Safety Plan Guidelines

To ensure flexibility and clarity within the regulatory regime, these Guidelines create a framework for activities in the Newfoundland and Labrador offshore area. The Guidelines provide specific direction where the Board has been given the authority to prescribe and guidance where the Board may approve certain activities. Further, direction is also given on how the Board interprets the broadly-based legislative requirements governing the offshore area. To ensure responsiveness, these Guidelines may be reviewed from time to time, and where necessary, updated. As part of any planning process for activity in the offshore area, contact should be made with the appropriate departments of the Board to confirm the status of any particular Guideline and any legislative requirements.

Summary

The Atlantic Accord Implementation Acts require that

> "The Board shall, before issuing an authorization for a work or activity referred to in paragraph 138(1)(b), consider the safety of the work or activity by reviewing, in consultation with the Chief Safety Officer, the system as a whole and its components, including its structures, facilities, equipment, operating procedures and personnel."

For the Production Operations Authorization prescribed in section 8 of the Newfoundland Offshore Petroleum Production and Conservation Regulations this review is in large measure accomplished via a review of the Safety Plan as required by section 51 of these regulations.

Production and Conservation Regulations

Safety Plan and Envrionmental Protection Plan

51. (1) An operator shall develop and submit to the Chief Safety Officer a safety plan that provides for all matters related to the safety and health of personnel and the intergrity of an installation .....

This document is intended to provide guidance to operators in meeting this requirement for a Safety Plan.

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LEGISLATION

THE FOLLOWING LEGISLATION IS QUOTED IN THIS DOCUMENT

- The Canada-Newfoundland Atlantic Accord Implementation Act and the Canada-Newfoundland Atlantic Accord Implementation Newfoundland Act [**THE AAIAs**]
- The Newfoundland Offshore Certificate of Fitness Regulations, February 21, 1995 [**The COF Regulations**]
- The Newfoundland Offshore Petroleum Drilling Regulations, January 28, 1993 (as amended February 21, 1995) [**The Drilling Regulations**]
- The Newfoundland Offshore Petroleum Installations Regulations, February 21, 1995 [**The Installations Regulations**]
- The Petroleum Occupational Safety and Health Regulations - Offshore Newfoundland, November, 1989 (Draft) [**The OSH Regulations**]
- The Petroleum Production and Conservation Regulations - Offshore Newfoundland, February 21, 1995 [**The P&C Regulations**]
- The Newfoundland Offshore Area Petroleum Diving Regulations, February, 1989 (as amended February 21, 1995) [**The Diving Regulations**]
- The Newfoundland Occupational Health and Safety Act, 1990 [**The OHS ACT**]

INTRODUCTION

Production and Conservation Regulations

8 (2) A production operations authorization is subject to the following requirements, namely, that....

(c) a safety plan including all amendments thereto, is approved pursuant to subsection 51(4)

(e) the operator conducts the production operations in accordance with the plans, and all amendments thereto, referred to in paragraphs (c) and (d), and in accordance with all approvals granted pursuant to these Regulations.

Safety Plan and Environmental Protection Plan

51(1) An operator shall develop and submit to the Chief Safety Officer a safety plan that provides for all matters related to the safety and health of personnel and the integrity of an installation and that includes

(a) a statement of the operator's safety management policy and a description of the procedures established to ensure its effectiveness;

(b) a summary of the results of all studies undertaken to identify hazards and to assess risks to the installation and means to mitigate those risks;

(c) a description of the features incorporated in the design of the installation and of the equipment provided to eliminate hazards and reduce risk to the occupational safety and health of personnel;

(d) a description of the procedures established and the manuals provided for the safe operation and maintenance of the installation;

(e) the standards adopted for the training and qualification of personnel;

(f) a description of the command structure on the installation and for the operator's onshore base and their relationship to each other;

(g) contingency plans for response to and mitigation of accidental events affecting the safety of persons on board, or the integrity of, the installation;

(h) a description of the physical environmental monitoring equipment; and

(i) the distance from the production installation, at which the standby vessel referred to in section 56 shall remain during normal operations.

51 (4) The Chief Safety Officer shall approve the safety plan submitted pursuant to subsection (1), including any amendments thereto, where adherence to the plan will ensure the safety, health and training of persons on board the installation and preservation of the integrity of the installation.

This document is intended to provide guidance to operators in meeting the requirement for a "Safety Plan" as set out in ss 8(2), ss 51(1) and ss 51(4) of the Newfoundland Offshore Petroleum Production and Conservation Regulations.

The Safety Plan should provide a summary of all those things an operator does by way of policies, procedures, equipment and personnel to manage safety and reduce the level or risk. It should provide measurable objectives and milestones, and be a practical "top level" audit tool for both the operator and the Board. In general terms, it should provide a clear explanation of what is required to be done, why, where, how, when and by whom.

The Safety Plan is expected to provide for a comprehensive systematic approach to safety management during the life of the project. Thus, the operator must demonstrate that the Safety Plan is based upon a comprehensive formal risk assessment approach. This begins with the "Concept Safety Analysis" required by section 43 of the Installations Regulations and includes appropriate qualitative and quantitative risk analysis techniques, safety reviews and other assessment processes as design and construction proceed. The Safety Plan should clearly document and explain how the identified hazards are to be controlled so that the risk to personnel has been reduced to a level that is as low as reasonably practicable.

The Safety Plan must clearly show how safety management fits within the overall system of management. It should define the roles of, and relationships between, the operator's executive level management personnel and the various line and staff functions in achieving safety-related goals and objectives. This should include all functions that are relevant and not be limited to the Loss Control/Safety department. Pursuant to sections 6 and 7 of the OHS Act each individual must take reasonable care to protect his or her own health and that of other persons and must cooperate with the employer in matters related to workplace safety. The Safety Plan should stress this individual responsibility and provide a context which fosters this care and cooperation.

While an approved Safety Plan is a condition precedent to obtaining a Production Operations Authorization, the Plan should be in place sufficiently in advance of a production installation being moved onto location to provide for an acceptable level of safety during the installation and commissioning process. Thus the Safety Plan should be submitted to the Board for approval, at least six (6) months prior to the installation entering the offshore area, and it should include adequate provision for the "high risk" installation, commissioning and start-up periods.

The Board recognizes that installation, commissioning and start-up will present many "one time" hazards which will not be repeated during the routine operation of the installation. Operators may deal with this period in a separate document(s). This is acceptable provided the transition from one phase to the next flows smoothly with procedures that are compatible and that provide for adequate levels of safety during transition periods. The Board considers these initial phases of operation to be critical and cautions operators that they must be able to show that risks arising during this period have been identified and will be properly managed.

The "Certificate of Fitness" (COF) process is a key element in installation safety and the Safety Plan should clearly show how it is incorporated within the overall system of management and specifically within the safety management process.

