracting Parties.

Contracting Party	1994 OFFSHORE PROTOCOL		
	Signature	Ratification	Entered into
Albania	-	26 January 2001	24 March 2011
Algeria	-	-	-
Bosnia and Herzegovina	-	-	-
Croatia	14 October 1994	-	-
Cyprus	14 October 1994	16 May 2006	24 March 2011
European Union	17 December 2012/AC	27 February 2013	-
Egypt	-	-	-
France	-	-	-
Greece	14 October 1994	-	-
Israel	14 October 1994	-	-
Italy	14 October 1994	-	-
Lebanon	-	-	-
Libya	-	16 June 2005	24 March 2011
Malta	14 October 1994	-	-
Monaco	14 October 1994	-	-
Montenegro	-	-	-
Morocco	-	01 July 1999	24 March 2011
Slovenia	10 October 1995	-	-
Spain	14 October 1994	-	-
Syria	20 September 1995	22 February 2011	24 March 2011
Tunisia	14 October 1994	01 June 1998	24 March 2011
Turkey	-	-	-

AC = Accession

4.2.2.1 Algeria

Even though Algeria is the largest natural gas producer and second largest oil producer in Africa after Nigeria, offshore exploration has been limited. In 2012, Algeria began revising its hydrocarbon law in an attempt to attract foreign investors to new projects in order to increase oil and gas reserves and explore new territories, such as offshore the Mediterranean.

Algeria has neither signed nor ratified the OP **(Table 4-2)** However, according to the Algerian authorities' response to the questionnaire, Algeria has an existing national legislative and administrative framework that covers a significant number of provisions of the OP.

Specifically, Algeria has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under Law n°05-07 on hydrocarbons (HC), Law n°03-10 on the environment within the framework of sustainable development, Executive Decree (ED) n°10-31 on the protection of the shoreline seabed, ED n°07-294 laying down the procedures and conditions of authorization for oil prospection, ED n°06-198 stating the regulation to be applied for classified facilities for environmental protection, ED n°08-312 laying down the conditions for EIA approval for HC activities, ED n°07-184 on operator's qualifications, ED n°02-143 on title, patents and maritime navigation certificate, and permit conditions, ED n°06-198 on safety management and assistance means system, Law 04-20 on implementation of the Internal Intervention Plan (PII), Law 11-02 on protected area, Law 01-19 on waste, and Law 02-02 on the shoreline protection. A gap between the OP and the existing national legislative framework is in removal of installations (see **Section 4.3** of this report);
- **The disposal of garbage (Article 12, Section III of the OP)**: Under Law n°01-19 on waste and implementing provisions and MARPOL 73/78 Convention ratified by ED n°88-108;
- **Safety measures (Article 15, Section IV of the OP)**: Under Law n°05-07, ED n°06-198, ED n°09-335 (PII), ED n°02-143, ED n°02-202 on the regulations related to the minimum safety workforce on site on merchant vessel exceeding 500TX, the Algerian maritime code, and safe mining requirements;
- **Contingency planning (Article 16, Section IV of the OP)**: Under the MARPOL 73/78 Convention ratified by ED n°88-108, Law 04-20 and ED n°09-335 (PII). A limited number of

gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;

- **Cooperation (Articles 22 and 24, Section V of the OP)**: Positive (“Yes”) responses were provided by the respondent; however, no laws or regulations were cited; and
- **Liability and compensation (Article 27, Section V of the OP)**: Under Law n°05-07.
- There are some laws that could apply to the disposal of waste and HNS&M and the disposal of oil and oily mixtures and drilling fluids and cuttings; however, they are not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-3 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Algeria.

Table 4-3. Summary of responses to the reviewed questionnaire from Algeria.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	26/29	25/26	• Law n°05-07 • Law n°03-10 • Executive Decree (ED) n°10-31 • ED n° 07-294 • ED n°06-198 • ED n°08-312 • ED n°07-184 • ED n°02-143 • ED n°06-198 • Law n°04-20 • Law n°11-02 • Law n°01-19 • Law n°02-02
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	37/46	8/37	• ED n°08-312 • PD 04-477 on the International Convention on the Prohibition of the Development, Production and Stockpiling of Chemical Weapons and on their Destruction • ED n°05-08, on the Applicable Provisions for Substances, Products or Dangerous Mixtures at Work • Law n°03-10 • ED n°88-108 (ratification of MARPOL 73/78 Convention) • Law n°01-19 • ED n°06-141 • Law n° 02-02 • Law n°11-02 • Law n°03-10
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	18/19	9/18	• ED n°88-108 • ED n°80-14 (ratification of Barcelona Convention) • Law n°05-07 • ED n°08-312 • Algerian standards on concentration of HC in water
C. SEWAGE	0/9	-	No response available
D. GARBAGE	4/4	4/4	• Law n°01-19 • ED n°88-108

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	5/5	• Law n°01-19 • ED n°04-409 • ED n°04-410
F. EXCEPTIONS	4/4	4/4	No laws/regulations cited
III. SAFETY MEASURES	19/19	19/19	• Law n°05-07 • ED n°06-198 • ED n°09-335 • ED n°02-143 • ED n°02-202 • Algerian maritime code • Safe mining requirements
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	1/4	No laws/regulations cited
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	31/32	29/31	• ED n°88-108 • Law n°04-20 • ED n°09-335
B. COOPERATION	3/3	3/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	2/3	2/2	• Law n°05-07

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.

** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.

4.2.2.2 Croatia

The history of hydrocarbon exploration in the entire Croatian area of the Adriatic Sea started in 1968 when the *Vez*, the ship for marine seismic surveying, performed the first exploration. Today about 45,000 km of 2D seismic lines and 6,200 km^2 of 3D seismic areas exist in this region, as well as 135 wells. In the northern Adriatic, INAgip (a joint venture company between INA [Croatia] and ENI [Italy]) developed 9 gas fields with 105 gas reservoirs, drilled more than 40 production wells, and installed 19 production platforms since 1996. Unfortunately, the level of precision of the available information for Croatia (**Table 4-2**: BCRS and EC Study) does not allow us to prepare an in-depth assessment and stock-taking analysis of the existing practical measures in place in Croatia with regard to offshore activities. Nonetheless, **Table 4-4** presents remarks and comments from the available sources on certain provisions of the OP and the existing Croatian legislative framework.

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Table 4-4. Remarks and comments on certain provisions of the Offshore Protocol (OP) and the existing Croatian legislative framework

Offshore Protocol Provision	Remarks/Comments from BCRS	Remarks/Comments from EC Study
I. AUTHORIZATION SYSTEM	• Articles 4, 5, 6: The prior written authorization is required by the Mining Act (OG No. (75/09 and 49/2011), Ordinance on the exploitation of mineral resources (OG No. 125/1998) and the Ordinance on the Main Technical Requirements, Safety and Protection during Offshore Exploration and Exploitation of Hydrocarbons in the Republic of Croatia (OG No. 52/2010) • Article 20 (removal of installations): EIA studies give the procedure in the case of closing of operations and removal of installations	• Article 5(1)(a): EIA is required for exploitation • Article 7 (Sanctions): Fines are established as well as prohibition of further works • Article 20 (removal of installations): Rehabilitation of the area is required after cessation of activities • Article 21 (special protected areas): EIA study includes special provisions on protected areas
II. DISPOSAL AND DISCHARGES		
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	• Article 9(5)(6)(7): The prior written authorization is required by the Mining Act (OG No. (75/09 and 49/2011), Ordinance on the exploitation of mineral resources (OG No. 125/1998) and the Ordinance on the Main Technical Requirements, Safety and Protection during Offshore Exploration and Exploitation of Hydrocarbons in the Republic of Croatia (OG No. 52/2010)	
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS		• Measures to enforce standards on oil and oily mixtures are covered in Ordinance on the Main Technical Requirements, Safety and Protection during Offshore Exploration and Exploitation of Hydrocarbons in the Republic of Croatia (OG No. 52/2010)

Offshore Protocol Provision	Remarks/Comments from BCRS	Remarks/Comments from EC Study
C. SEWAGE	• Article 11(1): All activities of exploration, exploitation and the closing of platforms, including testing of materials, equipment and procedures have to be performed in accordance with the relevant national and international legislation (in particular the MARPOL 73/78 Convention with its annexes and the Barcelona Convention with its Offshore Protocol). All the platforms are equipped with all the facilities necessary for production management control either in normal or emergency conditions	
D. GARBAGE		• Discarding solid waste in the seas during mining activities is prohibited
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS		
F. EXCEPTIONS		
III. SAFETY MEASURES	• Article 15(3)(4): EIA studies determine the safety measures with regard to the design, construction, placement, equipment, marking, operation and maintenance of installations	• Article 15(2): No risk assessments (accidents) are required
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	• Article 19: The permit requests the development of the monitoring programme for the broader area of the gas field and such a plan has to include measurements and observations of physical parameters of the sea and atmosphere, chemical parameters, in particular measurements of hydrocarbons, and biological parameters, in particular bacteriological tests of the toxicity and genotoxicity	• Article 19(1): monitoring is not obliged (however the operator is obliged to records during mining activities)
V. PREPAREDNESS AND RESPONSE		

Offshore Protocol Provision	Remarks/Comments from BCRS	Remarks/Comments from EC Study
A. CONTINGENCY PLANNING	• Article 16 & Annex VII: Contingency plans to combat accidental pollution were developed. These plans were harmonised with the provisions of the National Contingency Plan for Accidental Marine Pollution in the Republic of Croatia (OG No. 92/2008)	• Article 16(2): The operator is required to have an emergency plan
B. COOPERATION		
C. LIABILITY AND COMPENSATION		• Article 27(1): Operators are liable for environmental damage (strict and fault-based) and are required remediate environmental damage • Article 27(2): Operators are required to establish a financial guarantee

4.2.2.3 Cyprus

The Republic of Cyprus has recently begun oil and natural gas exploration and drilling in the eastern Mediterranean. Following the first successful bidding round for hydrocarbon reserves in Cyprus' Exclusive Economic Zone (EEZ), the Republic of Cyprus awarded one exploration license (Block No.12) to Noble Energy International Ltd (Noble Energy) in late 2008.

In January 2012, the Republic of Cyprus announced a second licensing round. The areas open for bidding included Exploration Blocks 1 to 11 and 13 within the EEZ of Cyprus. On 24 January 2013, the Republic of Cyprus signed contracts granting the licenses for the exploration of Blocks 2, 3, and 9 to the consortium ENI International BV and Korea Gas Corporation (KOGAS). On 6 February 2013, the contracts for the granting of licenses for the exploration of Blocks 10 and 11 were signed with Total E & P Activites Petrolieres S.A.

Cyprus is the only EU country that ratified the OP with Law No. 20(III)/2001 (**Table 4-2**). The importance of the recently discovered hydrocarbon reserves for Cyprus, together with ratification of the OP and the adoption of relevant EU regulations and directives into national law, provides a existing comprehensive national legislative and administrative framework. This framework covers a large and significant number of provisions of the OP.

Specifically, Cyprus has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under Law No. 20(III)/2001, Environmental Impact Assessment Law No. 140 (I)/2005, which harmonizes EU EIA Directive 2011/92/EU, Safety and Health at Work Laws of 1996 to 2011, and Law No. 153(I)/2003 for the Protection of Nature and Wildlife (Habitats Directive 92/43/EEC). The only gap between the OP and the existing national legislative framework is in the removal of installations (see **Section 4.3** of this report);
- **The disposal of HNS&M (Article 9, Section III of the OP)**: Under Law No. 20(III)/2001, Chemical Substances Law No. 78(I)/2010 Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation and Classification, Labeling, and Packaging (CLP) Regulation, Waste Law 185(I)/2011, which harmonizes the EU Waste Framework Directive (2008/98/EC), and Water and Soil Pollution Control Law 106(I)/2002;
- **The disposal of garbage (Article 12, Section III of the OP)**: In accordance with the provisions of MARPOL 73/78 Annex V;
- **Reception facilities, instructions, and sanctions (Article 13, Section III of the OP)**: Under Waste Law 185(I)/2011;
- **Safety measures (Article 15, Section IV of the OP)**: Under relevant IMO (International Maritime Organization) requirements, Safety and Health at Work Laws of 1996 to 2011, Minimum Requirements for Safety and Health at Work (Extractive Industries through Drilling) Regulations of 2002, Management of Safety and Health Issues at Work Regulations of 2002 (No. 173/2002), and Minimum Requirements for Safety and Health (Use of Work Equipment at Work) Regulations of 2001 (No. 444/2001). The limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **Contingency planning (Article 16, Section IV of the OP)**: Under Law No. 20(III)/2001; and
- **Liability and compensation (Article 27, Section V of the OP)**: Under Law No. 20(III)/2001.

There are some laws that could apply to the disposal of oil and oily mixtures and drilling fluids and cuttings, disposal of sewage, and monitoring of environment-related issues; however, they were not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-5 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Cyprus.

Table 4-5. Summary of responses to the questionnaire from Cyprus.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	28/29	26/28	• Law No. 20(III)/2001 ratifying the OP • Environmental Impact Assessment Law No. 140 (I)/2005 • Safety and Health at Work Laws of 1996 to 2011 • Law No. 153(I)/2003 for the Protection of Nature and Wildlife (Habitats Directive 92/43/EEC)
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	46/46	46/46	• Law No. 20(III)/2001 • Chemical Substances Law No. 78(I)/2010 • Waste Law 185(I)/2011 • Water and Soil Pollution Control Law 106(I)/2002
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	10/19	5/10	• MARPOL 73/78 Annex I provisions • Hydrocarbons Law No. 4(I)/2007 • Law No. 20(III)/2001 • Waste Law 185(I)/2011 • Water and Soil Pollution Control Law 106(I)/2002
C. SEWAGE	7/9	4/7	• MARPOL 73/78 Annex IV provisions
D. GARBAGE	4/4	4/4	• Provisions of MARPOL 73/78 Annex V
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	5/5	• Waste Law 185(I)/2011
F. EXCEPTIONS	4/4	4/4	No laws/regulations cited
III. SAFETY MEASURES	13/15	12/13	• IMO requirements • Safety and Health at Work Laws of 1996 to 2011 • Minimum Requirements for Safety and Health at Work (Extractive Industries through Drilling) Regulations of 2002 • Management of Safety and Health Issues at Work Regulations of 2002 (No. 173/2002) • Minimum Requirements for Safety and Health (Use of Work Equipment at Work) Regulations of 2001 (No. 444/2001)
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	2/4	1/2	• Law No. 20(III)/2001
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	22/32	22/22	• Law No. 20(III)/2001
B. COOPERATION	3/3	1/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	2/3	2/2	• Law No. 20(III)/2001

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.
IMO = International Maritime Organization; MARPOL = International Convention for the Prevention of Pollution from Ships

4.2.2.4 France

Offshore France in the Mediterranean, TGS Nopec, Noble Energy, and Melrose Mediterranean Limited in consortium started exploring for oil and gas in 2002. In 2010, the renewal of the permit for the next 5 years was requested, but the decision is still pending.

