Recommended Practice for Development of a Safety and Environmental Management Program for Offshore Operations and Facilities

Upstream Segment

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FOREWORD

This recommended practice is under the jurisdiction of the American Petroleum Institute Upstream Department's Executive Committee on Drilling and Production Operations. It was the Minerals Management Servcice (MMS), developed with assistance from the International Association of Drilling Contractors (IADC), the Offshore Operators Committee, and the National Ocean Industries Association (NOIA).

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SECTION 1—GENERAL

1.1 PURPOSE AND OBJECTIVE

1.1.1 Owners and Operators

This recommended practice is intended to assist in development of a management program designed to promote safety and environmental protection during the performance of offshore oil and gas and sulphur operations. This recommended practice addresses the identification and management of safety hazards and environmental impacts in design, construction, start-up, operation, inspection, and maintenance, of new, existing, or modified drilling and production facilities. The objective of this recommended practice is to form the basis for a Safety and Environmental Management Program (SEMP). By developing a SEMP based on this Recommended Practice, owners and operators will formulate policy and objectives concerning significant safety hazards and environmental impacts over which they can control and can be expected to have an influence.

The SEMP is based on the following hierarchy of program development:

1. Safety and environmental policy
2. Planning
3. Implementation and operation
4. Verification and corrective action
5. Management review
6. Continual improvement

It is recommended that each operator have a safety and environmental management program for their operations. The owner(s) should support the operator's SEMP.

Management (owner and operator) should require that the program elements discussed in Sections 2 through 12 of this publication are properly documented and available at field and/or office locations, as appropriate for each program element.

1.1.2 Contractors

The offshore oil and gas industry uses a wide variety of contractors to assist in drilling, production, and construction activities. Contractors typically are in one of the following categories, but this is not an exhaustive list: drilling, workover, well servicing, construction, electrical, mechanical, diving, boat and helicopter transportation, painting, operating, and catering/janitorial. Operators expect contractors to provide safe and reliable equipment as well as trained employees who are familiar with offshore oil and gas operations.

This recommended practice does not require contractors to develop a SEMP. However, contractors should be familiar with the operator's SEMP and should have safety and environmental policies and practices that are consistent with the operator's SEMP.

Contractors with significant operations and/or contractor-owned facilities (MODU, derrick barge, lift boat, etc.) may consider developing a complete SEMP. A Bridging Document may be utilized to manage operations. Such a document will specify which SEMP's requirements are relevant for specific operations. This may avoid confusion as to operational control and work practices.

Contractors with few operations and/or contractor-owned facilities may want to develop safety and environmental policies and practices addressing elements of this recommended practice that are appropriate to the contractor's activities and considers the safety hazards and environmental impacts of its activities, products and services.

1.2 MANAGEMENT PROGRAM ELEMENTS AND PRINCIPLES

1.2.1 Management Program Elements

The program elements described herein address the following 11 areas:

a. Safety and environmental information (Section 2)
b. Hazards analysis (Section 3)
c. Management of change (Section 4)
d. Operating procedures (Section 5)
e. Safe work practices (Section 6)
f. Training (Section 7)
g. Assurance of quality and mechanical integrity of critical equipment (Section 8)
h. Pre-startup review (Section 9)
i. Emergency response and control (Section 10)
j. Investigation of incidents (Section 11)
k. Audit of safety and environmental management program elements (Section 12).
l. Documentation and record keeping (Section 13).

1.2.2 Principles

This recommended practice is based on the following principles:

a. Management is responsible for the overall success of the safety and environmental management program. Manage-

ment is responsible for developing and endorsing a written program which addresses the elements identified in 1.2.1.
b. Management provides leadership in establishing goals and performance measures, demands accountability for implementation, and provides necessary resources for carrying out an effective program.
c. Management appoints specific representatives who will be responsible for establishing, implementing and maintaining the safety and environmental management program.
d. Management designates specific representatives who are responsible for reporting to management the performance of the safety and management program.
e. Management should at intervals it determines, review the safety and environmental management program to determine if it continues to be suitable, adequate and effective. The management review should address the possible need for changes to policy, objectives, and other elements of the program in light of program audit results, changing circumstances and the commitment to continual improvement. Observations, conclusions and recommendations should be documented.
f. Management has developed and endorsed a written description of the company's safety and environmental policies and organizational structure that define responsibilities, authorities, and lines of communication required to implement the management program.
g. Management utilizes the expertise of personnel in identifying safety hazards, environmental impacts, optimizing operations, developing safe work practices, developing training programs and investigating incidents.
h. Owner, operator, and contractor management each have their own responsibility to protect the environment and safety and health of their work forces.
i. The facilities are designed, constructed, maintained, monitored, and operated in a manner compatible with applicable industry codes, consensus standards, and generally accepted practice as well as in compliance with all applicable governmental regulations.
j. Management of safety hazards and environmental impacts is an integral part of the design, construction, maintenance, operation, and monitoring of a facility.
k. Suitably trained and qualified personnel are employed to carry out all aspects of the safety and environmental management program.
l. The management program described herein is maintained and kept up to date by means of periodic audits to ensure effective performance.
m. Safety and environmental management enhances operational performance, protection of personnel and property, and protection of the environment by reducing the probability and/or severity of uncontrolled releases and other undesirable events.
n. Human factors may be considered in the design and implementation of the company's Safety and Environmental Management Program.