The Safety Plan should cover all operations on, and in support of, the installation and demonstrate how the efforts of all contractors and subcontractors will be coordinated. It should, therefore, include

i. Production Operations
ii. Drilling and Well Operations
iii. Logistics and Materials Handling Operations
iv. Supply Vessel Operations
v. Standby Vessel Operations
vi. Tanker Loading Operations
vii. Diving Support Vessel & Diving Support Operations
viii. Helicopter and other Aircraft Operations
ix. Maintenance and Construction Operations
x. Satellite Well and Sub-sea Operations

Generally, all operations that could affect the safety of the installation, the support craft or those on board should be considered.

Production and Conservation Regulations

51 (6) An operator shall ensure that a copy of every plan approved pursuant to subsections (4) and (5) is (a) kept at the installation; and (b) available for examination on request by any person at the installation.

In addition to being a management tool, the Safety Plan should provide all personnel with an overview of the operator's safety management system. In this regard it should be made available to all personnel at the installation including personnel on support craft. Safety-related information that is confidential and/or proprietary may be included by way of reference but must be provided to those requiring the information for the safe functioning of the operation.

The following sections of this document provide guidance on some of the areas to be covered by the Safety Plan . This document is not, however, a "template" for the preparation of a Safety Plan. It is the responsibility of each operator to decide upon the exact nature and content of a Safety Plan which best meets the needs and fits the structure of a particular production operation. Finally, operators are cautioned that this document is not all inclusive and that the Safety Plan is required to provide for all matters related to safety.

1 SAFETY MANAGEMENT POLICIES & PROCEDURES

Production and Conservation Regulations

51. (1) An operator shall develop and submit ..... a safety plan ..... that includes

(a) a statement of the operator's safety management policy and a description of the procedures established to ensure its effectiveness;

The Safety Plan should articulate a corporate safety policy that demonstrates a commitment to the safety of personnel, the protection of the environment and the maintenance of the integrity of the installation. It should also demonstrate that clearly documented and communicated procedures exist to put the policy into action. The policy and procedures should provide clear objectives which taken together should form a coherent strategy for safeguarding the health and safety of all persons on the installation and support craft, whether they are at work or off duty. The Plan should describe how the policy and objectives apply at the corporate level and to the installation and associated activities. It should also indicate how consistency and coordination will be achieved with the policies and objectives of all contractors and others who are engaged in related activities.

The Safety Plan should describe the operator's organization and procedures for implementing the safety policy. Sufficient detail should be included to demonstrate formal acceptance of responsibility for the policy and its objectives at the highest corporate level and to show clear, unbroken lines of command and accountability for health and safety performance from top management down to the lowest operational level. In particular, the Safety Plan should include a clear statement of the duties and responsibilities of senior managers, especially the Installation Manager, and, arrangements for assessing individuals' performance in achieving occupational health and safety related goals and objectives.

•1.1 General Safety Policy Statement

The Safety Plan should include a general safety policy statement which, in broad terms, articulates the company's commitment to ensuring the health and safety of it's employees, contractors and the public. It should also state what the company expects in return from employees and contractors. General policy statements are normally brief and suitable for

posting. They are normally signed by the company's chief operating officer and may be countersigned by an Area or Installation Manager.

•1.2 Functional/Departmental Responsibility for Health and Safety

The Safety Plan should define the role of safety management in overall management. It should describe the health and safety-related goals and objectives of all line and staff functions and departments. Corporate policies and procedures should define the responsibilities of executive management and the various line and staff functions in achieving goals and objectives in health and safety.

•1.3 Employee Rights

The Safety Plan should demonstrate a clear basis for administering those employee rights that are generally recognized and required by legislation, i.e., the "Right to Know", the "Right to Participate" and the "Right to Refuse".

○ 1.3.1 Right to Know

Employees have a right to be made aware of any potentially hazardous situation which they may encounter and generally to be made aware of the level of risk associated with their jobs. The "Right to Know" is inherent in the legislation which applies in the Newfoundland offshore area. Accordingly, the Safety Plan, Emergency Response Plan and other relevant health and safety-related documents should be readily available to all employees.

The employee's "Right to Know" is a fundamental principle for which provision should be made for in corporate policy. The Safety Plan should provide guidance to management and employees for achieving specific goals and objectives associated with the "Right to Know".

○ 1.3.2 Right to Participate (Joint Occupational Health and Safety Committee)

Workers' Right to Participate in decisions affecting the safety of the workplace is established in legislation through the provision enabling an order to be made requiring establishment of a Joint Occupational Health and Safety (OHS) Committee. Under a Memorandum of Understanding with the Province, the Board administers this area of provincial legislation in the offshore area. The operator's corporate safety policy should be designed to achieve maximum benefit from the Joint OHS Committee process.

The OSH Regulations stipulate that, in addition to the duties and powers listed in the provincial OHS Act, the Joint OHS Committee has

i. the right to be notified and consulted where there is a likelihood that the safety or health of an employee is, or may be, endangered by exposure to a hazardous substance [OSH Regulations 10.4(1)(b), 10.5, 10.18]; and
ii. the right to be informed of all injuries and other "hazardous occurrences" [OSH Regulations 15.2, 15.3, 15.4].

In general, the legislation gives employees the "Right to Participate" in decisions which affect their safety and health via the Joint OHS Committee process. Therefore, the Joint OHS Committee should be afforded an important role in the development and implementation of the operator's safety management system.

It should be noted that Joint Occupational Health and Safety Committees on marine vessels are governed by Part II of the Canada Labour Code, Sections 135 and 137. These requirements are consistent with those of the Newfoundland OHS Act previously quoted.

The Newfoundland Occupational Health and Safety Act

37. The Minister may order the establishment of occupational health and safety committees by an employer at every workplace where ten or more workers are employed, to monitor the health, safety and welfare of the workers employed at the workplace.

38. (1) A committee shall consist of such number of persons as may be agreed to by the employer and the workers but shall not be less than two nor more than twelve persons.

(2) At least half of the members of a committee are to be persons representing the workers at the workplace who are not connected with the management of the workplace.

(3) The persons representing the workers on the committee are to be elected by other workers at the workplace or appointed in accordance with the constitution of the union of which the workers are members.

39. A committee established under section 37

(a) shall seek to identify aspects of the workplace that may be unhealthy or unsafe;

(b) may make recommendations to principal contractors, employers, workers, self-employed persons and the Assistant Deputy Minister or an officer for the enforcement of standards to protect the health, safety and welfare of workers at the workplace;

(c) shall receive complaints from workers as to their concerns about the health and safety of the workplace and their welfare;

(d) shall establish and promote health and safety educational programs for workers;

(e) shall maintain records as to the receipt and disposition of complaints received from workers under paragraph (c);

(f) shall co-operate with the Assistant Deputy Minister or an officer who is exercising his duties under the Act; and

(g) shall perform such other duties and follow such procedures as may be prescribed by the regulations.