France has neither signed nor ratified the Offshore Protocol **(Table 4-2)**. However, according to the French authorities' response to the questionnaire, France has a comprehensive existing national legislative and administrative framework. This framework covers a significant number of provisions of the OP.

Specifically, France has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under Law n° 68-1181, 30 December 1968, L. 123-1 of the Mining Code (CM) related to the substances research at sea, and L. 133-1 of the CM regarding at sea exploitation, L. 162-3 of the CM on authorization principles for the works presenting hazards and serious inconvenience for the interests mentioned in article L. 161-1 of the CM, Decree 2006-649; Decree 2011-2019 related to the impact assessment, Environmental Code (EC) article R. 122-4 and R. 122-5, Decree 2000-278 on qualification, personnel training, and ratification of the International Convention on Oil Pollution Preparedness, Response, and Cooperation (OPRC 90) Convention. The limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of garbage (Article 12, Section III of the OP)**: Under Decree 83-874 of 27 September 1983 for the prevention of pollution from ships (MARPOL 73/78 Convention);
- **Safety measures (Article 15, Section IV of the OP)**: Under Decree 2000-278, Decree 2006-649, L.162.5 of the CM and Decree 71-360 (6 May 1971) on the enforcement of Law 68-1181 dated 30 December 1968, on exploration of the continental shelf and exploitation of its natural resources. A gap between the OP and the existing national legislative framework is presented in **Section 4.3** of this report;
- **Monitoring of environment-related issues (Article 19, Section IV of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited;
- **Contingency planning (Article 16, Section IV of the OP)**: Under ratification of OPRC 90 Convention, Decree 2000-278, Decree 2006-649, Decree 2005-1157 related to ORSEC plan (French generic emergency plan in case of a disaster) and Law 2004-811 on civil protection modernization. A gap between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **Cooperation (Articles 22 and 24, Section V of the OP)**: Positive ("Yes") responses were provided by the respondent; however, no laws or regulations were cited; and
- **Liability and compensation (Article 27, Section V of the OP)**: Under Decree 2006-648 and L.155.3 of the CM.

There are some laws that could apply to the disposal of waste and HNS&M and the disposal of oil and oily mixtures and drilling fluids and cuttings; however, they are not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-6 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of France.

Table 4-6. Summary of responses to the reviewed questionnaire from France.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	29/29	26/29	• Law n° 68-1181 • L. 123-1 of the CM • L. 133-1 of the CM • L. 162-3 of the CM • Decree 2006-649 • Decree 2011-2019 • EC R. 122-4 • EC R. 122-5 • Decree 2000-278 • OPRC 90 Convention
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	39/46	30/39	• REACH regulations • EC L.218-32 • Decree 83-874 (MARPOL 73/78 Convention)
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	13/19	8/13	• EC L.218-32
C. SEWAGE	0/8	---	No response available
D. GARBAGE	4/4	4/4	• Decree 83-874 (MARPOL 73/78 Convention)
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	4/5	4/4	• EC articles L541-22 to L541-30-1 • EC art L541-40
F. EXCEPTIONS	4/4	4/4	No laws/regulations cited
III. SAFETY MEASURES	14/19	13/14	• Decree 2000-278 • Decree 2006-649 • L. 162.5 of the CM • Decree 71-360
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	4/4	No laws/regulations cited
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	28/32	27/28	• OPRC 90 Convention • Decree 2000-278 • Decree 2006-649 • Decree 2005-1157 • Law 2004-811
B. COOPERATION	3/3	3/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	3/3	3/3	• Decree 2006-648 • CM art L. 155-3

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.
EC = Environmental Code; OPRC = International Convention on Oil Pollution Preparedness, Response, and Cooperation; REACH = Regulation on Registration, Evaluation, Authorization, and Restriction of Chemicals.

4.2.2.5 Greece

Greek territorial seas seem promising for both oil and gas reserves. The Ministry of Environment, Energy, and Climate Change (YPEKA) published an international call for proposals for participation in non-exclusive seismic survey off the coasts of Western and Southern Greece, which was eventually awarded to the Norwegian company, Petroleum Geo Services (PGS). At the same time, the granting of the State's oil and gas exploration and exploitation rights in three regions (Patraikos Gulf, Ioannina, and Western Katakolo) is currently under public consultation. Today in Greece, the principal company engaged in oil extraction is Kavala Oil (now Energean Oil & Gas) – with facilities in New Karvali and mining platforms in Prinos in the North Aegean Sea.

Greece has signed but not ratified the OP (**Table 4-2)**. However, according to the response of the Greek authorities to the questionnaire, Greece has an existing national legislative and administrative framework that covers only a limited number of provisions of the OP.

Specifically, Greece has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under Environmental Impact Assessment for Projects/Activities Law (L) 4014/2011, Ministerial Decision (MD) 1958/2012, Presidential Decree (PD) 177/1997 on the Safety of Workers in the Mineral Extracting Industries, PD 11/2002 on National Contingency Plan to address Pollution from Oil and Other Harmful Substances, Strategic Environmental Assessment for Plans/Programs (MD 107017/2006), PD 148/2009 for Environmental Liability, Hydrocarbons Law (L) 4001/2011, and Regulatory Framework for Nature, Habitats, Birds, Biodiversity and Cetaceans Conservation. The limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of garbage (Article 12, Section III of the OP)**: Under Law (L) 743/1977 on the Protection of Marine Environment and Law (L) 1269/1982 (ratification of MARPOL 73/78 Convention);
- **Safety measures (Article 15, Section IV of the OP)**: Under various legislative acts, including Hydrocarbons Law (L) 4001/2011, Law (L) 2252/1994 that ratifies the International Convention on Oil Pollution Preparedness, Response and Cooperation (OPRC) 1990, and PD 11/2002 (Greek National Contingency Plan). The limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **Contingency planning (Article 16, Section IV of the OP)**: Under Law (L) 3497/2006 that ratifies the Prevention and Emergency Protocol, OPRC requirements (L) 743/1977, and PD 11/2002 (Greek National Contingency Plan). The limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report; and
- **Liability and compensation (Article 27, Section V of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited.

There are some laws that could apply to the disposal of waste and HNS&M, the disposal of oil and oily mixtures and drilling fluids and cuttings, and disposal of sewage; however, they are not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-7 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Greece.

Table 4-7. Summary of responses to the questionnaire from Greece.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	29/29	24/29	• Environmental Impact Assessment for Projects/Activities Law (L) 4014/2011 • Ministerial Decision (MD) 1958/2012 • Presidential Decree (PD) 177/1997 • PD 11/2002 • MD 107017/2006 • PD 148/2009 for Environmental Liability • Hydrocarbons Law (L) 4001/2011 • Regulatory Framework For Nature, Habitats, Birds, Biodiversity, and Cetacean Conservation
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	45/46	11/45	• L 743/1977 on the Protection of Marine Environment
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	18/19	2/18	• L 743/1977 • Environmental Legislation for Habitats and Birds
C. SEWAGE	9/9	1/9	• L 743/1977
D. GARBAGE	4/4	4/4	• L 743/1977 • L 1269/1982 (ratification of MARPOL 73/78 Convention)
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	4/5	No laws/regulations cited
F. EXCEPTIONS	4/4	0/4	
III. SAFETY MEASURES	15/15	12/15	• Hydrocarbons Law (L) 4001/2011 • Law (L) 2252/1994 • PD 11/2002
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	1/4	No laws/regulations cited
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	28/32	• L 3497/2006 • OPRC requirements • L 743/1977 • PD 11/2002
B. COOPERATION	3/3	0/3	
C. LIABILITY AND COMPENSATION	3/3	2/3	No laws/regulations cited

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.
MARPOL 73/78 = International Convention for the Prevention of Pollution from Ships; OPRC = International Convention on Oil Pollution Preparedness, Response, and Cooperation.

4.2.2.6 Italy

Italy has one of the largest numbers of offshore installations in the Mediterranean area. The offshore installations mainly produce gas and are located in the Adriatic Sea, the Ionian Sea, and the Sicily Channel. As of the beginning of 2013, 117 exploration permits had been granted in Italy, out of which 95 were located onshore and 22 offshore. Of 200 exploitation licenses that were granted, 134 were located onshore and 66 offshore.

Italy has signed but not ratified the OP (**Table 4-2**). However, according to the response of the Italian authorities to the questionnaire, Italy has a comprehensive existing national legislative and administrative framework. This framework covers a large and significant number of provisions of the Offshore Protocol.

Specifically, Italy has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under Presidential Decree n. 886 dated 24 May 1979, Law n. 9 dated 9 January 1991, Legislative Decree n. 152 dated 3 April 2006, Law n. 979 dated 31 December 1982, Law n. 394 dated 6 December 1991, and Law Decree n. 221 dated 17 December 2012. The only gap between the OP and the existing national legislative framework is in the removal of installations (see **Section 4.3** of this report);
- **The disposal of HNS&M (Article 9, Section III of the OP)**: Under Law n. 979 dated 31 December 1982, Presidential Decree n. 886 dated 24 May 1979, and Legislative Decree n. 182 dated 24 June 2003;
- **The disposal of garbage (Article 12, Section III of the OP)**: In accordance with the provisions of the International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 (MARPOL 73/78), Annex V and Presidential Decree n. 886 dated 24 May 1979;
- **Reception facilities, instructions, and sanctions (Article 13, Section III of the OP)**: Under Legislative Decree n. 182 dated 24 June 2003 and Regulation (EC) No. 1013/2006 dated 14 June 2006;
- **Safety measures (Article 15, Section IV of the Offshore Protocol)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the Offshore Protocol and the existing national legislative framework are presented in **Section 4.3** of this report;
- **Monitoring of environment-related issues (Article 19, Section IV of the OP)**: In accordance with guidelines issued by the Italian Institute for Environmental Protection and Research (ISPRA) and authorization decrees for production of water discharge. A gap between the OP and the existing national legislative framework is in transboundary pollution (see **Section 4.3** of this report);
- **Contingency planning (Article 16, Section IV of the OP)**: Under Presidential Decree n. 886 dated 24 May 1979, Ministerial Decree dated 28 July 1994 and Law n. 979 dated 31 December 1982; and
- **Cooperation (Articles 22 and 24, Section V of the OP)**: Positive ("Yes") responses were provided by the respondent; however, no laws or regulations were cited.

There are some laws that could apply to the disposal of oil and oily mixtures and drilling fluids and cuttings, and disposal of sewage; however they were not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-8- presents a summary of responses to the reviewed questionnaire provided by the Offshore Focal Point of Italy.

Table 4-8. Summary of responses to the reviewed questionnaire from Italy.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	27/29	24/27	• Presidential Decree n. 886 dated 24 May 1979 • Law n. 9 dated 9 January 1991 • Legislative Decree n. 152 dated 3 April 2006 • Law n. 979 dated 31 December 1982 • Law n. 394 dated 6 December 1991 • Law Decree n. 221 dated 17 December 2012
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	15/46	15/15	• Law n. 979 dated 31 December 1982 • Presidential Decree n. 886 dated 24 May 1979 • Legislative Decree n. 182 dated 24 June 2003
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	12/19	9/12	• Presidential Decree n. 886 1979 • MARPOL 73/78 Annex I provisions • Legislative Decree n. 182 dated 24 June 2003 • Ministerial Decree dated 28 July 1994
C. SEWAGE	7/9	4/7	• Provisions of MARPOL 73/78 Annex V • Legislative Decree n. 182 dated 24 June 2003
D. GARBAGE	4/4	4/4	• Provisions of MARPOL 73/78 Annex V • Presidential Decree n. 886 dated 24 May 1979
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	5/5	• Legislative Decree n. 182 dated 24 June 2003 • Regulation (EC) No. 1013/2006 dated 14 June 2006
F. EXCEPTIONS	1/4	1/1	No laws/regulations cited
III. SAFETY MEASURES	19/19	17/19	No laws/regulations cited
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	3/4	• Guidelines issued by ISPRA • Authorization decrees for production of water discharge
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	32/32	• Presidential Decree n. 886 dated 24 May 1979 • Ministerial Decree dated 28 July 1994 • Law n. 979 dated 31 December 1982
B. COOPERATION	3/3	3/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	3/3	1/3	No laws/regulations cited

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.
MARPOL 73/78 = International Convention for the Prevention of Pollution from Ships; ISPRA = Institute for Environmental Protection and Research.

4.2.2.7 Israel

Offshore exploration in Israel started as early as the late 1960s, although the main exploration period came when private companies became involved. The first large offshore find was for natural gas in the Tamar-1 site in January 2009, discovered by a partnership that included Noble Energy of the U.S. and Israeli companies, Avner, Delek Drilling, Isramco, and Dor. This was followed in March 2009 by the gas discovery at the Dalit 1 site. The next major find, and the biggest in the region to date, was the discovery in October 2010 of a giant gas field in the Leviathan block by a consortium comprising Noble Energy, Delek Drilling, Avner Oil, and Ratio Oil.

Israel has signed but not ratified the OP (**Table 4-2**). However, according to the Israeli authorities' response to the questionnaire, Israel has an existing national legislative and administrative framework that covers a significant number of provisions of the OP.