1.2.3 Setting Objectives and Goals

Management is responsible for establishing safety and environmental objectives, goals and performance measures and should consider the following:

a. A commitment to continuous improvement.
b. Responsibility for achieving objectives and goals at each relevant function and level of organization should be designated.
c. Objectives and goals should specify the means and timeframes by which they are to be achieved.
d. Performance measures should be established for Operators to gauge safety and environmental performance. Consideration should be given to using the definitions and formulas in Appendix E as they allow operators to compare their performance from year to year and with industry "averages" or other operators.
e. An internal program to effectively communicate the safety and environmental objectives, goals and performance measures should be established. Additionally, external communication programs should be considered.

1.2.4 Communication

Management should consider the establishment of procedures for both internal and external communication of safety and environmental information.

a. With regard to SEMP, procedures should be established for effective internal communication between the various levels and functions within the organization.
b. Consideration should be given to establishing procedures and policies for receiving, documenting and responding to relevant communications from external interested parties.
c. Consideration should be given to establishing processes for external communication on significant safety and environmental events as well as the safety and environmental management program.

1.3 SCOPE

1.3.1 Applications

1.3.1.1 This recommended practice is intended for application to offshore oil, gas, and sulphur facilities and associated equipment. This includes well drilling, servicing, production, and pipeline facilities and operations that have the potential for creating a safety hazard or significant environmental impact.

The elements of these recommended practices should be applied to these facilities, as appropriate. For simple and nearly identical facilities (such as well jackets and single well caissons), certain elements of the safety and environmental management program, as applicable, need be addressed only once, after verifying that site specific deviations have been evaluated.

When actions are taken in accordance with this recommended practice, such actions should conform to the most current requirements of applicable federal, state, local regulations, or flag State requirements.

It is recognized that some safety and environmental management systems may have been developed using guidelines of other organizations which may be more appropriate for certain applications (e.g., the International Maritime Organization's (IMO) International Safety Management (ISM) Code for vessel operations). In assessing these systems against this recommended practice the focus should be on assuring the necessary program elements are addressed, not the format or order of the system documentation.

1.3.1.2 The operator should establish and maintain a procedure to identify the environmental impacts of its activities, products or services that it can control and over which it can be expected to have an influence, in order to determine those which can be expected to have or can have significant impacts on the environment. These should include "toxics", "flammables", and "other material" as described in 1.3.1.3 and 1.3.1.4. Consideration should be given to performing the hazard analysis in accordance with API RP 14J, if applicable.

1.3.1.3 Toxic substances sometimes handled in OCS operations include hydrogen sulfide (H_2S), chlorine (Cl_2), and ammonia (NH_3). The following are examples of facilities other than oil, gas, and sulphur extraction facilities to which this recommended practice also may be applicable:

a. Offshore liquefied natural gas (LNG) facilities
b. Hydrogen sulfide and sulphur recovery facilities.
c. Chlorine handling and storage facilities.
d. Ammonia storage and refrigeration facilities.

1.3.1.4 Due to their thermal, physical, or chemical properties, other materials handled in offshore operations may constitute a safety or environmental hazard if released in an uncontrolled manner. Such substances include steam, hot water, certain chemicals, heat transfer fluids, molten sulphur, and naturally occurring radioactive material (NORM).

1.4 DEFINITIONS (SEE APPENDIX D)

1.5 STANDARDS, REGULATIONS, AND REFERENCES

The operator should establish and maintain a procedure to identify and have access to the references and regulations discussed in 1.5.1 and 1.5.2.

1.5.1 Industry Codes, Practices, and Standards

Codes, practices and standards, useful in the design, fabrication, installation, layout, operation, inspection, testing, and maintenance of facilities are listed in Appendix B. These references are not to be considered a part of this recommended practice except for those specific sections of documents referenced elsewhere in this recommended practice.

1.5.2 Government Codes, Rules, Conventions, and Regulations

Governmental regulatory agencies, including federal, state, municipal and local, have established certain requirements for the design, fabrication, installation, layout, and operation of facilities. These requirements may influence the design, fabrication, installation, layout, testing, inspection, maintenance, and operation of facilities..

Governmental regulations can change frequently and should be monitored as part of the management program. Environmental management relies on compliance with these regulations and an understanding of the substances that are present in the process and associated discharge streams.

1.5.3 References

Numerous textbooks, references, and technical articles have been written on the design, fabrication, installation, layout, and safety analysis of offshore production facilities. A partial list of the references that have substantial acceptance by industry and governmental bodies are listed in Appendix C. These references are not to be considered a part of this recommended practice and are included only as they may provide a source of additional information for the reader.