40. Meetings of a committee shall take place during regular working hours at least once every three months and no worker is to suffer loss of pay or other benefits while engaged in a meeting of a committee.

- **1.3.3 Right to Refuse Dangerous Work**

The Newfoundland Occupational Health and Safety Act

45(1) A Worker may refuse to do work that the worker has reasonable grounds to believe is dangerous to his or her health or safety, or the health and safety of another person at the workplace.

The employee's "Right to Refuse" dangerous work is established in the Newfoundland Occupational Health and Safety Act. The Board administers this area of provincial legislation in the Newfoundland offshore area pursuant to a Memorandum of Understanding with the Province. The right to refuse dangerous work is subject to some interpretation. The Safety Plan should demonstrate that employees will be properly instructed as to when they may legitimately exercise this right and that corporate policy provides that the right may be exercised without fear of discrimination. The Plan should also provide clearly defined procedures, which include the participation of the joint OHS committee, for the handling of such refusals as may arise. It should be noted that, on marine vessels, the employee's "Right to Refuse" is governed by Part II of the Canada Labour Code, Sections 128 to 130.

•1.4 Individual Responsibility for Health and Safety

The Newfoundland Occupational Health and Safety Act

6. A worker, while at work, shall take reasonable care to protect his or her own health and safety and that of workers and other persons at or near the workplace.

7. A worker
(a) shall co-operate with his or her employer and with other workers in the workplace to protect
(i) his or her own health and safety;
(ii) the health and safety of other workers engaged in the work of the employer,
(iii) the health and safety of other workers or persons not engaged in the work of the employer but present at or near the workplace.

In addition to stressing the general responsibility required by the legislation, the Safety Plan should demonstrate that each individual's specific responsibilities for health and safety have been defined. It should also describe how health and safety-related criteria, goals and objectives are an inherent part of the employee review and appraisal process, especially where this process relates to offshore supervisory and management personnel.

•1.5 Quality Assurance

The Safety Plan should describe the quality assurance program as required by section 4 of the Installations Regulations. It should explain how the quality assurance process applied during design, construction, installation and commissioning, and operations provides a basis for the safe operation of the installation. It should further explain how quality and safety

management have been integrated to ensure the continued safe operation and maintenance of the installation.

•1.6 Accident Investigation Procedures

The Safety Plan should demonstrate that well written and clearly communicated accident/incident investigation policies and procedures, which ensure that all accidents/incidents are reported and investigated as appropriate, have been developed.

> **Occupational Safety and Health Regulations**
>
> 15.3 (1) Where an employer is aware of an accident, occupational disease or other hazardous occurrence affecting any of his employees in the course of employment, the employer shall, without delay,
> (a) take necessary measures to prevent a recurrence of the hazardous occurrence;
> (b) appoint a qualified person to carry out an investigation of and prepare a report on the hazardous occurrence; and
> (c) notify the committee or the representative, if any, of the hazardous occurrence and of the name of the person appointed to investigate it.

These policies and procedures should

i. identify those accidents/incidents which are to be reported; and provide guidance as to which accident/incidents are to be investigated;
ii. explain who is to be notified under various circumstances; and identify who is to be responsible for conducting and participating in the accident/incident investigation;
iii. provide instructions for the conduct of an accident/incident investigation;
iv. provide for the training of all supervisory and management staff who will be involved in accident/incident investigation; and provide for the full participation of the Joint Health & Safety Committee;
v. provide for management review of accident/incident reports at a level appropriate to the loss potential; and provide for the regular monitoring, review and audit of accident investigation procedures; and,
vi. most importantly, ensure prompt, effective remedial action.

Accident investigation policies and procedures should be designed such that employees are encouraged to report accidents/incidents. Accident investigators should be trained to look for causes rather than assign blame to individuals. Emphasis should be placed on basic or underlying causes such that remedial action can be directed toward the root problems rather than the symptoms.

•1.7 Accident Statistics and Analysis

The Safety Plan should provide for the systematic collection and analysis of accident/incident related data. It should provide clear guidance as to the types of statistical data to be collected; define all terminology to be used (i.e. exposure hours, LTA, near miss, etc.); and explain how this information is to be analyzed, used and disseminated. The latter point regarding the use and dissemination of statistical information is of key importance in the hazard identification process.

•1.8 Communications and Promotion

The Safety Plan should demonstrate that there is good communication of safety-related information among management, staff and contractors and that a strategy exists to ensure the flow of safety-related information to all affected personnel and for the promotion of safety related goals and objectives.

One means to help accomplish the foregoing is a formalized system of group safety meetings. Standards should be set for the conduct of these meetings. These standards should include frequency, purpose, chairman, agenda, minutes, logs, etc.

The Safety Plan should also provide for the general promotion of safety-related goals and objectives outside the context of safety meetings. Promotional efforts should integrate safety with operational procedures and commercial goals. These efforts may include safety talks by senior management, posters, presentation of relevant statistical data, etc..

Whatever approach is chosen, personnel should be provided with objective feedback on the progress being made in achieving the various safety goals and objectives set by the Plan.

•1.9 Organizational Rules

Safety programs traditionally have relied heavily on workplace rules. In many organizations this has led to a proliferation of rules, the majority of which are not known, let alone obeyed. Corporate policy should, therefore, ensure rules are limited to carefully chosen behaviours and that unnecessary rules are eliminated. The Safety Plan should show how rules are developed, communicated, enforced, reviewed and revised.

•1.10 Contractors

Corporate policy should define the health and safety responsibilities of contractors and their reporting relationship to the company. It should describe how the bidding process puts appropriate weight on objective, measurable safety criteria and show how safety requirements in contracts will ensure contractors meet safety-related milestones and performance requirements. The expectation is that there will be evidence of commitment greater than reliance upon clauses like, "the contractor agrees to abide by all government regulations".

It is expected that corporate policy will provide for the review of contractor procedures to ensure they are compatible with those of the company and for the regular audit of contractors. The Safety Plan should clearly demonstrate how contractors are to be evaluated and incorporated within the SMS.

•1.11 Purchasing

The Safety Plan should explain how safety reviews are incorporated in the consideration of capital expenditures and the purchase of materials.

•1.12 Hiring and Placement

The Safety Plan should show how corporate policy will ensure that appropriate health and safety considerations go into all hiring and placement decisions (see section 5).