Specifically, Israel has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of HNS&M (Article 9, Section III of the OP)**: Under Hazardous Substances Law of 1993;
- **The disposal of oil and oily mixtures and drilling fluid and cuttings (Article 10, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of garbage (Article 12, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited;
- **Safety measures (Article 15, Section IV of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited; and
- **Contingency planning (Article 16, Section IV of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. The only gap between the OP and the existing national legislative framework is in special measures for special protected areas (see **Section 4.3** of this report).

Table 4-9 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Israel.

Table 4-9. Summary of responses to the questionnaire from Israel.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	29/29	26/29	No laws/regulations cited
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	45/46	44/45	• Hazardous Substances Law of 1993
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	19/19	16/19	No laws/regulations cited
C. SEWAGE	8/9	5/8	No laws/regulations cited
D. GARBAGE	3/4	3/3	No laws/regulations cited
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	4/5	No laws/regulations cited
F. EXCEPTIONS	4/4	3/4	No laws/regulations cited
III. SAFETY MEASURES	15/15	15/15	No laws/regulations cited
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	1/4	Under process (1/4) Under discussions (1/4)
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	31/32	No laws/regulations cited
B. COOPERATION	3/3	1/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	2/3	1/2	No laws/regulations cited

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.

** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.

4.2.2.8 Libya

The offshore Pelagian basin sits to the northwest of Tripoli and contains seven oil and gas concessions. Production from the basin is dominated by the Bouri field. It is jointly operated by Italy's Eni and National Oil Corporation (NOC), through the Mellitah Oil & Gas venture. Another major contributor to offshore production is Mabruk Oil Operations, a joint venture of NOC and France's Total, operating the Al-Jawf field. The offshore portion of oil and gas production is expected to grow.

Libya has ratified the OP **(Table 4-2)**. According to the Libyan authorities' response to the questionnaire, Libya has an existing national legislative and administrative framework that covers a limited number of provisions of the OP.

Specifically, Libya has a legislative and administrative framework that covers the following:

- **The disposal of oil and oily mixtures and drilling fluid and cuttings (Article 10, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited;
- **The disposal of garbage (Article 12, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited; and
- **Safety measures (Article 15, Section IV of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report.

There are some laws that could apply to the requirements and granting authorizations; however, they are not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-10 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Libya.

Table 4-10. Summary of responses to the questionnaire from Libya.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	21/29	19/21	• Law 8 of 1973 on Prevention of Pollution of the Sea by Oil • Law 7 of 1982 on Environmental Protection • Law 14 of 1989 on Utilizing Marine Wealth • Resolution 263 of 1999 on Establishing the General Authority for the Environment • Law 15 of 2003 on Protecting and Improving the Environment • National EIA Guidelines
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	29/46	29/29	No laws/regulations were cited
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	17/19	17/17	No laws/regulations were cited
C. SEWAGE	4/9	3/4	No laws/regulations were cited
D. GARBAGE	3/4	3/3	No laws/regulations were cited
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	3/5	1/3	No laws/regulations were cited
F. EXCEPTIONS	0/4	-	No response available
III. SAFETY MEASURES	13/15	12/13	No laws/regulations were cited
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	1/4	1/1	No laws/regulations were cited
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	20/32	19/20	No laws/regulations were cited
B. COOPERATION	3/3	0/3	
C. LIABILITY AND COMPENSATION	0/3	---	No response available

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.

4.2.2.9 Morocco

Even though the oil and gas sector in Morocco is relatively small and underdeveloped compared to its North African neighbours (i.e., Algeria, Libya and Egypt), the Moroccan authorities are hoping for greater investor interest in Morocco's hydrocarbon potential, especially offshore.

Morocco has ratified the OP. However, according to the response of the Moroccan authorities to the questionnaire, Morocco has an existing national legislative and administrative framework that covers a limited number of provisions of the Offshore Protocol.

Specifically, Morocco has a legislative and administrative framework that covers:

- The requirements and granting of authorizations (Section II of the Offshore Protocol) under Law No. 11-03 on the protection and enhancement of the environment, Law No. 12-03 on studies of environmental impact, Law No. 21-90 as amended and supplemented by Law No. 27-99 (Hydrocarbons Code) and Law No. 10-95 on water. A limited number of gaps between the Offshore Protocol and the existing national legislative framework are presented in Section 4.3 of this report;
- Cooperation (Articles 22 and 24, Section V of the Offshore Protocol) – response was positive however, there were no laws/regulations that were cited; and
- Liability and compensation (Article 27, Section V of the Offshore Protocol) under Hydrocarbons Code (Article 32). A gap regarding liability and compensation on transboundary pollution is presented in Section 4.3 of this report.

There are some laws that could apply to the disposal of waste and hazardous and noxious substances and material (HNS&M), safety measures and contingency planning however, they are not comprehensive/adequate to cover all or the majority of the Offshore Protocol provisions.

Table 4-11 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Morocco.

Table 4-11. Summary of responses to the questionnaire from Morocco.

Offshore Protocol Provision	No. of Answers*	No. of "Yes" Responses**	Legislative/Regulatory/Contractual Reference
I. AUTHORIZATION SYSTEM	27/29	24/27	• Law No. 11-03 • Law No. 12-03 • Law No. 21-90 as amended and supplemented by Law No. 27-99 (hydrocarbons code) • Law No. 10-95
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	30/46	21/30	• Law No. 11-03 (Article 51) • Law No. 28-00 (Articles 4, 29)
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	3/19	0/3	
C. SEWAGE	9/9	0/9	
D. GARBAGE	3/4	1/3	• Law 28-00
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	4/5	• Law 28-00 (Articles 1, 8, 29, 70)
F. EXCEPTIONS	0/4	-	No response available
III. SAFETY MEASURES	4/15	4/4	• Law No. 12-03 • Labour Code
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	3/4	0/3	
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	20/32	20/20	• Hydrocarbons Code (Article 33, Chapter III) • Law 12-03
B. COOPERATION	3/3	3/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	3/3	2/3	• Hydrocarbons Code (Article 32)

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.

4.2.2.10 Spain

Spain granted offshore permits in the Mediterranean (e.g., offshore Cadiz, Tarragona, and Granada) and in the Atlantic (e.g., Gulf of Biscay and Canary Islands). These installations are for oil, gas, and, to a lesser extent, storage. Currently, there are 19 projects operating offshore Spain – six of the projects concern gas operations, three are currently engaged in production activities, two obtained valid permits for offshore exploration, and one is still awaiting such a permit. Additionally, one operator has applied for a permit for storage which is currently being examined.

Spain has signed but not ratified the OP (**Table 4-2**). However, according to the response of the Spanish authorities to the questionnaire, Spain has an existing national legislative and administrative framework that covers only a limited number of provisions of the OP.

Specifically, Spain has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under Law 34/1998 dated 7 October 1998, Legislative Royal Decree 1/2008, dated 11 January 2008, approving the consolidated text of the Environment Impact Assessment of Projects Law (RDL 1/2008), and Royal Decree 1695/2012, on 21 January approving the National Response System (RD 1695/2012). The only gap between the OP and the existing national legislative framework is in additional measures for specially protected areas (see **Section 4.3** of this report); and
- **Contingency planning (Article 16, Section IV of the OP)**: Under RD 1695/2012. A gap in the requirement for the operator's contingency plan is presented in **Section 4.3** of this report.

There are some laws that could apply to safety measures; however, they are not comprehensive or adequate to cover all or the majority of the OP provisions.

Table 4-12 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Spain.

Table 4-12. Summary of responses to the questionnaire from Spain.

Offshore Protocol Provision	**No. of Answers***	**No. of "Yes" Responses****	**Legislative/Regulatory/Contractual Reference**
I. AUTHORIZATION SYSTEM	29/29	25/29	• Law 34/1998 • Legislative Royal Decree (RDL) 1/2008 • Royal Decree 1695/2012
II. DISPOSAL AND DISCHARGES			No response available (See **Section 4.3**)
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	0/46	-	
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	0/19	-	
C. SEWAGE	0/9	-	
D. GARBAGE	0/4	-	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	0/5	-	
F. EXCEPTIONS	0/4	-	
III. SAFETY MEASURES	6/15	5/6	• Royal Decree 2362/1976 • Industry Act 21/1992 • Royal Decree 150/1996
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	0/4	
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	31/32	• Royal Decree 1695/2012
B. COOPERATION	0/3	-	No response available
C. LIABILITY AND COMPENSATION	0/3	-	No response available (See **Section 4.3**)

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.

4.2.2.11 Turkey

Turkey has conducted extensive deepwater exploration with other partners in the Black Sea. However, to date, there have not been any significant discoveries, and in December 2011, ExxonMobil and the state-owned Turkish Petroleum Corporation (TPAO) ceased exploration activities. The focus of Turkish authorities appears to be shifting to the Mediterranean. In the Mediterranean area, the TPAO has conducted 2D and 3D seismic surveys in offshore Antalya, Mersin, and İskenderun. TPAO signed an agreement with Royal Dutch Shell in November 2011 for exploration offshore Antalya. TPAO is also planning exploration in the Mersin and İskenderun Bays northeast of Cyprus.

Turkey has neither signed nor ratified the OP (**Table 4-2**). However, according to the Turkish authorities' response to the questionnaire, Turkey has an existing national legislative and administrative framework that covers a significant number of provisions of the OP.

Specifically, Turkey has a legislative and administrative framework that covers the following:

- **The requirements and granting of authorizations (Section II of the OP)**: Under the Turkish Environment and Marine Legislation and Turkish Environmental Impact Assessment Legislation. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of HNS&M (Article 9, Section III of the OP)**: Under TPAO standards and Turkish Environmental Legislation. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of oil and oily mixtures and drilling fluid and cuttings (Article 10, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **The disposal of sewage (Article 11, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited;
- **The disposal of garbage (Article 12, Section III of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited;
- **Safety measures (Article 15, Section IV of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report;
- **Contingency planning (Article 16, Section IV of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited. A limited number of gaps between the OP and the existing national legislative framework are presented in **Section 4.3** of this report; and
- **Liability and compensation (Article 27, Section V of the OP)**: Positive ("Yes") responses were provided; however, no laws or regulations were cited.

Table 4-13 presents a summary of responses to the questionnaire provided by the Offshore Focal Point of Turkey.

Table 4-13. Summary of responses to the reviewed questionnaire from Turkey.

Offshore Protocol Provision	**No. of Answers***	**No. of "Yes" Responses****	**Legislative/Regulatory/Contractual Reference**
I. AUTHORIZATION SYSTEM	29/29	24/29	• Turkish Environment and Marine Legislation • Turkish Environmental Impact Assessment Legislation
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	46/46	41/46	• TPAO standards • Turkish Environmental Legislation
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	18/19	15/18	No laws/regulations cited
C. SEWAGE	8/9	7/8	No laws/regulations cited
D. GARBAGE	4/4	4/4	No laws/regulations cited
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	5/5	No laws/regulations cited
F. EXCEPTIONS	4/4	0/4	
III. SAFETY MEASURES	15/19	12/15	No laws/regulations cited
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	3/4	No laws/regulations cited
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	30/32	No laws/regulations cited
B. COOPERATION	3/3	2/3	No laws/regulations cited
C. LIABILITY AND COMPENSATION	3/3	3/3	No laws/regulations cited

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of positive responses out of the total "yes" or "no" responses. Indication whether a national legislation is in place for the specific section of the Offshore Protocol.

TPAO = Turkish Petroleum Corporation.

4.3 DISCUSSION – POTENTIAL GAPS BETWEEN OFFSHORE PROTOCOL PROVISIONS AND REQUIREMENTS OF EXISTING LAWS OR PRACTICES

Offshore activities, including oil and gas exploration and exploitation activities, are taking place on an increasingly large scale in the Mediterranean Sea. The sea hosts more than 200 active offshore platforms, with more under consideration due to the discovery of large fossil fuels reserves. Hydrocarbon spills arising from accidents in association with offshore oil or gas installations can have direct, severe, and potentially irreversible effects in the Mediterranean Sea due to its semi-closed configuration, special hydrodynamics, and the significant seismic activity in the region. In order to reduce the risk of such accidents, regulatory initiatives have been undertaken at both the regional (OP) and the EU level (EU Directive 2013/30/EU on safety of offshore oil and gas operations). The aim of this section was to highlight gaps and differences between the OP provisions and requirements relative to the existing national laws and practices. The section is divided into EU Mediterranean Contracting Parties (i.e., EU, Cyprus, Greece, Italy, Spain, and France) and other non-EU Mediterranean Contracting Parties (i.e., Israel, Turkey, Libya, Algeria, and Morocco) for the purpose of better analysis of the obtained information and presentation of the results.

4.3.1 EU Mediterranean Contracting Parties

The EC reacted to the *Deepwater Horizon* accident in the Gulf of Mexico (2010) by adopting a directive for offshore safety in the EU, which aimed to ensure that production throughout Europe would embrace the world's highest safety, health and environmental standards. The OP and EU Directive 2013/30/EU on safety of offshore oil and gas operations (Directive) are two highly related instruments, both aiming at regulating offshore oil and gas activities. It is considered likely that the prospect of the EU's accession to the OP will further stimulate the ratification process for EU Mediterranean Contracting Parties. Also the EU Mediterranean Contracting Parties are obliged to transpose the EU Directive 2013/30/EU into national law. Therefore, the EU Mediterranean Contracting Parties will probably need to implement both instruments at the same time. The lack of a comprehensive legal framework at the EU level led to the development of different regulatory frameworks and practices by the Member States, particularly in regard to licensing practices, safety, and environment protection regimes. Therefore, the Directive was intended to overcome these differences by providing a clear, comprehensive, and transparent system through which the safety and sustainability of offshore operations can be planned and measured. While the ultimate objectives are often similar, the OP and Directive have different focuses – the OP, negotiated and adopted in 1994, aimed to protect the Mediterranean against pollution from offshore activities and focused on day-to-day operation guidelines; whereas the recent Directive was intended to ensure the safety of offshore activities through the prevention of major accidents.

Table 4-14 provides a summary of the most important synergies and differences between the OP and the Directive on safety of offshore oil and gas operations. **Tables 4-15** to **4-19** highlight gaps and differences between the OP provisions and requirements relative to the existing national laws and practices of each of the EU Mediterranean Contracting Party.