•1.13 Health and Safety Support

The Safety Plan should include a description of the operator's arrangements for obtaining health and safety assistance. It should demonstrate that provision has been made for adequate co-operation between internal and external sources of advice and that all advisers have the information they need about factors affecting health and safety including information relating to contractors. It should also indicate that sufficient in-house resources have been provided to ensure adequate internal familiarity with all aspects of the Plan is maintained.

The Safety Plan should carefully define the role of health and safety support services and should emphasize that they are provided to support line management in discharging its responsibility for health and safety performance and not to dilute or substitute for that responsibility.

•1.14 Safety Audits

The Safety Plan should describe corporate policy and procedures regarding the safety audit process and identify clear audit goals and objectives. It is expected that safety audits will involve all management personnel; follow well-defined procedures; measure performance against objectively defined, measurable standards; and, clearly document all results. The audit system should also include follow-up and monitoring procedures to ensure that recommendations have been acted upon and remedial action has been taken where necessary.

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2 A RISK ASSESSMENT

Production and Conservation Regulations

51(1) An operator shall develop and submit ..... a safety plan ..... that includes .....

(b) a summary of the results of all studies undertaken to identify hazards and to assess risks to the installation and means to mitigate those risks;

The Safety Plan should clearly document the body of risk analysis upon which it is based. This process should begin with the "Concept Safety Analysis" as required by section 43 of the Installations Regulations and proceed through the design, construction, installation and commissioning, operation and removal phases using qualitative and quantitative risk analysis techniques, safety reviews, safety audits and other analytical processes as appropriate.[1] Based upon this information, the Safety Plan should clearly identify hazards, their probability of occurrence and their potential consequences. From this basis the Safety Plan should proceed logically to deal with the identified hazards and set priorities appropriate to the level of risk, i.e., probability of occurrence and degree of consequence.

[1] For further information on the Risk Analysis approach expected, refer to the Board's Information Letter - "Installation Safety Analysis".

•2.1 Target Levels of Safety

Installation Regulations

43(3) Target levels of safety for the risk to life and the risk of damage to the environment associated with all activities within each phase of the life of the production installation shall be defined and shall be submitted to the Chief at the time the operator applies for a development plan approval.

One of the goals of the Safety Plan should be a demonstration that the "Target Levels of Safety" submitted as part of the Development Plan have been met and that risks have been reduced to a level that is as low as reasonably practicable. However, as the targets referred to above apply to major hazards identified at the development concept phase, additional information should be included to demonstrate that all significant risks have been considered and are as low as reasonably practicable.

o 2.1.1 Individual Versus Group Risk

Risk to individuals can emanate from "major accidents" which affect the entire, or large portions of, the installation or from what may be termed "routine occupational exposures" which only have the potential to affect single, or small numbers of, individuals. It is expected that the risk from "major accidents" to both the installation as a whole and to individuals be quantified. It is not expected that risk to individuals from each "routine occupational exposure" be quantified. The method of assessment of risk to individuals from these exposures is left to the discretion of the operator.

3 FACILITIES AND EQUIPMENT

Production and Conservation Regulations

51(1) An operator shall develop and submit ..... a safety plan ..... that includes .....

(c) a description of the features incorporated in the design of the installation and of the equipment provided to eliminate hazards and reduce risks to the occupational safety and health of personnel;

The Safety Plan should provide a general description and include general arrangement drawings of the installation and all facilities, equipment and processes including support craft. Where detailed information on the installation, equipment and processes is available via reference to operations manuals, maintenance procedures and other documentation, this information need not be duplicated in the Plan. The Safety Plan should also provide a description of the Certificate of Fitness process and how it relates to "in-house" maintenance, inspection and survey procedures as required by subsection 4(8) of the COF Regulations.

The Safety Plan should highlight design features and equipment that are intended to eliminate identified hazards, reduce risk or mitigate consequences, including the separation and segregation of hazardous areas, the design for blast pressure and the provision of blast relief, active and passive fire protection systems, ballast control and marine systems, and fire and gas detection and alarm systems. It should also describe provisions to deal with upset and emergency conditions such as process

control systems, emergency shutdown systems, PSVs, the flare system, pipeline communications/control systems, communications, emergency power, public address and lighting systems, as well as provisions aimed specifically at the safety of personnel such as the temporary safe refuge (TSR), escape routes, lifesaving appliances, evacuation and rescue systems, standby vessels and logistical support, and medical and first aid facilities and equipment.

In addition to describing the foregoing, the Safety Plan should provide a statement of the performance standards to which the temporary safe refuge, escape routes, embarkation points and evacuation systems are designed, including the minimum period during which they will remain capable of functioning in conditions of fire, explosion, toxic fumes and other identified hazards. Further, the Safety Plan should demonstrate, by reference to the results of quantitative risk assessment, that the performance standards referred to are adequate to reduce risks to the safety of persons to the lowest level that is reasonably practicable, having regard to measures taken to prevent and mitigate the effects of a major accident. Finally, the Plan should highlight areas of significant residual risk including inventories of hydrocarbons and other hazardous substances, critical systems and equipment, hazardous areas, etc.

Operators are reminded that they must notify the Chief of any major modification or repair to the installation and of any significant change in equipment. [P & C Regulations 51(4) and (7)].

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4 OPERATIONS AND MAINTENANCE PROCEDURES

Production and Conservation Regulations

51(1) An operator shall develop and submit ..... a safety plan ..... that includes .....

(d) a description of the procedures established and the manuals provided for the safe operation and maintenance of the installation.

The Safety Plan should demonstrate that operations and maintenance manuals and other documents have been developed with due regard to the reduction of risk to individuals, the installation and the environment. Where appropriate the safety of operations and maintenance procedures should be validated via the use of methods such as "job/task analysis" and "job observation". The Safety Plan should provide information related to the monitoring, review and audit of operations to ensure they proceed in accordance with the written procedures and the modification of procedures where necessary.

The Safety Plan should highlight key safety issues and reference appropriate documents. The Safety Plan should not, however, be a duplication of information found in operations manuals and other documents. Rather, it should complement those documents and ensure they complement each other.

•4.1 Operations Manuals

The Safety Plan should identify the comprehensive set of operations manuals which pursuant to Section 63 of the Installations Regulations are required to provide details on the operation of the installation as a whole and the systems and equipment contained thereon, including production, drilling, tanker loading operations, standby vessel operations, logistics and maintenance and should, in turn, reference "Manufacturers Manuals" or other

documents required for the operation of subsystems or individual pieces of equipment. The Safety Plan need not duplicate the information contained in the operations manuals. However, it should describe how all manuals and procedures documents complement one another.

•4.2 Production Monitoring and Control Systems and Procedures

Monitoring and control systems and procedures are of critical importance to platform safety. Therefore, in addition to the descriptive information provided in the manuals discussed in section 4.1, the Safety Plan should describe the platform monitoring and control philosophy in detail and clearly explain how the systems and procedures employed on the installation conform to this philosophy.