Table 4-14. Summary of the most important synergies and differences between the Offshore Protocol (OP) and European Union (EU) Directive 2013/30/EU on safety of offshore oil and gas operations (from European Commission [EC] study).

Offshore Protocol Provision	Synergies and Differences between the OP and EU Directive 2013/30/EU on Safety of Offshore Oil and Gas Operations
I. AUTHORIZATION SYSTEM	• A general comment is that there is a difference in scope between the two legal documents when discussing "authorizations". The OP concerns the so-called "work authorization" (exploration and exploitation), whereas the Directive covers the licensing (building upon Directive 94/22/EC described as the exclusive right to prospect or explore for or produce hydrocarbons in a geographical area). • Article 5 (Requirements for authorizations): Both the OP and the Directive require a screening (and not a compulsory/systematic EIA) of the environmental effects of proposed activities. In the Directive, the requirements for a screening of the environmental effects are part of the risk assessment in the Major Hazard Report (MHR), which includes, among others, the risk to the environment. The Directive does not provide that operators of production or non-production installations need to submit to the Competent Authority information on the professional and technical qualifications of the candidate operator, personnel, and the composition of the crew. This "gap" can be explained by the different scope of the two legal documents. The OP focuses on daily operations laying down more general requirements, whereas the Directive is more specific with its aim to reduce major accidents related to offshore oil and gas activities. • Article 6 (Granting of authorizations): The OP and the Directive adopt a different approach concerning their Members' obligation to inform the Organization and the Commission, respectively. Whereas under the OP, there is an obligation of Parties to inform the Organization as soon as authorizations are granted or renewed, and an obligation of the Organization to keep a register, under the Directive, the Competent Authorities in each Member State are responsible for preparing an annual report, which includes information on the number, age, and location of installations in their jurisdiction that will be made publicly available. Then, the Commission will publish a report on the safety of offshore installations based on the reports of the Member States and the European Maritime Safety Agency (EMSA) every year. • Article 7 (Sanctions): Both the OP and the Directive provide for the imposition of sanctions if their provisions are violated. The OP provides that sanctions must be imposed also when the specific conditions attached to the authorization are not complied with, a requirement which is not explicitly found in the Directive.
II. DISPOSAL AND DISCHARGES	• A general comment in relation to Disposal and Discharges Section is that this section became outmoded as the text of the OP was negotiated and adopted before the 1995 revision of the Barcelona Convention. Through its Annexes I and II, the OP introduces a black and gray list, providing differentiating control systems – either prohibiting disposal or requiring a special permit. The disposal of the harmful and noxious substances and materials not listed in Annexes I and II requires a prior general permit. Annex III lists the factors that need to be considered for the issuing of these permits. Revising the Barcelona Convention, the system of black and gray lists was replaced by an "integrating management system". It is, therefore, not likely that the EU Mediterranean Contracting Parties need to transpose the provisions provided by Annexes I, II and III in their national legislation.

Offshore Protocol Provision	Synergies and Differences between the OP and EU Directive 2013/30/EU on Safety of Offshore Oil and Gas Operations
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	• Article 9(1): The OP imposes an obligation on operators to obtain an approval from the Competent Authority to use and store chemicals for their activities. The use and storage of chemicals for the purpose of offshore activities is not regulated by the Directive. Directive 2008/98/EC regulates the management of (hazardous) waste and provides that Member States must ensure that its production, collection, transportation, storage, and treatment are conducted in conditions providing protection for the environment and the human health – this however only applies to the chemicals after their use. Further, the use, handling, and disposal of chemicals is covered by the Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation. However, approval by the Competent Authority of the use and storage of chemicals is not covered. • Article 9(2): No specific regulation on the use of chemicals is provided by the Directive. The option for the Member States to "regulate, limit or prohibit" the use of chemicals can be based on Directive 94/22/EC (license) that provides the Member State with the option to impose conditions and requirements on the exercise of offshore activities. More importantly, the REACH Regulation sets restrictions and authorizations procedures for specific hazardous substances and mixtures. • Article 9(3): The need to provide a description to each substance and material used for the offshore activities is not regulated by the Directive. However, under the Regulation 1272/2008 on the classification, labeling, and packaging (CLP) of substances and mixtures which also applies to the substances and mixtures falling under REACH, specific chemical substances or mixture need to be accompanied by a safety data sheet which will identify the substance/mixture and the company/undertaking providing it. • Article 9(4): No specific regulation on disposal of harmful or noxious substances and materials is provided by the Directive. General obligations to avoid pollution of the marine environment are provided by Directive 2008/98/EC and Directive 2008/56/EC, in combination with the Water Framework Directive. Further the London Convention (on the prevention of marine pollution by dumping of waste and other matter) prohibits disposal of harmful or noxious substances and materials in the oceans and seas. • Article 9(5): The need to obtain a "prior special permit" from the Competent Authorities for the disposal of "harmful or noxious substances and materials resulting from the activities" is not regulated by the Directive. In principle, disposal of waste is prohibited according to the London Convention and Marine Framework Strategy Directive. Member States should however ensure that the materials listed in Annex II to the OP are covered by Annex I to the London Convention. Likewise under the Waste Framework Directive, waste must be properly treated. Therefore, the overall aim of the OP appears to be covered. • Article 9(6): The need to obtain a permit from the Competent Authorities for the disposal of "other harmful or noxious substances and materials resulting from the activities" is not regulated by the Directive. Similarities can be found in the International Convention for the Prevention of Pollution from Ships 73/78 (MARPOL 73/78). • Article 9(7) & Annex III: Annex III to the OP sets out the factors to be considered for the issuing of a disposal permit. As the OP refers to "waste" in this regard – although a comparable permit system does not exist in the EU *acquis* – general obligations can be sought in the Waste Directive. Also MARPOL 73/78 does not explicitly refer to elements indicated in Annex III of the OP; however, it provides that arrangements for the discharge should be based on standards developed by the Organization.
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	• Article 10 & Annex V: Annex V to the OP provides further guidance to Article 10, which requires the Contracting Parties to formulate and adopt common standards for the use and disposal of oil and oily mixtures and drilling fluids and cuttings. No specific regulation on disposal of oil or oily mixtures and drilling fluid and cuttings is provided by the Directive. A general obligation to avoid pollution of the marine environment is provided by Directive 2008/56/EC.

Offshore Protocol Provision	Synergies and Differences between the OP and EU Directive 2013/30/EU on Safety of Offshore Oil and Gas Operations
C. SEWAGE	• Article 11: The specific regulation of sewage disposal falls outside the scope of the Directive. A general obligation to avoid pollution of the marine environment is provided by Directive 2008/56/EC.
D. GARBAGE	• Article 12: The regulation of garbage disposal falls outside the scope of the Directive. No specific regulation on disposal of garbage is provided by the Directive.
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	• Article 13: Synergies exist with Directive 2000/59/EC on port reception facilities for ship-generated waste and cargo residues that implement the MARPOL 73/78 Convention.
F. EXCEPTIONS	• Article 14(1)(a): The specific reasons for force majeure referred to in sub-paragraph (a) are not reflected in the Directive.
•	
III. SAFETY MEASURES	• A general comment is that the relevant provisions of the Directive are not directly referring to the elements stipulated by Annex VI of the OP. However, as they require operators of the installations to ensure that the installations are designed and operated in such manner as not to pose risk of major hazard to persons and environment, they are considered to cover, in general terms, the scope of the provision of the OP and as such are applicable. • Article 15(1): The OP and the Directive follow a different approach concerning the adoption of safety measures. According to the OP, Contracting Parties must ensure that safety measures are taken with regard to activities of offshore oil and gas installations. The Directive emphasizes the responsibility of operators to develop safety measures. This is mainly formulated as part of accident prevention policy. The emphasis of the safety measures is on the design of the installation. • Article 15(2): The OP requires adequate equipment and devices for protecting human life, preventing and combating accidental pollution, and facilitating prompt response to an emergency. No similar requirement has been identified in the Directive. However, the Directive, as part of the requirements on the content of the emergency plan, calls for arrangements for the survival of persons, the description and maintenance of equipment and the procedures for response to an emergency. Further, measures aimed at the protection of human life (health and safety of workers) are provided by Directive 92/91/EC, which contains detailed provisions to ensure that the equipment used during the operations does not pose any danger to workers' health and safety. • Article 15(3): The OP imposes upon operators an obligation to acquire a certificate of fitness from a recognized body. Such requirement cannot be identified in the Directive.
•	
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	• Article 19(1): Monitoring requirements as established in the OP are not required by the Directive or the EU *acquis*. Directive establishes the obligation of monitoring for operators on their prevention policy, which is not the same as the effects on the environment as mentioned in the OP. • Article 19(2): The OP imposes upon Member States' Competent Authorities an obligation to monitor the installations and the impacts of their activities on the environment. Even though a similar provision has not been identified in the Directive, it is worth noting that the Marine Strategy Framework Directive obliges Member States to implement monitoring programs to assess the environmental status of their marine waters on the basis of the indicative lists of elements contained in Annex III.
V. PREPAREDNESS AND RESPONSE	

Offshore Protocol Provision	Synergies and Differences between the OP and EU Directive 2013/30/EU on Safety of Offshore Oil and Gas Operations
A. CONTINGENCY PLANNING	• Article 16 & Annex III: Annex VII to the OP sets out the requirements for the operator's contingency plan as well as the requirements for national coordination and direction to the competent authorities. The obligations set for the operator under the OP are covered by the Directive and Directive 91/92/EC concerning the minimum requirements for improving the safety and health protection of workers in the mineral extracting industry. The requirements to the competent authorities are covered by the EU draft Regulation, including requirements to the MHR.
B. COOPERATION	• Article 22 (Studies and Research Programs): The focus of the scientific cooperation between the Parties to the OP is on minimizing the risk of pollution and to prevent, abate, combat and control pollution, specifically in emergencies. The Directive foresees cooperation between Member States, which focuses on information exchange regarding knowledge, information and experience among themselves, through the European Union Offshore Oil and Gas Authorities Group (EUOAG), and shall engage in consultations on the application of relevant national and Union law with the industry, other stakeholders and the Commission. • Article 24 (Scientific and technical assistance to developing countries): No such requirement has been identified in the Directive.
C. LIABILITY AND COMPENSATION	• Article 27(1): Whereas the OP requires parties to "cooperate in formulating and adopting" a regime on rules and procedures for liability and compensation, the Directive builds upon the existing liability scheme under Directive 2004/35/EC. • Article 27(2): • Although the objective of both legal documents is to put in place mechanism to cover potential damage, a significant difference is that the OP mentions mandatory financial security measures to do so, whereas the Directive (and EU *acquis*[10]) does not impose a certain tools or methods to ensure sufficient financial capacity (which is left to the Member State). • Another difference is that the Environmental Liability Directive (ELD) requires remediation of environmental damage whereas payment of compensation for environmental damage is expressly prohibited. The ELD aims at natural restoration of damage (primary, complementary and compensatory remediation). • Article 26(4): No such requirement has been identified in the Directive.

[10] http://ec.europa.eu/enlargement/policy/conditions-membership/chapters-of-the-acquis/

Table 4-15. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Cyprus.

CYPRUS			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	28/29	2/28	1. Article 5(1)(a) & Annex IV (EIA requirements): The OP requires a screening (and not a compulsory/systematic EIA) of the environmental effects of proposed activities. In Cyprus, an EIA is required for exploitation activities according to Annex I of the EU EIA Directive 2011/92/EU. A preliminary EIA is required for exploration drilling according to Annex II of the same Directive. 2. Article 5(1)(g) & Article 20(1) (removal of installations): defining the standards for the removal of abandoned and disused installations is under examination.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	46/46	0/46	
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	10/19	5/10	1. Article 10(1) & Annex V, A: there is no legislation in Cyprus on requirements establishing common standards for the disposal of oil and oily mixtures from installations. 2. Article 10(2) & Annex V, B: there is no legislation in Cyprus on requirements establishing common standards for the use and disposal of drilling fluids and drill cuttings. However, some provisions of the OP standards are satisfied through different laws: • The use and disposal of water-based drilling fluids are subject to the Chemical Use Plan (mainly subject to the Offshore Discharge Program, which is requested during the authorization issued under the Hydrocarbons Law No. 4(I)/2007). • The disposal of water-based drilling fluids is made on land or into the sea in an appropriate site or area as specified by the Competent Authority. • The disposal into the sea of oil-based drilling fluids is prohibited (Law No. 20(III)/2001, which ratifies the OP of the Barcelona Convention, Waste Law 185(I)/2011, Water and Soil Pollution Control Law 106(I)/2002). • The disposal of drill cuttings in specially protected areas is prohibited.

CYPRUS			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			• The disposal of drill cuttings is allowed under certain conditions. 3. The OP Competent Authority has <u>not</u> yet decided if permits for the use of oil and oily mixture and drilling fluids and cuttings shall be issued over and above the Permit issued under the OP, which includes the approval of Chemical Use Plan.
C. SEWAGE	7/9	3/7	Article 11(1)(a)(b)(c): Cypriot law prohibits the discharge of sewage of installations permanently manned by 10 or more persons but <u>no</u> exceptions are defined.
D. GARBAGE	4/4	0/4	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	0/5	
F. EXCEPTIONS	4/4	0/4	
III. SAFETY MEASURES	13/15	1/13	Article 15 & Annex VI concerns the adoption of safety measures: The following provision is <u>not</u> covered by the Cyprus legislative framework: • In the case of authorized not permanently manned installations, the permanent availability of a specialized crew shall be ensured. There are <u>no</u> available information yet regarding the provisions: • the installations must be indicated on charts and notified to those concerned; and • in order to secure observance of the foregoing provisions, the person and/or persons having the responsibility for the installation and/or the activities, including the person responsible for the blow-out preventer, must have the qualifications required by the Competent Authority, and that sufficient qualified staff must be permanently available. Such qualifications shall include, in particular, training, on a continuing basis, in safety and environmental matters.