•4.3 Simultaneous Operations Procedures

Production and Conservation Regulations

Simultaneous Drilling and Production Operations

28. (1) An operator shall include in the safety plan submitted pursuant to subsection 51(1) procedures to ensure the safety of persons on board the production installation and the protection of the environment, where the operator intends to conduct simultaneously with the production of petroleum

(a) the drilling and completion of a well;

(b) a well operation; or

(c) a construction or related activity.

(2) No operator shall conduct an activity referred to in subsection (1) simultaneously with the production of petroleum except in accordance with the safety plan approved pursuant to subsection 51(4).

The Safety Plan should, as far as possible, identify all operations and maintenance procedures which are not permitted to occur simultaneously and those which may be permitted to occur simultaneously only when special precautions are in place. It should describe the special precautions for each of these simultaneous operations in general terms and identify those documents in which detailed procedures are provided. Operators may wish to incorporate simultaneous operations procedures within the "Work Permit System".

•4.4 Work Permit System

The Safety Plan should identify all work activities which may present a particular hazard and are to be controlled by the Work Permit System. The aim of the work permit system should be to ensure the personal safety of those doing the work, the safety of other persons, and the overall safety and integrity of the installation.

The Safety Plan should identify who is to co-ordinate and control the issuing and return of work permits. That person should be in a position to take an overview of all operations, both underway and planned, in order to ensure potential hazards are not compounded. It is expected that it will be the responsibility of the Installation Manager to ensure this co-

ordination and control either by his undertaking this function himself or by appointing an appropriate qualified person to carry it out on his behalf.

The Safety Plan should define the administrative responsibilities of all levels of management for operating the work permit system. In general, the Safety Plan should demonstrate that work permit procedures are established, maintained and explained to all affected personnel and that appropriate training is given to all personnel with responsibilities for the procedures. It should also show how the work permit system is monitored to ensure the procedures are being followed and that procedures are reviewed regularly to assess their effectiveness. Records of all work permits issued, suspended and executed should be retained in a safe place on the installation or at such other place as may be approved for a period of at least twelve months from the date of issue; and, the work permit system should be frequently subject to rigorous audit.

The Safety Plan should require that work permits be used whenever a particular job is, or may be, critical to the safety of those directly involved, other personnel or the installation itself.

•4.5 Preventive/Planned Maintenance System

The Safety Plan should provide a description of the Preventive/Planned Maintenance System (PMS) which is approved by the Certifying Authority (CA). The PMS should provide for the maintenance of all equipment which could affect safety, not only that covered by the COF.

Certificate of Fitnes Regulations

4(8)(a) the person applying for the certificate....
(iii) submits to the certifying authority an inspection and monitoring program, a maintenance program and a weight control program for approval....

The Safety Plan should ensure that, in addition to the review done by the CA, the PMS is subject to internal monitoring, review and regular audit.

The Preventive/Planned Maintenance System should describe the facilities provided for inspection and maintenance as required by Section 6 of the Installations Regulations; provide for the formal scheduling of maintenance work; ensure critical parts and spares are on hand; ensure that complete and easily-referenced records of work done, signed by the "responsible person", are maintained; provide for cross reference with "Permit to Work" and "Simultaneous Operations" procedures where appropriate; and, provide for regular audits to ensure program standards are maintained.

The system should include all inspection and maintenance from major surveys of the structural integrity of the installation itself to the regular lubrication of minor pieces of equipment. All of the maintenance procedures should be scheduled either on the basis of the manufacturers' recommendation, an industry or regulatory standard or operating experience. In the case of critical parts, equipment or systems, the level of risk should also be a consideration when establishing maintenance schedules. While care must be taken to adhere to all regulatory requirements for inspection and maintenance, it should be noted that the standards quoted in regulations often reflect minimum levels of maintenance and it is expected that operators will take a more rigorous approach to the development of maintenance standards than simple reliance upon regulatory requirements.

•4.6 Management of Change

There is considerable evidence that the introduction of changes in personnel, equipment and/or procedures without adequate planning has directly caused or contributed to many of the serious accidents that have occurred in the process industries. The Safety Plan should describe the Operator's policies and procedures related to the "Management of Change". This should include changes in equipment, procedures, personnel and organization. It is expected that the Safety Plan will clearly differentiate between a "change" and a "replacement in kind" and will explain clearly the procedures whereby all changes are to be introduced and documented.

The management of change should be integral to the operator's safety management system and the Safety Plan should clearly define how the management of change relates to other key systems or programs such as the preventative maintenance system, the work permit system, purchasing policies and procedures, accident investigation policies and procedures, etc. A management of change program or system should define the roles of all levels of management in the change process and clearly identify who has the authority for authorizing a particular change. At a minimum, some appropriate level of process hazard analysis, employee training and pre-start-up safety review should occur before any change is instituted.

○ 4.6.1 Non-Standard Modes of Operation

If the installation is designed to operate in more than one mode, (e.g., with and without gas re-injection) this should be clearly identified in the Safety Plan and all ramifications for the safety of the installation clearly "spelled out". Non-standard modes of operation are especially hazardous because employees are not familiar with them and normal operating and emergency procedures may be altered.

The Safety Plan should show that all hazards associated with non-standard modes of operation have been identified, the risk assessed and appropriate action taken. It should also show that the impact of these modes of operation upon critical procedures such as the work permit system and simultaneous operations procedures has been assessed and that emergency response procedures have been reviewed. The methods used to ensure employees are trained in both normal and emergency procedures during non-standard modes of operation (e.g., via simulation and practical exercises) should be described.

•4.7 Planned Inspections

The Safety Plan should provide a description of the planned inspection program for the installation. This Program should:

i. divide the installation into appropriate functional or physical areas and establish inspection checklists for each area;
ii. assign responsibility for and establish frequency of inspections in each area;
iii. provide procedures for management review of inspection reports and follow-up activities;
iv. establish a system to monitor the program to ensure remedial action is taken promptly when hazards are identified;
v. provide for regular reviews to update the program where necessary; and,
vi. include regular audits to ensure program standards are being maintained.

Planned inspections should be conducted by qualified personnel at a frequency established on the basis of the nature and level of the risk within the area. Normally, they should be done by front line supervisors in their areas of responsibility.

The planned inspection program should not be confused with management safety tours or preventive maintenance inspections. Planned inspections are more formal than the safety tours done by senior management and differ from preventive/planned maintenance inspections in that they deal with physical or functional areas of an installation rather than a specific piece of equipment. The planned inspection program may, however, be administered in conjunction with the preventive/planned maintenance system.

•4.8 Personal Protective Equipment

OSH Regulations

12.1 Where (a) it is not reasonably practicable to eliminate or control a safety or health hazard in a work place within safe limits, and

(b) the use of protection equipment may prevent or reduce injury from that hazard, every person granted access to the work place who is exposed to that hazard shall use the protection equipment prescribed by this Part.

The Safety Plan should demonstrate a comprehensive, planned approach for the provision and use of personal protective equipment (PPE) has been established. Specifically that approach should identify all exposures requiring control by PPE and the appropriate type of PPE for each such exposure; assign responsibility for issuance or use of PPE and establish procedures for maintenance, cleaning and storage of the equipment. The Plan should show how PPE requirements will be clearly defined and communicated to management, supervisors and employees; that training and record keeping needs have been addressed; and that appropriate PPE rules, standards and procedures are quoted in work permits, material safety data sheets, rule books, operations procedures, etc..

The foregoing should include the training of management and supervisory staff and for the utilization of trained specialists when necessary. The regulatory requirements for PPE are clearly laid out in Part XII of the OSH Regulations.

•4.9 Transportation of Dangerous Goods

The Safety Plan should demonstrate that all necessary procedures and equipment to ensure the safe transport of all "Dangerous Goods" are in place and comply with the federal "Transportation of Dangerous Goods Act and Regulations", and the "International Maritime Dangerous Goods Code". This includes all procedures, standards and equipment related to shipping documents, labelling, packaging, handing, transporting and reporting of "dangerous occurrences".

The foregoing should include the training of appropriate personnel in the classification of dangerous goods, Canadian and international requirements, and company standards and procedures.

•4.10 Hazardous Materials in the Workplace (WHMIS).

Occupational Safety and Health Regulations

10.11 Every hazardous substance stored, handled or used in a work place shall be stored, handled and used in a manner whereby the hazard related to that substance is reduced to a minimum.

The Safety Plan should demonstrate that a comprehensive Workplace Hazardous Materials Information System (WHMIS) as required by the federal "Hazardous Products Act" and Part X of the Newfoundland Offshore Area Petroleum OSH Regulations is in place. WHMIS requires that all personnel be trained; material safety data sheets (MSDSs) be available to all affected personnel; and all hazardous materials be properly labelled. It should be noted that the Newfoundland Petroleum OSH Regulations define "Hazardous Materials" as a "Controlled Product" or any other agent that may be hazardous.

WHMIS focuses on ensuring employees are informed about hazardous substances. Operators are reminded that this effort should fit within a larger effort to control the use of hazardous substances. A WHMIS program is only effective as a complement to appropriate purchasing, engineering, procedural and PPE controls and the Safety Plan should demonstrate that these controls are in place.

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5 TRAINING AND QUALIFICATIONS

Production and Conservation Regulations

51(1) An operator shall develop and submit ..... a safety plan ..... that includes .....

(e) the standards adopted for the training and qualification of personnel;

Production and Conservation Regulations

SAFETY AND TRAINING OF PERSONNEL

62.(1) No operator shall conduct a production operation for which the personnel require special skills until

(a) the operator has submitted to the Chief Safety Officer a description of the training that the operator proposes to require of the persons employed for that operation;

(b) the training referred to in paragraph (a) has been approved pursuant to subsection (2); and

(c) the operator has ensured that the employees successfully complete the approved training.

(2) The Chief Safety Officer shall approve the training referred to in paragraph (1)(a) if the training is sufficient to enable the production operation to be conducted in a safe manner.

Qualifications

63.(1) The operator of a production installation shall ensure that the supervisory personnel employed at the production site have, before assuming their duties, sufficient experience and the necessary training to conduct their duties in a safe manner.

(2) The operator shall, on request, provide the Chiefs with a summary of the qualifications and training of personnel employed at a production site.

This section is intended to provide guidance to operators in meeting the requirements of the foregoing regulations respecting training and qualifications. Operators are cautioned that in addition to the general requirements described below, other specific requirements related to the qualification, certification and training of personnel may appear elsewhere in the regulations.

The Safety Plan must include a description of the standards proposed by the operator for the training and qualifications to be required for each position on the installation. For those production operations which require special skills of the personnel involved, the Safety Plan may include the "training proposal" referenced in Section 62 of the P & C regulations or, alternatively, may state the operator's intention to make a separate submission in this regard. The Safety Plan should also include a description of the training and qualifications standards established for personnel employed on support craft and for relevant shore-based management personnel.

The standards should describe employee selection criteria, including how employees will be required to demonstrate their competence or knowledge and how acceptable performance will be determined. "Training proposals" should clearly define the requirements of the operations for which the employees are to be trained; the subjects that are to be covered in the training and the measurable learning goals and objectives that must be achieved.

The Safety Plan must describe how the operator will ensure the adequacy of the training received by contractors' employees. This might include a description of the information provided to contract employers to enable them to ensure their employees meet the operator's training standards; the provision of site specific and task specific safety training, and procedures for auditing contractor compliance.

The Safety Plan should demonstrate how all personnel, including contract employees, will be informed of the safety and health hazards associated with their employment and that appropriate training will be provided in operating and maintenance procedures, the work permit system, non-routine work activities, and emergency preparedness and response. The Plan should describe the method(s), written tests, oral examinations, simulation exercises, on-the-job competency assessment, etc., the operator proposes to use to ensure that employees understand the training they have received. Operators are free to use the method that they believe will work best in their organization.

•5.1 Organizational Structure

The Operator should provide a summary of the organizational structure for the entire operation. A series of organization charts showing all positions proposed through out the organization together with a brief description of the duties of each position would be appropriate for this purpose.

•5.2 Entry Level Qualifications

The Operator should provide an explanation of how the entry level qualifications for each position classification are established and the process which will be used to ensure they are maintained. A listing of position classifications indicating the required qualifications of each should be provided. These qualifications should include standards for medical (physical) fitness, formal education, experience, and certificated training as appropriate to the position in question.

•5.3 Job Orientation and Follow-up

The Safety Plan should include details of the formal orientation program for all new and transferred employees, including contract employees. Training standards should document requirements for initial orientation(s) that introduce personnel to the job, the installation, the specific work area, job procedures and hazard controls. A follow-up to the orientation process to review and check the understanding of key points covered in the initial orientation should also be considered.

•5.4 Operating and Maintenance Procedures and Practices

The Operator should provide a summary of the procedures in place to ensure that persons assigned to operate and maintain the facility possess the required knowledge and skills to carry out their duties and responsibilities, including start-up and shutdown, the work permit system, operating procedures, etc. The operator's strategy for training personnel to deal with changes in operating procedures and the conduct of non-routine work activities should also be described. This training is a key component of the overall management of change (see section 4.6).