CYPRUS			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	2/4	1/2	1. Article 19(2) on national monitoring system: The Cyprus Competent Authority has <u>not</u> yet established a national monitoring system to support decision making process for granting authorizations. 2. There are <u>no</u> available information regarding: • If the national monitoring system takes into account any adverse environment effects of activities within the limits or beyond the country jurisdiction; and • the Competent Authority in charge of establishing monitoring procedures.
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	22/32	0/22	
B. COOPERATION	3/3	2/3	1. Article 22 (studies and research programs): the government is <u>not</u> engaged in any cooperation in research and development program to minimize risk of pollution. 2. Article 24 (scientific and technical assistance to developing countries): the government is <u>not</u> implementing any program of assistance to developing countries in the field of science, law, education and technology to prevent, combat, and control pollution (e.g. trainings and acquisition, utilization and production of appropriate equipment).
C. LIABILITY AND COMPENSATION	2/3	0/2	Article 26(4) (transboundary pollution): <u>No</u> available information on the issue of granting equal access to and treatment in administrative proceedings to persons in other States affected by pollution or other adverse effect of offshore activities.

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-16. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of France.

FRANCE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	29/29	3/29	1. 1. Article 5(1)(a) & Annex IV (EIA requirements): The OP require a screening (and not a compulsory/systematic EIA) of the environmental effects of proposed activities. In France, an EIA is compulsory for exploration and exploitation of more than a 100-m depth. 2. 2. Article 5(1)(g) & Article 20(1) (removal of installations): there are no standards for the removal of abandoned and disused installations by the Competent Authority. 3. Article 5(1)(i) & Article 27(2)(b) (insurance and financial security): there are no requirements for insurance/financial security for operators.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	39/46	9/39	1. Article 9(1): there are no measures in place to approve the use of chemicals, on the basis of the Chemical Use Plan. 2. Article 9(2): No guidelines are adopted that regulates, limits, or prohibits the use of chemicals for the activities (the OP states that the Contracting Party *may* regulate, limit or prohibit the use of chemicals for the activities in accordance with guidelines to be adopted by the Contracting Parties). 3. Article 9(4) & Annex I: the disposal of the following HNS&M are not prohibited: • Mercury and mercury compounds • Cadmium and cadmium compounds • Organotin compounds and substances which may form such compounds in the marine environment • Organophosphorus compounds and substances which may form such compounds in the marine environment • Organohalogen compounds and substances which may form such compounds in the marine environment; and • Crude oil, fuel oil, oily sludge, used lubricating oils and refined products

FRANCE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			4. Article 9(6): there is no requirement for prior general permit for the disposal of other HNS&M resulting from offshore activities which may cause pollution.
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	13/19	5/13	Article 10(1)(c): there is no method defined to analyze the oil content Article 10(2) & Annex V, B: there is no legislation in FR on requirements establishing common standards for the use and disposal of drilling fluids and drill cutting. However, some provisions of the OP standards are satisfied through different laws: • The disposal of water-based drilling fluids is made on land or into the sea in an appropriate site or area as specified by the Competent Authority; • The disposal into the sea of oil-based drilling fluids is prohibited; • The disposal of drill cuttings subject to a permit delivered with the conditions that efficient solids control equipment is installed and properly operated, that the discharge point is well below the surface of the water and that the oil content is less than 100 grams of oil per kilogram dry cuttings (Foreseen in the authorization prefect order); • In case of production and development drilling, a program of seabed sampling and analysis relating to the zone of contamination must be undertaken (L218-32 of the European Commission[EC]); • The disposal of drill cuttings in specially protected areas is prohibited (L218-32 of the EC); and • The use of diesel-based drilling fluids is prohibited.
C. SEWAGE	0/8	-	
D. GARBAGE	4/4	0/4	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	4/5	0/4	
F. EXCEPTIONS	4/4	0/4	
III. SAFETY MEASURES	14/19	1/14	2. Annex VI(f). *"That, in order to secure observance of the foregoing provisions, the person and/or persons having the responsibility for the installation and/or the activities, including the person*

FRANCE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			responsible for the blow-out preventer, must have the qualifications required by the competent authority, and that sufficient qualified staff must be permanently available. Such qualifications shall include, in particular, training, on a continuing basis, in safety and environmental matters": The operator's technical capacities are checked by the Competent Authority. The Competent Authority can then hire qualified professionals.
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	0/4	
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	28/32	1/28	1. Article 16(3) & Annex VII, A2 (operator's contingency plan): There is no requirement for the operator to cooperate, on an institutional basis, with other operators or entities capable or rendering necessary assistance, so as to ensure that, in cases where the magnitude or nature of an emergency create a risk which assistance is or might be required, such assistance can be rendered.
B. COOPERATION	3/3	0/3	
C. LIABILITY AND COMPENSATION	3/3	0/3	

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.

** Number of negative responses out of the total "yes" or "no" responses.

Table 4-17. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Greece.

GREECE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	29/29	5/29	1. Article 5(1)(a) & Annex IV (EIA requirements): The OP require a screening (and not a compulsory/systematic EIA) of the environmental effects of proposed activities. In Greece, an EIA is required for exploration and exploitation activities. Law (L) 4014/2011 and Ministerial Decision (MD) 1958/2012 set slightly different requirements for EIA related to exploration drilling than the ones related to exploitation activities. 2. Article 5(1)(c) (requirements of authorization): composition of the crew and their qualifications is not a requirement in the application for authorization or for the renewal of an authorization for Greece. 3. Article 5(1)(g) & Article 20(1) (removal of installations): there are no provisions in the law regarding: • the Competent Authority requiring the operator to remove abandoned and disused (even when authorization withdrawn or suspended) installations; and • defining the standards for the removal of abandoned and disused installations by the Competent Authority. 4. The Competent Authority in charge of supervising the removal operations of offshore installations has not been identified yet.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	45/46	34/45	1. Article 9(1)(2)(3) (use and store of chemicals): there is no legislative framework regarding: • an obligation on operators to obtain an approval from the Competent Authority to use and store chemicals for their activities, on the basis of the Chemical Use Plan; • defining the limitation and prohibition for the use of chemicals; and • the need to provide a description to each HNS&M used for the offshore activities. 2. Article 9(5)(6)(7) & Annex II & III (permits for disposal): no special or general permit is required for the disposal of the HNS&M listed in Annex II or may cause pollution resulting from the offshore activities since Law No. 743/1977

GREECE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			on the Protection of Marine Environment, as stands, prohibits the disposal in the sea of all substances that may cause pollution. Only in case when definitely there is no possibility of pollution from the disposal may require a special permit (no further information is provided). 3. The Competent Authority in charge of issuing and registering the special and general permits for the use of HNS&M has not been identified.
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	18/19	16/18	1. Article 10(1) & Annex V, A: there is no legislation in Greece on requirements establishing common standards for the disposal of oil and oily mixtures from installations. 2. Article 10(2) & Annex V, B: there is no legislation in Greece on requirements establishing common standards for the use and disposal of drilling fluids and drill cutting. However, some provisions of those standards are satisfied through different laws: • The disposal of oil-based drilling fluids into the sea is prohibited (Law No. 743/1977 imposes general prohibition. Furthermore, any such disposal is strongly discouraged by the EIA results). • The disposal of drill cuttings in specially protected areas is prohibited (Imposed by the environmental legislation for habitats and birds). 3. The Competent Authority in charge of issuing and registering the permits for the use of oil and oily mixture and drilling fluids and cuttings has not been identified.
C. SEWAGE	9/9	8/9	Article 11. No specific requirements to prohibit the discharge of sewage from installations have been identified in the legislation of Greece. Law No. 743/1977 imposes general prohibition. Furthermore, any such discharge is strongly discouraged by the EIA results.
D. GARBAGE	4/4	0/4	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	1/5	Article 13(a): The monitoring of the disposal of waste and HNS&M in designated onshore reception facilities is not satisfactory.
F. EXCEPTIONS	4/4	4/4	Article 14(1)(a): There are no exceptions to the provisions of the disposal and discharges section.

GREECE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
III. SAFETY MEASURES	15/15	3/15	1. Article 15(3): There is no requirement for the operator to acquire a certificate of safety and fitness from a recognized body. 2. The Competent Authority in charge of issuing the certificate of safety and fitness has not been identified. 3. The Competent Authority in charge of inspections to ensure that activities safety measures are carried by the operators has not been identified.
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	3/4	1. Article 19(2) on national monitoring system: The Greek competent authorities have not yet established a national monitoring system to support the decision making process for granting authorizations. 2. The Competent Authority in charge of establishing monitoring procedures has not been identified.
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	4/32	1. Article 16(3) & Annex VII, B (national contingency plans): Greece has a National Contingency Plan in accordance with the provisions of Annex VII, B of the OP except the provision of collection and ready availability of all necessary information concerning the existing activities. 2. Article 26(1) (transboundary pollution): Greece's National Contingency Plan does not include measures to avoid pollution beyond the limits of the country jurisdiction. 3. Article 21 (Specially Protected Areas): Greece has not taken special measures in conformity with international law, in particular, with the Protocol concerning Mediterranean Specially Protected Areas, either individual or through multilateral or bilateral cooperation to prevent, abate, combat, and control pollution arising from activities in specially protected areas. 4. The Competent Authority in charge of the coordination and direction of offshore contingency plan and national plan has not been identified.

GREECE			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
B. COOPERATION	3/3	3/3	1. Article 22 (studies and research programs): the government is <u>not</u> engaged in any cooperation in research and development program to minimize risk of pollution. 2. Article 22 (studies and research programs): the government is <u>not</u> engaged in any cooperation in research and development program to prevent and respond to pollution. 3. Article 24 (scientific and technical assistance to developing countries): the government is <u>not</u> implementing any program of assistance to developing countries in the field of science, law, education, and technology to prevent, combat, and control pollution (e.g. trainings, acquisition, utilization, production of appropriate equipment).
C. LIABILITY AND COMPENSATION	3/3	1/3	Article 26(4) (transboundary pollution): There is <u>no</u> consideration granting equal access to and treatment in administrative proceedings to persons in other States affected by pollution or other adverse effect of offshore activities. According to the Greek authorities, there hasn't been such discussion at the State level. European Union and international laws in force, can give ground to claims for access to and treatment in administrative proceedings.

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-18. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Italy.

ITALY			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	27/29	3/27	1. Article 5(1)(g) & Article 20(1) (removal of installations): there are no provisions in the law regarding: • the Competent Authority requiring the operator to remove abandoned and disused (even when authorization withdrawn or suspended) installations; and • defining the standards for the removal of abandoned and disused installations by the Competent Authority.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	15/46	0/15	1. Articles 9(5)(6)(7) & Annexes II, III (permit for disposal HNS&M): It is not allowed any spillage of fluids and solid materials, except the production water.
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	12/19	4/12	1. Article 10(1)(a) & Annex V, A: the following provision is not prescribed in the common standards for the disposal of oil and oily mixtures from installations: • Spills of high oil content in processing drainage and platform drainage shall be contained, diverted and then treated as part of the product, but the remainder shall be treated to an acceptable level before discharge, in accordance with good oilfield practice (any spillage of fluids and solid materials is not allowed, except the production water on the basis of DPR 886 1979). 2. Article 10(1)(b): the common standards for the disposal of oil and oily mixtures from installations does not meet the following thresholds: • Machinery space drainage (max oil content 15m/L while undiluted): any spillage of fluids and solid materials is not allowed, except the production water. Except for mobile drilling unit, at which the International Convention for the Prevention of Pollution from Ships (MARPOL 73/78) Annex I could be applied. • Production water (max. 40mg/L as average in monthly calendar and always less than 100mg/L): the threshold is less than 40 mg/L in any

ITALY			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			case. Ministerial Decree dated on 28 July 1994 "Determination of the preliminary activities for the granting of the discharge into the sea of the materials resulting from the prospecting, exploration and production of oil and gas deposits." 3. Article 10(2) & Annex V, B: the following provision is <u>not</u> prescribed in the common standards for the disposal of drilling fluids and drill cuttings: • The use of diesel-based drilling fluids is prohibited: Italy has never received similar requests.
C. SEWAGE	7/9	3/7	Article 11(1)(a)(b)(c): Italian law prohibits the discharge of sewage from installations permanently manned by 10 or more persons (under 73/78 Annex V provision) but <u>no</u> exceptions are defined.
D. GARBAGE	4/4	0/4	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	0/5	
F. EXCEPTIONS	1/4	0/1	Article 14(1)(a): Italy apply only the discharge exceptions under MARPOL 73/78 provision.
III. SAFETY MEASURES	19/19	2/19	1. Article 15(3): There is <u>no</u> requirement for the operator to acquire a certificate of safety and fitness from a recognized body. 2. The Competent Authority in charge of issuing a certificate of safety and fitness has <u>not</u> been identified.
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	1/4	Article 26(2) (transboundary pollution): the national monitoring system does <u>not</u> take into account any adverse environmental effects of activities within the limits or beyond the country jurisdiction.
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	0/32	
B. COOPERATION	3/3	0/3	

ITALY			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses ****	**Gaps and Differences between the OP and Existing National Legislative Framework**
C. LIABILITY AND COMPENSATION	3/3	2/3	1. Article 27(2)(b): there are no measures in place to ensure that operators have and maintain insurance cover or other financial security to compensate damages. 2. Article 26(4) (transboundary pollution): there is no consideration granting equal access to and treatment in administrative proceedings to persons in other States affected by pollution or other adverse effect of offshore activities.

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-19. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Spain.

SPAIN			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	29/29	4/29	Article 21 (Specially Protected Areas): In addition to measures referred to the Protocol concerning Mediterranean Specially Protected Areas for the granting of authorization, Spain has no measures in place for: • Preparation and evaluation of an EIA; • Elaboration of a special provision concerning monitoring and removal of installations and prohibition of any discharge; and • Intensified exchange of information among operators, the competent authorities, Parties, and the Organization
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	0/46	-	
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	0/19	-	In Spain, all oil and oily mixtures and drilling fluids and cuttings should be discharged onshore***
C. SEWAGE	0/9	-	In Spain, sewage should be discharged onshore***
D. GARBAGE	0/4	-	In Spain, garbage should be discharged onshore***
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	0/5	-	
F. EXCEPTIONS	0/4	-	
III. SAFETY MEASURES	6/15	1/6	Certificates of safety and fitness are issued by third parties (and not by a Competent Authority), according to the Industry Act 21/1992, dated 16 July
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	4/4	Article 19 & Article 26(2): There is no legislative framework regarding the monitoring of environment-related issues
V. PREPAREDNESS AND RESPONSE			

SPAIN			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
A. CONTINGENCY PLANNING	32/32	1/32	Article 16(3) & Annex VII, A2 (operator's contingency plan): There is no requirement for the operator to cooperate, on an institutional basis, with other operators or entities capable or rendering necessary assistance, so as to ensure that, in cases where the magnitude or nature of an emergency create a risk which assistance is or might be required, such assistance can be rendered
B. COOPERATION	0/3	-	
C. LIABILITY AND COMPENSATION	0/3	-	In Spain, operators are liable for environmental damage (strict and fault-based) and are required remediate environmental damage***

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.
*** information from EC study.