•5.5 Safety and Emergency Preparedness and Response Training

The Safety Plan should include the standards that have been adopted for safety and emergency preparedness and for emergency response training including,

i. Personal Safety Training
   - Basic Survival Training (BST)
   - Basic and Advanced First Aid
   - Cardiopulmonary Resuscitation (CPR)
   - Hydrogen Sulphide (H_2S) Alive
   - Workplace Hazardous Materials Information System (WHMIS)
   - Transportation of Dangerous Goods (TDG)

ii. Training of Supervisors and Management Personnel
   - Safety Management
   - Crisis Management
   - Specialized and Technical Safety Training

iii. Emergency Team Training
   - Fire Team
   - Helideck Team
   - Man Overboard Team
   - First Aid Team
   - Coxswain Course
   - Other Specialized Team
   - Team Leader

iv. Specialized and Technical Training
- Well Control
- Stability and Ballast Control
- Helicopter Landing Officer
- Crane and Lifting Gear Inspection and Safety

v. Emergency Drills and Exercises (see section 7.4)

Pertroleum OHS Regulations

10.18 (1) Every employer shall, in consultation with the committee or representative, if any, develop and implement an employee education program respecting hazard prevention and control at the work place.

16.5 At a marine installation or structure where the number of employees set out in column I of an item of Schedule I to this Part is normally present, that number shall include the number of first aid attendants set out in columns II, III and IV of that item.

17.13 (1) Each employee shall be instructed and trained in

(a) the procedures to be followed by the employee in the event of an emergency; and

(b) the location, use and operation of emergency and fire protection equipment.

•5.6 Maintenance of Professional Certification and Refresher Training

The Operator should explain requirements for the maintenance of professional and other types of certification where appropriate. Requirements for employee participation in on-the-job training and refresher courses should also be described.

•5.7 Simulator Training

Operators should, where practicable, incorporate simulator training when defining training program standards for personnel. The use of simulators that can realistically reproduce operating and emergency conditions is particularly suggested for training in control room operations, well control operations and, for floating installations, ballast control operations.

•5.8 Training Documentation and Compliance Auditing

The Operator should provide a description of the provisions made for documenting employee qualifications and training, including contractors. Records of in-house and specialized training should contain, at a minimum, the identity of the employee, the date the training took place, the major topics covered and the means used to verify that the employee understood the training. Where certificated safety training is specifically required by

regulation or the standards established by the operator, copies of the relevant certificates must be maintained on file.

The operator should describe provisions made for the audit of training and qualifications standards including those aspects that have been delegated to contractors. A centralized training and qualifications register or data base that can readily provide a current and accurate summary of the training and qualifications of any person employed in the production operation, including contractor's employees should be considered. Such a system would expedite internal and regulatory audits.

•5.9 Management Training and Qualifications

Operators must ensure all supervisory and management personnel have both a sound theoretical understanding of the operations, appropriate formal training, and sufficient relevant practical experience to qualify them to hold the positions to which they are appointed. Senior offshore managers should also have a demonstrated ability to deal with emergency and crisis situations. The operator must be able to demonstrate that each individual chosen for key management positions is competent to hold that position. The Safety Plan should describe how this is to be accomplished.

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6 COMMAND STRUCTURE

Production and Conservation Regulations

51(1) An operator shall develop and submit ..... a safety plan ..... that includes .....

(f) a description of the command structure on the installation, and for the operator's shore base and their relationship to each other;

The Safety Plan should clearly describe the operator's onshore management structure and the command structure in place at the installation. It should define the duties, responsibilities and authority of all management personnel during both normal and emergency conditions (see section 7 Contingency Planning). The foregoing should include lines of reporting and information flow in addition to lines of authority and should include both operator and contractor personnel. Reporting relationships and lines of authority and communication between the Installation Manager, the corporate office, support craft and platform personnel are of key importance and should be highlighted.

The Operator should provide a description of the succession plan in the event that a manager in a key position becomes unavailable or incapacitated during an emergency situation. This plan should be clearly understood by all employees and levels of management. Designated successors should be appropriately trained and be prepared to assume the positions designated.

•6.1 Installation Manager

Atlantic Accord Implementation Act

Installation Manager

193.2 (1) Every holder of an authorization under paragraph 138(1)(b) in respect of a work or activity for which a prescribed installation is to be used shall put in command of the installation a manager who meets any prescribed qualifications, and the installation manager is responsible for the safety of the installation and the persons on it.

Offshore installations are required at all times to be under the overall direction of an Installation Manager. In addition, each installation must have a clear chain of command comprised of qualified managers selected for their competence to carry out the duties and responsibilities described for their respective posts.

Atlantic Accord Implementation Act

193.2(3) In a prescribed emergency situation, an installation manager's powers are extended so that they also apply to each operator of a vessel, vehicle or aircraft that is at the installation or that is leaving or approaching it.

The support craft working alongside an installation are under the direction of the Installation Manager. The Safety Plan should clarify the Installation Manager's role in the coordination of the support craft which are at the installation, especially in emergency situations. It should also be recognized that the commanders of support craft have responsibilities under other applicable legislation, in addition to those placed upon them by the Accord legislation, and that they have a primary responsibility for the safety of their own craft and of those on board it.

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7 CONTINGENCY PLANNING

Production and Conservation Regulations

51(1) An operator shall develop and submit ..... a safety plan ..... that includes .....

(g) contingency plans for response to and mitigation of accidental events affecting the safety of persons on board, or the integrity of, the installation;...

(3) The plans submitted pursuant to subsections (1) and (2) shall address abnormal conditions and emergencies that can reasonably be anticipated, including

(a) serious injury, persons overboard or loss of life;
(b) collisions;
(c) loss of well control;
(d) forecast or actual physical environmental conditions that may result in loads or load effects on the production installation in excess of those for which it was designed;
(e) oil spills;
(f) fire; and
(g) explosions.

Pursuant to Section 64 of the Drilling Regulations; Section 17.9 of the OSH Regulations; and Section 4 (4) of the Diving Regulations, the following must be added to the above list;

(h)loss or damage to a support craft,
(i)loss or damage to other installations on the field,
(j)relief well drilling arrangements,
(k)acts by any person or threats to commit acts that may be hazardous, and
(l)diving emergencies.

In addition to the foregoing, contingency plans must address all emergency scenarios that have been identified by risk analyses as having a reasonable probability of occurrence. The operator is expected to prepare an "Alert/Emergency Response Plan" document outlining the proposed response to all these foreseeable alert and emergency situations. As the documentation necessary for a hydrocarbon spill response is rather extensive and because this activity is also part of the Environmental Protection Plan required by Section 51, an oil spill response plan may be provided as a separate document(s). These plans will be reviewed by C-NOPB and those government departments and agencies whom C-NOPB consults on search and rescue and environmental matters.