4.3.2 Other Non-EU Mediterranean Contracting Parties

The Mediterranean Sea borders 21 countries from 3 continents. Excluding Europe, the Mediterranean Sea is bounded by northern Africa (i.e., Egypt, Libya, Morocco, and Tunisia) and southwestern Asia (i.e., Israel, Lebanon, Syria, Turkey, and Algeria). This is why regulations on offshore oil and gas activities in non-EU Mediterranean Contracting Parties have the same significance as regulations of EU Mediterranean Contracting Parties regarding the safety of the Mediterranean Sea.

The comparative assessment for the non-EU Mediterranean Contracting Parties was conducted mainly on the basis of the responses in questionnaires provided by the Competent Authorities of the Contracting Parties (i.e., Israel, Turkey, Libya, Algeria, and Morocco).

Tables 4-20 to **4-24** highlight gaps and differences between the Offshore Protocol provisions and requirements relative to the existing national laws and practices of each non-EU Mediterranean Contracting Party.

4.4 CONCLUSION

This review of EU Directive 2013/30/EU on safety of offshore oil and gas operations and existing legislative and administrative framework of the EU Mediterranean Contracting Parties shows that for some of the identified issues additional measures are required. In particular, additional guidance is needed for managing the removal of offshore installations, the delineation of national monitoring systems, disposal requirements of oil and oily mixtures and drilling fluids and cuttings and monitoring and mitigation of transboundary pollution. However, in other cases, such as liability, disposal requirements governing waste and hazardous and noxious substances and materials (HNS&M), safety measures, contingency planning, EU Mediterranean Contracting Parties in general have legislation in place.

We conclude that, although the provisions of the OP have not yet been adopted by all the EU Mediterranean Contracting Parties, the majority of the provisions are covered by the existing EU *acquis*. However, the *acquis* not only covers the majority of the OP's requirements; in many cases it provides more detailed (and more recent) provisions that could be used to strengthen implementation of the OP in the Mediterranean Sea. The parallel adoption of the OP and the EU Directive 2013/30/EU on safety of offshore oil and gas operations provides a unique opportunity to align actions and improve measures undertaken to implement the OP core requirements.

Regarding the non-EU Mediterranean Contracting Parties, the review of the existing national legislative and administrative framework shows that in some issues related to the OP additional measures are required, such as concrete regulation on the removal of offshore installations, on national monitoring systems, disposal requirements of waste and hazardous and noxious substances and materials (HNS&M), oil and oily mixtures and drilling fluids and cuttings, and garbage and measures to impose sanctions. However, in other cases, such as safety measures and contingency planning, non-EU Mediterranean Contracting Parties, in general, have legislation in place

Table 4-20. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Algeria.

ALGERIA			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	26/29	1/26	1. Article 5(1)(g) & Article 20(1) (removal of installations): there are no standards for the removal of abandoned and disused installations by the Competent Authority.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	37/46	29/37	1. Article 9(4) & Annex I: the disposal of HNS&M resulting from the offshore activities listed in Annex I of the OP are not prohibited. 2. Article 9(6): there is no requirement for prior general permit for the disposal of other HNS&M resulting from offshore activities which may cause pollution. 3. Article 9(7) & Annex III: the procedure for issuing special permit for the disposal of HNS&M does not take into account the following factors: • Characteristics and composition of the waste; • Characteristics of the waste constituents with respect with their harmfulness; and • Characteristics of discharges site and receiving marine environment.
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	18/19	9/18	1. Article 10(1)(b): the common standards for the disposal of oil and oily mixtures from installations does not meet the following thresholds: • machinery space drainage (max oil content 15m/L while undiluted); and • production water (max. 40mg/L as average in monthly calendar and always less than 100mg/L). 2. Article 10(2) & Annex V, B: there is no legislation in Algeria on requirements establishing common standards for the use and disposal of drilling fluids and drill cutting except the prohibited use of diesel-based drilling fluids.
C. SEWAGE	0/9	-	

ALGERIA			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP Existing National Legislative Framework**
D. GARBAGE	4/4	0/4	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	0/5	
F. EXCEPTIONS	4/4	0/4	
III. SAFETY MEASURES	19/19	0/19	
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	3/4	Article 19: There is no legislative framework regarding the monitoring of environment-related issues.
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	31/32	2/31	1. Article 14(1)(b): There is no exception in the provisions of disposal and discharges section in case of discharging into the sea of substances containing oil or HNS&M which, subject to the prior approval of the Competent Authority, are being used for the purpose of combating specific pollution incidents in order to minimize the damage due to the pollution. 2. The Competent Authority in charge of the pre-approval of discharge of substances containing oil or HNS&M for their use in combating pollution incidents has not been identified yet.
B. COOPERATION	3/3	0/3	
C. LIABILITY AND COMPENSATION	2/3	0/2	

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-21. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Israel

ISRAEL			
Offshore Protocol Provision	**No. of Answers**	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	29/29	3/29	1. Article 5(1)(a) & Annex IV (EIA requirements): The OP require a screening (and not a compulsory/systematic EIA) of the environmental effects of proposed activities. In Israel, an EIA is required for exploration and exploitation activities. 2. Article 21 (special protected areas): there is no requirement but request according to a case for precautions for specially protected areas. 3. Article 5(1)(g) & Article 20(1) (removal of installations): there are no standards for the removal of abandoned and disused installations by the Competent Authority. 4. The Competent Authority in charge of supervising the removal operations of offshore installations has not being identified yet (either the Ministry of Environmental Protection [MoEP], or the Ministry of Energy and Water Resources [MEWR]). 5. Article 7: Sanctions (criminal offences and/or administrative sanctions and/or imprisonment) for non-compliance are partly in place.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	45/46	1/45	Article 9(2): No guidelines are adopted that regulate, limit, or prohibit the use of chemicals for the activities (the OP states that the Contracting Party *may* regulate, limit, or prohibit the use of chemicals for the activities in accordance with guidelines to be adopted by the Contracting Parties).

ISRAEL			
Offshore Protocol Provision	**No. of Answers**	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	19/19	3/19	1. Article 10(1)(b): the common standards for the disposal of oil and oily mixtures from installations does not meet the following threshold: • production water (max. 40 mg/L as average in monthly calendar and always less than 100 mg/L): Max 42 mg/L grab sample and average concentration less than 29 mg/L. 2. Article 10(2) & Annex V, B: the following requirements are not prescribed in the common standards for the disposal of drilling fluids and drill cuttings: • the threshold of the toxicity level that an oil-based drilling fluid requires permit for the use; and • the prohibition of disposal of drill cuttings in specially protected areas is case based.
C. SEWAGE	8/9	3/8	Article 11(1): the discharge of sewage from installations permanently manned by 10 or more persons is not prohibited. There are no exceptions in cases in which: • The installation is discharging treated sewage at least 4 nautical miles from the nearest land or fixed fisheries installation; and • The sewage is not treated, but the discharge is carried out in accordance with international rules and standards.
D. GARBAGE	3/4	0/3	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	1/5	Article 26 (transboundary pollution): there is no regulation foresee transboundary movement of these waste and HNS&M.
F. EXCEPTIONS	4/4	1/4	Article 14(1): There is no exception in the provisions of disposal and discharges section in case of damage to the installation or its equipment.
III. SAFETY MEASURES	15/15	0/15	

ISRAEL			
Offshore Protocol Provision	**No. of Answers**	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	3/4	1. Article 19(2): the establishment of a national monitoring system to support decision-making process for granting authorizations is under process regarding the exclusive economic zone (EEZ) area. 2. The identification of the Competent Authority in charge of establishing monitoring procedures is under discussion.
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	1/32	Article 21 (special protected areas): no special measures have been taken in conformity with international law, in particular with the Protocol concerning Mediterranean Specially Protected Areas, either individual or through multilateral or bilateral cooperation to prevent, abate, combat and control pollution arising from activities in specially protected areas.
B. COOPERATION	3/3	2/3	1. Article 22 (studies and research programs): the government is not engaged in any cooperation in research and development program to minimize risk of pollution. 2. Article 24 (scientific and technical assistance to developing countries): the government is not implementing any program of assistance to developing countries in the field of science, law, education, and technology to prevent, combat and control pollution (e.g. trainings and acquisition, utilization, and production of appropriate equipment).
C. LIABILITY AND COMPENSATION	2/3	1/2	Article 27(2)(a): there are no measures in place to ensure liability is imposed on operators to require the payment of prompt and adequate compensations for damage resulting from offshore activities.

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-22. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Libya.

LIBYA			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	21/29	2/21	1. Article 7 (Sanctions): there are no measures in place to impose sanctions for breach of obligations arising out of the Protocol, or for non-observance of the national laws or regulations implementing the Protocol, of for non-fulfillment of the specific conditions attached to the authorizations. However, the Environmental Law is under updating. 2. There is no differentiation of permit authorizations for exploration activities from exploitation activities. 3. Incomplete response regarding Article 19 (monitoring procedure) and Article 20 (removal of installation).
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	29/46	0/29	Incomplete response regarding Articles 9(2) and 9(5) and provisions of Articles 9(4) and 9(7).
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	17/19	0/17	
C. SEWAGE	4/9	1/4	Article 11(1): there is no exception (from the prohibition of the discharge of sewage from installations permanently manned by 10 or more persons) in case where the sewage is not treated, but the discharge is carried out in accordance with international rules and standards.
D. GARBAGE	3/4	0/3	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	3/5	2/3	1. Article 13(a): there are no onshore reception facilities for disposal of waste and HNS&M. Disposal services are outsourced to specialized contractors. 2. Article 26 (transboundary pollution): there is no regulation foresee transboundary movement of these waste and HNS&M.
F. EXCEPTIONS	0/4	-	Incomplete response regarding Article 14 (exceptions).

LIBYA			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
III. SAFETY MEASURES	13/15	1/13	The Competent Authority in charge of inspections to ensure that activities safety measures are carried by the operators has not being identified.
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	1/4	0/1	Incomplete response regarding Article 19(2) (national monitoring system).
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	20/32	1/20	Article 16(2): there is no requirement for the operators to have contingency plans coordinated with the national contingency plan. The coordination is responsibility of the Competent Authority.
B. COOPERATION	3/3	3/3	1. Article 22 (studies and research program): the government is not engaged in any cooperation in research and development program to minimize risk of pollution or to prevent and respond to pollution. 2. Article 24 (scientific and technical assistance to developing countries): the government is not implementing any program of assistance to developing countries in the field of science, law, education and technology to prevent, combat and control pollution (e.g., trainings and acquisition, utilization, and production of appropriate equipment).
C. LIABILITY AND COMPENSATION	0/3	-	Article 27(2)(a): measures to ensure liability is imposed on operators to require the payment of prompt and adequate compensations for damage resulting from offshore activities will be review with coordination with the National Oil Company and other companies.

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-23. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Morocco.

MOROCCO			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	27/29	3/27	1. The requirements for authorization related to exploration and exploitation activities are the same 2. Article 5(1)(g) & Article 20(1) (removal of installations): there are **no** standards for the removal of abandoned and disused installations by the competent authority 3. Article 7 (Sanctions): there are **no** measures in place to impose sanctions for breach of obligations arising out of the Protocol, or for non-observance of the national laws or regulations implementing the Protocol, of for non-fulfillment of the specific conditions attached to the authorizations.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	30/46	9/30	1. Article 9(1)(2) (use and store of chemicals): there is **no** framework legislation for the management of chemicals in Morocco. Legislative provisions on chemicals management are scattered in a variety of texts which often refer to "harmful substances", "hazardous substances", "dangerous substances", "toxic substances" 2. Article 9(4) & Annex I: the disposal of HNS&M resulting from the offshore activities listed in Annex I of the OP are **not** prohibited 3. Article 9(5) & Annex II: the disposal of HNS&M resulting from the offshore activities listed in Annex II of the OP are **not** required special permit
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	3/19	3/3	1. Article 10(1) & Annex V, A: there is **no** legislation on requirements establishing common standards for the disposal of oil and oily mixtures from installations 2. Article 10(2) & Annex V, B: there is **no** legislation on requirements establishing common standards for the use and disposal of drilling fluids and drill cuttings

MOROCCO			
Offshore Protocol Provision	**No. of Answers***	**No. of "No" Responses** ***	**Gaps and Differences between the OP and Existing National Legislative Framework**
C. SEWAGE	9/9	9/9	Article (11): there is **no** legislation regarding the discharge of sewage
D. GARBAGE	3/4	2/3	1. Article 12(1)(a): the disposal of plastics, including synthetic ropes, synthetic fishing nets and plastic garbage bags is **not** prohibited 2. Article 12(1)(b): the disposal of other non-biodegradable garbage, including paper products, rags, glass, metal, bottles, crockery, dunnage, lining and packing materials is **not** prohibited
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	1/5	Article 13(b): there is **no** request for instructions be given to all personnel concerning proper means of disposal
F. EXCEPTIONS	0/4	-	
III. SAFETY MEASURES	4/15	0/4	
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	3/4	3/3	Article 19: There is **no** legislative framework regarding the monitoring of environment related issues
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	20/32	0/20	
B. COOPERATION	3/3	0/3	
C. LIABILITY AND COMPENSATION	3/3	1/3	Article 26(4) (transboundary pollution): there is **no** consideration on granting equal access to and treatment in administrative proceedings to persons in other States affected by pollution or other adverse effect of offshore activities

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.
** Number of negative responses out of the total "yes" or "no" responses.

Table 4-24. Gaps and differences between the Offshore Protocol (OP) provisions and requirements relative to the existing national laws and practices of Turkey.