- **7.1 Logistical Support**

  The Safety Plan should describe the logistical support available to respond to an emergency including

  - **7.1.1 Communications Systems**

    The description should include the communications system on the installation and the network linking the installation, support craft and the shore base. The communication network should allow all key players to communicate with one another (eg. helicopters should be able to communicate with vessels and lifeboats). Communications systems should be reliable and include sufficient redundancy to ensure continued operation during identified emergency situations. Communications procedures should be developed to facilitate the exchange of information in an emergency and to preclude confusion.

  - **7.1.2 Standby Helicopter**

    It is expected that a helicopter will be maintained on standby and dedicated to search and rescue on a 24 hour per day basis. This helicopter should be equipped with a hoist; equipment for retrieving single and multiple persons from the water; life-raft systems designed for air deployment and associated equipment. Trained personnel should be available to accompany the helicopter crew and assist with search and rescue duties. Provision should be made for helicopter training time sufficient to ensure that the helicopter and rescue crews can develop the necessary co-ordination to operate effectively.

  - **7.1.3 Medical Support Services**

    Section 16 of the OSH Regulations defines the minimum requirements for medical facilities and personnel, including the requirement for a consulting physician. It is expected that operators of production installations will build upon these minimum requirements as appropriate to the size and type of installation. In addition to the facilities maintained on the installation and standby vessels, operators should maintain an emergency medical kit at the heliport.

- **7.1.4 Flight Following and Vessel Watch Services**

  All operators in a given geographical area are expected to operate a common flight following facility to monitor aircraft and vessel traffic.

- **7.1.5 Oil Spill Response Capability**

  Operators are expected to maintain an adequate oil spill response capability which can be mobilized to the area of a spill within a reasonable time period.

- **7.1.6 Vessel and Aircraft Support**

  The Safety Plan should provide a general description of all vessels, aircraft and related equipment available for responding to an emergency and provide information on the response capability of this equipment.

- **7.1.7 Other**

  The Safety Plan should provide details of additional logistical support services as appropriate.

•7.2 Multi-Operator Agreements

In the event that more than one operator is active in a given geographical area, operators are expected to formulate agreements whereby in an emergency, there is a capability to consult quickly with one another and, if necessary, share vessels, helicopters and any other resources needed to mount an effective response. Care should be taken to ensure that the safety of operations of the operator who is sharing its resources will not be compromised.

In the case where several operators are active, they may, if suitable arrangements are agreed upon among them, maintain one standby helicopter for use by all and one emergency medical kit at the heliport for common use. They must use a common flight following facility.

The Safety Plan should describe the multi-operator agreements that have been established detailing the terms of the agreement(s), the resources to be shared and an explanation of how shared resources will be integrated with the operator's own resources.

•7.3 Alert/Emergency Response Plans

The Safety Plan should include Alert/Emergency Response Plans that reflect an integration of the operator's and all sub-contractor's procedures. Descriptions of the responsibilities and how the interrelationships of key personnel are to be coordinated in an emergency response should be discussed. Response Plans should

i. Define the responsibilities of key personnel and outline the basic procedures for responding to emergencies. These should include "down-manning" and evacuation procedures.
ii. Clearly define "Alert Criteria" and set out the procedures to be followed. These plans should require that an "Alert" be declared when the defined criterion is reached or in any other situation which could threaten the safety of the installation, support craft, personnel or the environment.

iii. Include a clearly defined mechanism for ensuring that alert/emergency response plans are kept up-to-date and all recipients are promptly provided with revisions and updates.
iv. Include appropriate organization charts and diagrams.
v. Provide information on all available emergency equipment and resources either directly or via reference to appropriate operations manuals and other documents.
vi. Include or reference comprehensive ice management and collision avoidance plans.

•7.4 Exercises and Drills

OSH Regulations

17.13 (1) Each employee shall be instructed and trained in
(a) the procedures to be followed by the employee in the event of an emergency; and
(b) the location, use and operation of emergency and fire protection equipment.

The Safety Plan should provide for exercises to train personnel and familiarize them with emergency procedures and to provide a means to test the effectiveness of the Alert/Emergency Response Plan and identify problems. This should include communications exercises involving all personnel conducted at least annually and exercises which involve the deployment of emergency equipment at least every two years. These exercises are in addition to the annual oil spill exercise required by Section 125(d) of the Drilling Regulations.

The OSH Regulations section 17.14 and the Drilling Regulations section 125 establish minimum requirements for the frequency and content of drills. Drills which exercise the production crew in shutdown and emergency procedures and other drills as necessary should also be developed in co-ordination with fire, abandonment and well control drills. It is expected that drills will be conducted on at least a weekly basis. On floating production facilities, for example, ballast control drills are expected to be held weekly.

Drills should also, insofar as is safe and practical, be held at random times and without forewarning. They should be varied and designed around realistic scenarios identified from the risk analysis process. The Safety Plan should describe each type of drill and demonstrate that the proposed frequency is adequate to meet safety objectives.

A debriefing should be held following all drills during which the following questions should be considered:

. Were personnel alert and did they respond with diligence?
i. Did personnel know and follow established procedures?
ii. Was rescue/emergency equipment complete and adequately maintained?
iii. Were established procedures adequate?
iv. Were communications adequate?
v. Was the drill completed in a reasonable time period?
vi. Was the drill conducted safely?
vii. Did all key personnel participate?
viii. Were all appropriate personnel accounted for?
ix. Did the standby vessel take up an appropriate position?
x. What can be done to improve the effectiveness of the drill?

Records or logs should be kept of all drills. These records should include the type of drill, the personnel involved, the response times achieved, problems encountered, debriefing results and measures taken or planned to improve response.

•7.5 Ice and Vessel Traffic Management

The Safety Plan should include a description of the facilities and procedures in place to track ice and vessel traffic and provide for a staged response designed to avoid or mitigate the consequences of a collision.

An Ice Management Plan should include

. a description of arrangements for aerial, vessel and installation-based surveillance,
i. a description of the system for ice data reporting, collation, quality control and presentation,
ii. a description of the local tactical ice forecasting component where appropriate,
iii. procedures for iceberg deflection,
iv. a list of iceberg deflection equipment available on each support vessel,
v. ice avoidance and/or installation shutdown procedures, and
vi. multi-operator ice management agreements, where appropriate.

A Vessel Traffic Management Plan should include

vii. procedures for dealing with authorized and unauthorized vessels;
viii. procedures for maintaining a radar watch and for plotting targets;
ix. criteria for declaring vessel collision alerts;
x. procedures to alert intruding vessels;
xi. the role of the standby vessel;
xii. procedures for securing the installation;
xiii. notification procedures between the installation and shore base; and
xiv. requirements for documenting near-miss events, including definition of a near-miss.