TURKEY			
Offshore Protocol Provision	**No. of Answers**	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
I. AUTHORIZATION SYSTEM	29/29	5/29	1. Article 5(1) & Annex IV (EIA requirements): the requirements for the EIA do not contain the geographical area where the activity is envisaged, including safety zone 2. Article 5(1)(g) & Article 20(1) (removal of installations): there are no standards for the removal of abandoned and disused installations by the Competent Authority. 3. The Competent Authority in charge of supervising the removal operations of offshore installations has not being identified yet. 4. Article 7: there are no measures in place to impose sanctions for breach of obligations arising out of the Protocol, or for non-observance of the national laws or regulations implementing the Protocol, of for non-fulfillment of the specific conditions attached to the authorizations.
II. DISPOSAL AND DISCHARGES			
A. WASTE AND HAZARDOUS AND NOXIOUS SUBSTANCES & MATERIAL (HNS&M)	46/46	5/46	Article 9(7) & Annex III: the procedure for issuing a special permit for the disposal of HNS&M does not take into account the following factors: • Accumulation in biological materials or sediments; • Biochemical transformation producing harmful compounds; • Adverse effects on the oxygen content and balance; and • Susceptibility to physical, chemical and biochemical changes and interaction in the aquatic environment with other seawater constituents which may produce harmful biological or other effects on any uses listed in the section E of Annex III (Potential impairment of marine ecosystem and seawater uses).
B. OIL AND OILY MIXTURES AND DRILLING FLUID AND CUTTINGS	18/19	3/18	Article 10(2) & Annex V, B: the following requirements are not prescribed in the common standards for the disposal of oil-based drilling fluids and drill cuttings: • The disposal of the drill cuttings into the sea is only permitted on condition that efficient solids control equipment is installed and properly operated, that the discharge point is well below the surface of the water, and that the oil content is less than 100 grams of oil per kilogram dry cuttings; • In case of production and development drilling, a program of seabed

TURKEY			
Offshore Protocol Provision	**No. of Answers**	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			sampling and analysis relating to the zone of contamination must be undertaken; and • The prohibition of the use of diesel-based drilling fluids.
C. SEWAGE	8/9	1/8	Article 11(1): there is no exception (from the prohibition of the discharge of sewage from installations permanently manned by 10 or more persons) in case where the sewage is not treated, but the discharge is carried out in accordance with international rules and standards.
D. GARBAGE	4/4	0/4	
E. RECEPTION FACILITIES, INSTRUCTIONS AND SANCTIONS	5/5	0/5	
F. EXCEPTIONS	4/4	4/4	Article 14(1): There are no exception in the provisions of disposal and discharges section.
III. SAFETY MEASURES	15/19	3/15	Article 15 and Annex VI concerns the adoption of safety measures: The following provisions are not covered by the legislative framework: • the requirement for the operator to apply a monitoring system for all activities; • the requirement that the installation and, where necessary, the established safety zone is marked so as to give adequate warning of its presence and sufficient details for its identification; and • the requirement that the installations must be indicated on charts and notified to those concerned.
IV. MONITORING OF ENVIRONMENT-RELATED ISSUES	4/4	1/4	Article 19(1): operators do not report periodically to the competent authorities monitoring data to assess the effects of activities on the environment.
V. PREPAREDNESS AND RESPONSE			
A. CONTINGENCY PLANNING	32/32	2/32	Article 16 & Annex VII, B: the following measures to assist the Competent Authority for emergencies to ensure: • direction to the operator to take any action it may specify in the course of preventing, abating or combating pollution or in the preparation of further action for that purpose, including placing an order for relief drilling rig, or to prevent the operator from taking any specified action;

TURKEY			
Offshore Protocol Provision	**No. of Answers**	**No. of "No" Responses****	**Gaps and Differences between the OP and Existing National Legislative Framework**
			and • the coordination of actions in the course of preventing, abating or combating pollution or in the preparation of further action for that purpose within the national jurisdiction with such action undertaken within the jurisdiction of other States or by international organizations; are not in place
B. COOPERATION	3/3	1/3	Article 24 (scientific and technical assistance to developing countries): the government is not implementing any program of assistance to developing countries in the field of science, law, education and technology to prevent, combat and control pollution (e.g., trainings and acquisition, utilization, and production of appropriate equipment).
C. LIABILITY AND COMPENSATION	3/3	0/3	

* Number of responses with either "yes" or "no" out of the total questions for the specific section of the Offshore Protocol.

** Number of negative responses out of the total "yes" or "no" responses.

5.0 RECOMMENDATIONS

This section outlines recommendations regarding areas of potential development and proposed forward actions to facilitate the implementation of the Offshore Protocol. These recommendations will be outlined per section or article of the Offshore Protocol.

5.1 SECTION I – GENERAL PROVISIONS

This section of the Offshore Protocol covers the general provisions of the Protocol, including definitions (Article 1), geographical coverage (Article 2), and general undertakings (Article 3). Refer to **Section 3.3.1** to **3.3.3**. Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this section of the Protocol are as follows:

5.1.1 Article 1 – Definitions

The following are recommended clarifications for selected definitions in Article 1:

Article 1 (d)(i) – "Activities of scientific research";

Article 1 (d)(ii) – "sample taking" under exploration activities – definition;

Article 1 (d)(iii) – "ancillary operations" under exploitation activities - if this refers to or includes support vessel and helicopter activities;

Article 1 (f) – "integral part" and "apparatus attached to it" as applied to an installation within the definition of "Installation";

Article 1 (g) – "Operator" - does definition strictly refer to the lease operator as specified in a Production Sharing Contract, or should it also include the drilling contractor;

Article 1 (h) – "Safety zone" - "appropriate markings" and "general international law and technical requirements";

Article 1 (k)[11] – "The maximum concentrations of the chemicals which the operator intends to use within any other substances, and maximum amounts intended to be used in any specified period" - this may not be practical or feasible especially for exploration drilling operations when the specific formulation of drilling fluids may change during the course of drilling as conditions and objectives may change; and

Article 1 (p) "Freshwater limit" – clarification.

5.1.2 Article 2 – Geographical Coverage

Clarification of the geographic coverage of the Offshore Protocol relative to inland waters of the contracting parties or the freshwater limit may be warranted.

5.1.3 Article 3 – General Undertakings

The following provisions from other Conventions are recommended for consideration:

- Addressing restoration of marine areas that have been damaged;
- Applying the measures in such a way as to prevent an increase in pollution of the sea outside the maritime area or in other parts of the environment. Avoiding activities or measures so as not to transfer, directly or indirectly, damage or hazards from one area to another or transform one type of pollution into another;
- Specifying time limits to adopt programs and measures for their completion, where appropriate;
- Adopting the precautionary principle; and

Adopting the polluter pays principle.

[11] The definition in the Kuwait Convention states that a Chemical Use Plan should show "The area within which the chemical may escape into the marine environment; **provided that where there is no known danger of a chemical escaping into the marine environment, it need not be included in the plan**."
Detailed review of the Kuwait Convention guidelines for a Chemical Use Plan and their implementation recommended because wholesale adoption may not be advisable or warranted; and

5.2 SECTION II – AUTHORIZATION SYSTEM

This section of the Offshore Protocol covers the authorization system of the Protocol, including general principles (Article 4), requirements for authorizations including EIA requirements (Article 5 and Annex V), granting of authorizations (Article 6), and sanctions (Article 7). Refer to **Section 3.3.4**. Reference to other articles or annexes in the Protocol may be made if they relate to or are material to a recommendation within this section of the Protocol. Selected text from the Offshore Protocol are in **bold** for emphasis.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this section of the Protocol are as follows:

5.2.1 Requirements for Authorizations

- Article 30, 2(g) Meetings states "To **establish criteria and formulate international rules, standards and recommended practices and procedures** in accordance with Article 23, paragraph 1, of this Protocol, in whatever form the Parties may agree";
- Develop a list of approved standards and certifications for Installation Certification that meet the criteria mentioned in the previous bullet;
- Develop guidance document for Operators specifying the requirements for certifications;
- Determine the acceptable standard for technical competence and financial capacity;
- Develop a guidance document for information required from Operators to prove technical competence and financial capacity;
- Determine scale of geographical area required within permit submissions;
- Clarify the roles of personnel required - recommend that supervisory roles and key personnel responsible for safety critical processes should be included;
- Develop guidance document for Operators specifying the requirements for professional and technical qualifications;
- Annex IV, 2 states "Each Party shall **promulgate standards** taking into account the international rules, standards and recommended practices and procedures, adopted in accordance with Article 23 of the Protocol, by which environmental impact assessments are to be evaluated";
- Article 23, 1 (a) states **"Establish appropriate scientific criteria** for the formulation and elaboration of international rules, standards and recommended practices and procedures for achieving the aims of this Protocol";
- Article 23, 1 (b) states **"Formulate and elaborate such international rules, standards and recommended practices and procedures**";
- Determine when an EIA is required, and when an Environmental Survey is sufficient;
- Determine requirements to be included within an Environmental Survey if an EIA is not required; and
- Develop guidance document for Operators specifying the requirements for Environmental Surveys;

5.2.2 Granting of Authorizations

- Develop a checklist for granting an Authorization, listed per protocol requirement, including the submittals required from an Operator and comments on the adequacy of submittals reviewed;
- Develop a timeframe for each stage of the Authorization approval process, including suggested lead times for submission of the various permitting documentation from the Operator with respect to proposed operations commencement date and the period of time required by the Competent Authority to review submitted permitting documentation in order to provide Authorization;
- Develop a guidance document for Operators to use that specifies the Authorization approval process, including lead times for submission of the various permitting documents with respect to proposed operations commencement date and the period of time required by the Competent Authority to review submitted permitting documentation in order to provide Authorization;
- Develop a guidance document for the Competent Authority to use when reviewing permitting documents from an Operator that clarifies the standards required for granting an Authorization, a template for the conditions of approval and guidance on how to determine if

additional measures, techniques or methods are required to be included within the approval; and
- Determine a process for the registration of an Authorization to the Organization by the Competent Authority.

5.3 SECTION III – WASTES AND HARMFUL OR NOXIOUS SUBSTANCES AND MATERIALS

5.3.1 Article 8 – General Obligation

The wording of this article is similar to the general requirements of other international legal instruments. However, certain terms such as “best available” techniques have specific definitions within the context of the EU or OSPAR, as discussed in **Section 3.3.5**. We recommend carefully reviewing existing regulatory usage within EU and OSPAR when defining these terms for implementation.

5.3.2 Article 9 – Harmful or Noxious Substances and Materials

Discussions under this article addressed the requirement, prohibitions, limitations and approval for chemical use and discharges into the Protocol area. Refer to **Section 3.3.6**. Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the protocol are as follows:

5.3.2.1 Chemical Use Approval

- Article 9, 2 states "The Contracting Party may regulate, limit or prohibit the use of chemicals for the activities in accordance with **guidelines to be adopted by the Contracting Parties**";
- Review substances and materials under Annex I and II in the light of the new scientific evidence and international practice”;
- Develop and adopt guidelines specifying the limitations or prohibitions for use of chemicals;
- Determine the requirements to be stated within the Chemical Use Plan and determine limits or prohibitions for chemicals used and/or discharged within the Protocol area;
- Determine the chemicals required to be listed within the Chemical Use Plan (refer to the text within the Kuwait Protocol that states "provided that where there is no known danger of a chemical escaping into the marine environment, it need not be included in the plan"); and
- Develop a guidance document for Operators specifying the Chemical Use Plan requirements;

5.3.2.2 Discharge Special Permit

- Annex 1, B states "The present Annex does not apply to discharges which contain substances listed in Section A that are **below the limits defined jointly by the Parties** and, in relation to oil, below the limits defined in Article 10 of this Protocol";
- Define limits for the acceptance of the substances listed in Annex I and, in relation to oil, as listed in Article 10;
- Develop a guidance document for Operators specifying limits for the acceptance of the substances listed in Annex I and, in relation to oil, as listed in Article 10;
- Determine the requirements for the Discharge Special Permit;
- Develop a template for the Discharge Special Permit; and
- Develop a guidance document for Operators specifying the requirements for Discharge Special Permit;

5.3.2.3 Discharge General Permit

- Determine the control and strict limitation requirements for discharges of substances listed in Annex II and determine acceptance limits per requirements set in Annex III;
- Determine the requirements for the Discharge General Permit;
- Develop a template for the Discharge General Permit; and
- Develop a guidance document for Operators specifying the requirements for Discharge General Permit.

5.3.3 Article 10 – Oil and Oily Mixtures and Drilling Fluids and Cuttings

Discussions under this article addressed the requirement, prohibitions, limitations and approval for oil and oily mixtures, and drilling fluids and cuttings use and discharges into the Protocol area. Refer to

Section 3.3.7. Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Article 10, 1 states "The Parties shall **formulate and adopt common standards** for the disposal of oil and oily mixtures from installations into the Protocol Area";
- Formulate and adopt common standards for the disposal of oil and oily mixtures from installations, in the light of new scientific evidence and international practice
- Article 10, 2 states "The Parties **shall formulate and adopt common standards** for the use and disposal of drilling fluids and drill cuttings into the Protocol Area";
- Article 10, 1(c) states "The Parties shall **determine by common agreement** which method will be used to analyse the oil content";
- Annex V, A.1 - Define what the oil and grease acceptable level is for discharge;
- Annex V, A.3 and A.4 - Define the minimum standard for "all the necessary precautions";
- Annex V, B.2(a) - Clarify the parameters in determining "sufficiently low toxicity";
- Annex V, B.2(e) - Develop a standard for a seabed sampling program; and
- Develop guidance document for Operators specifying the requirements for Use and Disposal of Drilling Fluids and Cuttings.

5.3.4 Article 11 – Sewage

Discussions under this article addressed the requirement for sewage discharges into the Protocol area. Refer to **Section 3.3.8**. Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Determine if standards beyond MARPOL 73/78 are required for the treatment and discharge of sewage into the Protocol area; and
- Develop guidance document for Operators specifying the requirements for sewage treatment.

5.3.5 Article 12 – Garbage

Discussions under this article addressed the requirement for waste management within the Protocol area. Refer to **Section 3.3.9**.

- Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:
- Determine if standards in excess of MARPOL 73/78 are in support of the treatment and discharge of waste into the Protocol area; and
- Develop guidance document for Operators specifying the requirements for waste management.

5.3.6 Article 13 – Reception Facilities, Instructions and Sanctions

MARPOL 73/78 Annexes I, II, IV, V, and VI include requirements for port reception facilities, which are summarized in **Section 3.3.10**. Specific guidelines for ensuring the adequacy of port waste reception facilities are provided in Resolution MEPC.83(44) (IMO, 2000). No recommendations for this article were identified.

5.3.7 Article 14 – Exceptions

As discussed in **Section 3.3.11**, all MARPOL 73/78 Annexes include exceptions, with similar wording. The exceptions apply to discharges necessary for the purpose of securing the safety of a ship or saving life at sea; or resulting from damage to a ship or its equipment, provided that all reasonable precautions have been taken after the occurrence of the damage or discovery of the discharge for the purpose of preventing or minimizing the discharge; and except if the owner or the master acted either with intent to cause damage, or recklessly and with knowledge that damage would probably result. Exceptions also apply to the discharge of substances containing oil, approved by the IMO, when being used for the purpose of combating specific pollution incidents. No recommendations for this article were identified.

5.4 SECTION IV – SAFEGUARDS

5.4.1 Article 15 – Safety Measures

Discussions under this article of the Offshore Protocol addressed the requirement for safety measures required during any activity within the Protocol area. Refer to **Section 3.3.12**.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Determine specific requirements for the marking and enforcing a Safety Zone;
- Develop a guidance document for Operators specifying the requirements for a Safety Zone;
- Determine the specific Safety Measures required and to what standard they are to be met;
- Develop a template for the Certificate of Safety and Fitness, and create a list of approved issuing bodies; and
- Develop a guidance document for Operators specifying the requirements for Safety Measures, including requirements for the Certificate of Fitness.

5.4.2 Article 16 – Contingency Planning

Discussions under this article of the Offshore Protocol addressed the requirement for contingency planning required for any activity within the Protocol area. Refer to **Section 3.3.13**.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Article 16, 2 states "Each Party shall require operators in charge of installations under its jurisdiction to have a contingency plan to combat accidental pollution, coordinated with the contingency plan of the Contracting Party established in accordance with the Protocol concerning Cooperation In Combating Pollution of the Mediterranean Sea by Oil and Other Harmful Substances in Cases of Emergency and approved in conformity with the **procedures established by the competent authorities.**";
- Establish procedures, based of the National Contingency Plan, stating the standards requirement within an Operator's Contingency Plan;
- Article 16, 3 states "Each Contracting Party shall establish coordination for the development and implementation of contingency plans. Such plans shall be established in accordance with **guidelines adopted by the competent international organization**";
- Adopt guidelines, as set by the competent international organization, in order to coordinate the development and implementation of contingency plans;
- Article 23, 1 (c) states **"Formulate and adopt guidelines** in accordance with international practices and procedures to ensure observance of the provisions of Annex VI;
- Formulate and adopt guidelines in accordance with international practices and procedures to ensure contingency planning efforts meet the requirements of Annex VI;
- Review National Contingency Plan to ensure it adequately addresses offshore oil and gas activities;
- Determine how the Operator Contingency Plan will be integrated with country's National Contingency Plan, it is recommended to develop a Contingency Plan template to be followed by an Operator; and
- Develop a guidance document for Operators specifying the requirements for Contingency Planning.

5.4.3 Article 17 – Notification

Discussions under this article of the Offshore Protocol addressed the requirement for notification during an activity within the Protocol area. Refer to **Section 3.3.14**.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Determine notification requirements, ensuring the definitions of "pollution", "without delay", "likely to cause pollution" are clarified
- Develop a notification process for use by Operators as guidance within their Contingency Plans, including the information as required in Annex VII, B(e) "up to date list of the persons and entities to be alerted and informed about an emergency, its development and the measures taken"
- Develop a notification process for Competent Authorities to use as guidance to address the requirements of Annex VII, B(f), (i) & (k) "The collection of all necessary information concerning the extent and means of combating contingencies, and the dissemination of this information to interested Parties", "Immediate communication to the competent authorities of

other Parties which might be affected by a contingency to enable them to take appropriate measures where necessary" and "Immediate communication to the competent international organizations with a view to avoiding danger to shipping and other interests"

5.4.4 Article 18 – Mutual Assistance in Cases of Emergency

Discussions under this article of the Offshore Protocol addressed the requirement for mutual assistance in cases of emergency within the Protocol area. Refer to **Section 3.3.15**.

A recommendation to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol is to evaluate if REMPEC and MOIG have the capabilities to expand their current scope to support Offshore Protocol mutual assistance requirements and develop other capabilities if required.

5.4.5 Article 19 – Monitoring

Discussions under this article of the Offshore Protocol addressed the requirement for monitoring of the effects of offshore activities on the environment. Refer to **Section 3.3.16**.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

5.4.5.1 Operator Monitoring

- Article 19, 1 states "The operator shall be required to measure, or to have measured by a qualified entity, expert in the matter, the effects of the activities on the environment in the light of the nature, scope, duration and technical methods employed in the activities and of the characteristics of the area and to report on them periodically or upon request by the competent authority for the purpose of an evaluation by such competent authority according to a **procedure established by the competent authority** in its authorization system";
- Article 19, 2 states "The **competent authority shall establish**, **where appropriate, a national monitoring system** in order to be in a position to monitor regularly the installations and the impact of the activities on the environment, so as to ensure that the conditions attached to the grant of the authorization are being fulfilled";
- Article 28, (h) states **"Establish monitoring procedures** as provided in Article 19 of this Protocol";
- Define criteria for "qualified entity", will there be a competency requirement or any certification standard;
- Determine acceptable Operator conducted monitoring frequency and scope;
- Determine Operator reporting frequency and scope; and
- Develop guidance document for Operators specifying the requirements for the Monitoring Plan.

5.4.5.2 Regulator Inspections

- Develop inspection scope and checklist;
- Determine inspection frequency;
- Determine qualifications (competency and/or certification) required by inspector;
- Consider a shared/pooled set of inspectors from all Contracting Parties;
- Define "removal operations" - recommended for decommissioned platforms and pipelines; and
- Develop guidance document for Operators specifying the requirements for Regulator Inspections.

5.4.6 Article 20 – Removal of Installations

Discussions under this article of the Offshore Protocol addressed the requirement for removal (decommissioning) of installations (e.g., platforms, pipelines). Refer to **Section 3.3.17**. Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Article 20, 1 states "The operator shall be required by the competent authority to remove any installation which is abandoned or disused, in order to ensure safety of navigation, taking into

account the **guidelines and standards adopted by the competent international organization**";

- Article 28, (i) states "Supervise the removal operations of the installations as provided in Article 20 of this Protocol";
- Determine the requirements to be stated in the removal plans, and clarify the removal operations that Article 28 will apply to (CA supervision of removal); and
- Develop guidance document for Operators specifying the requirements for Removal Plan.

5.4.7 Article 21 – Specially Protected Areas

Discussions under this article of the Offshore Protocol addressed the requirement for measures to prevent pollution of specially protected areas, e.g., Specially Protected Areas of Mediterranean Importance. Refer to **Section 3.3.18**.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Article 21 states "For the protection of the areas defined in the Protocol concerning Mediterranean Specially Protected Areas and **any other area established by a Party** and in furtherance of the goals stated therein, the Parties shall take special measures in conformity with international law, either individually or through multilateral or bilateral cooperation, to prevent, abate, combat and control pollution arising from activities in these areas";
- Document any established SPAs;
- Determine special provisions for activities in areas of SPAs; and
- Develop guidance document for Operators specifying special provisions required for activities in areas of SPAs.

5.5 SECTION V – COOPERATION

5.5.1 Article 22 – Studies and Research Programmes

Discussions under this article of the Offshore Protocol addressed the requirement for the Contracting Parties to cooperate in promoting studies and undertaking programs of scientific and technological research. Refer to **Section 3.3.19.**

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Establishment of a research and development programme or network;
- Identify ongoing and planned research projects by member states or other organizations on behalf of member states; and
- Identify potentials for the development of potential funding mechanisms.

5.5.2 Article 23 – International Rules, Standards and Recommended Practices and Procedures

The review of legal instruments in in this report identified several sources of international standards, rules, and best practice guidance relevant to the Offshore Protocol.

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Article 23, 1 (a) states **"Establish appropriate scientific criteria** for the formulation and elaboration of international rules, standards and recommended practices and procedures for achieving the aims of this Protocol"; and
- Article 23, 1 (b) states **"Formulate and elaborate such international rules, standards and recommended practices and procedures."**

5.5.3 Article 24 – Scientific and Technical Assistance to Developing Countries

No specific “best practice” guidance was identified for Article 24. Assistance in formulating and implementing programs of assistance to developing countries may be available through international organizations such as UNEP and the EU. Refer to **Section 3.3.21.**

5.5.4 Article 25 – Mutual Information

No specific “best practice” guidance was identified for Article 25. REMPEC provides the framework for the exchange of information among Barcelona Convention parties on operational, technical, scientific, legal and financial matters related to the Convention and its Protocols. The implementation of Article 25 would require the integration of the Offshore Protocol into the existing reporting system operated by REMPEC. Refer to **Section 3.3.22.**

5.5.5 Article 26 – Transboundary Pollution

Discussions under this article addressed the requirement for measures to ensure that activities under Contracting Parties’ jurisdiction do not cause pollution beyond the limits of its jurisdiction and allow recourse for persons from other States affected by pollution or other adverse effects resulting from proposed or existing operations within a Contracting Party. Refer to **Section 3.3.23.**

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Formulate and adopt appropriate criteria, rules and procedures for the determining the occurrence of transboundary pollution; and
- Develop a guidance document for Operators on the process for notifying the Competent Authority of the potential for or actual occurrence of transboundary pollution from its offshore activities.

5.5.6 Article 27 – Liability and Compensation

Discussions under this article addressed liability and compensation requirements for an Operator to perform activities within the Protocol area. Refer to **Section 3.3.24.**

Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the protocol are as follows:

- Article 27 states "The Parties undertake to cooperate as soon as possible in **formulating and adopting appropriate rules and procedures** for the determination of liability and compensation for damage resulting from the activities dealt with in this Protocol, in conformity with Article 12 of the Convention.";
- Formulate and adopt appropriate rules and procedures for the determination of liability and compensation;
- Determine the liability requirements to be met for operations and determine information required from Operators to prove adequate coverage is held and maintained - create template for submittal of information; and
- Develop a guidance document for information required from Operators to prove adequate liability coverage.

5.6 SECTION VI – FINAL PROVISIONS

5.6.1 Article 28 – Appointment of Competent Authorities

Discussions under this article addressed appointment of competent authorities for management of activities within the Protocol area. Refer to **Section 3.3.25.**

- Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:
- Consideration of whether the competent authority for permitting offshore activities under the Offshore Protocol should be independent of other government agencies that promote oil and gas development
- Consideration of the establishment of a network of competent authorities under the Offshore Protocol by the Contracting Parties to promote communications, coordination, and competencies in the implementation of its provisions is recommended.

5.6.2 Article 29 – Transitional Measures

Discussions under this article addressed transitional measures for management of activities within the Protocol area. Refer to **Section 3.3.26**. Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Article 29 states "Each **Party shall elaborate procedures and regulations** regarding activities, whether authorized or not, initiated before the entry into force of this Protocol, to ensure their conformity, as far as practicable, with the provisions of this Protocol."
- The CA of each Contracting Party to develop transitional procedures and regulations is recommended for consideration.

5.6.3 Article 30 – Meetings

Discussions under this article addressed the frequency and functions of the meetings of the Contracting Parties for management of activities within the Protocol area. Refer to **Section 3.3.27.** Recommendations to the Organization and Parties to the Offshore Protocol on actions in support of implementation of this article of the Protocol are as follows:

- Determine frequency and scope of meetings to cover requirements per Article 30;
- Periodically assess the state of the environment or review the state of pollution in the Protocol area;
- Review implementation, consider efficacy of measures, advise other measures, review annex and appendices accuracy/adequacy;
- Revise any annex or appendix;
- Consider issued authorizations;
- Consider issued permits;
- Adopt international rules, standards, responsible parties (RPs) and procedures for Chemical Use and Safety Measures guidelines;
- Consider Contingency Plan records and means of emergency interventions;
- Establish criteria and formulate international rules, standards, RPs, and procedures;
- Facilitate and implement policies for drilling fluids and discharges, harmonization with EU and national legislation;
- Review progress in implementation of liability requirements; and
- Other communications as required.

5.6.4 Article 31 – Relations with the Convention

Discussions under this article addressed how the Offshore Protocol relate to the Barcelona Convention and its other protocols. Refer to **Section 3.3.28**. Other conventions include provisions for the rules of procedure and the financial rules similar to the Barcelona Convention. No specific recommendations were identified for Article 31.

5.6.5 Article 32 – Final Clause

Discussions under this article addressed the Protocol adoption process, accession, and entry into force. Refer to **Section 3.3.29.** No specific recommendations were identified for Article 32.

5.7 FORWARD PLAN

This section outlines proposed forward actions to facilitate the implementation of the Offshore Protocol and other recommendations.

5.7.1 Forward Actions

- Discuss findings and recommendations from this report at the 2nd Workshop of the Offshore Protocol Working Group;
- Gather comments at 2nd Workshop from Member states and finalize development of the Action Plan;
- Determine standards, as identified in this report, that could potentially be used as transitional measures; and
- Identify recommendations that should be actioned and determine a priority list for development.

5.7.2 Other Recommendations

- Development of management of change procedures to address how variations or deviations from project activities (as described in the application documentation) will be handled once an Authorization is granted;

- Development of specific prevention measures and monitoring of seismic survey noise carried out in the exploration phase, as this constitute a pollution according to UNCLOS;
- Development of special permit for flaring emissions, especially gas during production; and
- Development of the interconnection between the Offshore Protocol and the ICZM Protocol, which establishes a common regional framework for the sustainable governance of the Mediterranean coastal zone and applies the ecosystem approach to coastal zone planning and management.

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