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PART 5 – CERTIFICATE OF FITNESS	
5.1 INSTALLATIONS AND VESSELS	
The following installations and vessels are prescribed for the purposes of section 143.2 of the Act: • each production installation, drilling installation, accommodation installation, as well as any vessels and dives plant used for diving programs to be operated during any activity authorized by the Board	**Rationale:** A classed, SOLAS Compliant diving vessel should not fall under installation criteria. There are still sections within the framework that apply to Installations that are not applicable to diving vessels. For example, Section 6.6 references installations but would clearly not apply to a diving vessel. Section 6.27 requiring SOLAS requirements and classification society endorsement should be enough. **Proposed Policy Text:** Suggest revision of the regulation to classify a diving vessel as a "vessel" and not an "installation". **Clarification Request:** In reference to ".. any vessels and dives plant used for diving programs" does this mean a vessel used for an air diving program (shallow water) needs a COF? Previously only the dive spread needed the COF.
5.2 ISSUANCE OF CERTIFICATES OF FITNESS	
Subject to sections 5.3, 5.5 and section 5.6, a Certifying Authority may issue a certificate of fitness in respect of the installations and vessels referred to in subsection (1), if the Certifying Authority; a. determines that, in relation to the production or drill site or region in which the particular installation or vessel is to be operated, the installation or vessel: i. is designed, constructed, transported, and installed or established, and commissioned in accordance with A. Part 6; B. Those sections of Part 7 listed in Schedule 1 (TBD) C. The provisions of the relevant Occupational Health and Safety Regulations listed in Schedule 2 (TBD); D. The provisions of the relevant Framework Regulations and Occupational Health and Safety Regulations listed in schedule 3 to these Regulations, if the installation or vessel includes a dependent diving system; ii. is fit for the purpose for which it is to be used and can be operated safely without polluting the environment, and iii. will continue to meet the requirements of subparagraphs (i) and (ii) for the period of validity that is endorsed on the certificate of fitness if the	**Rationale:** In section 5.2(a) (i), the CA has the requirement to "determine" that the installation is designed, constructed, transported and installed or established, and commissioned. Transportation and installation of an installation has typically been overseen by a marine warranty surveyor and this is now referenced in Section 6.23 Offshore Transportation and Installation of Facilities (Installations), as follows: Section 6.23 (1) (c) states "monitored by a marine Warranty Surveyor There appears to be an overlap in the duties of the CA and MWS. (2) (b) states: a transit plan must be established and has taken into account any requirements of the Classification Society and Marine Warranty Surveyor. **Proposed Policy Text:** a. determines that, in relation to the production or drill site or region in which the particular installation or vessel is to be operated, the installation or vessel: i. is designed, constructed and commissioned in accordance with……

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installation or vessel is maintained in accordance with the inspection, maintenance and weight control programs submitted to and approved by the Certifying Authority under subsection (5); and b. carries out the scope of work in respect of which the certificate of fitness is issued.	**Clarification Request:** In reference to Subsection 5.2 (a) (i) (B & C) CAPP request that further details on intended policy text or regulatory content be provided in advance of the publishing of draft regulations.
5.3 SUBSTITUTIONS For the purposes of subparagraph 5.2(a)(i), the Certifying Authority may substitute, for any equipment, methods, measure or standard required by any Regulations referred to in that subparagraph, equipment, methods, measures or standards the use of which is authorized by the Chief Safety Officer or Chief Conservation Officer, as applicable under section 16 of the *Canada Oil and Gas Operations Act* (COGOA). (or equivalent sections in the Accord Acts- 205.069 for Can-NL Act and 210.07 for Can-NS Act)	**Rationale:** Section 2015.069 of the Accord Act make provisions for the granting of substitution based on the demonstration of an equivalent level of safety which have been approved by the CSO or CCO through the Regulatory Query process. However, it was understood from the C-NLOPB that there was the intent to eliminate the RQ process and that RQ's would not be approved once these new regulations were established. **Clarification Request:** What is the process that will allow for substitution approval?
5.6 CONFLICT OF INTEREST	

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5.7 CERTIFICATION PLAN Prior to the submission of the scope of work by the Certifying Authority, the operator (and owner of the installation or vessel, if the operator is not the owner) shall submit a documented certification plan to the Chief Safety Officer for approval that demonstrates how initial and ongoing regulatory compliance will be achieved with Part 6 of the Framework Regulations, those sections of Part 7 of the Framework Regulations listed in Schedule 1, those sections of the Part III.1 regulations (Accord Act areas) or OGOSH (COGOA area) that are listed in Schedule 2 , and any requirements in Schedule 3 if the installation or vessel is to perform diving operations, including: a. A description of the installations, vessels, facilities, equipment and systems to be certified; b. A comprehensive list of all Safety Critical Elements to the installations, vessels and facilities; c. A list of codes and standards that will be applied to installations, vessels, facilities, equipment and systems that are to be certified, and considering the entire lifecycle (inclusive of the design, construction, transportation, installation, commissioning, operation, maintenance and decommissioning etc.) of the project, and in the event no codes or standards are applicable, any studies and analysis that demonstrate the appropriate measures put in place will be adequate to reduce risks to as low as reasonably practicable; d. Any other measures undertaken to reduce risks to as low as reasonably practicable that fall within the scope of work of the Certifying Authority.	**Rationale:** CAPP request clarification in respect to the roles and responsibilities of the various organizations engaged in the development and administration of the proposed Certification Plan process? CAPP believe there may be significant overlap of the Certification Plan with the requirements stipulated for the CA Scope of Work, Operations Manual and Safety Plan described in later sections of the policy intent document. Certification plan is not applicable to diving vessels if diving vessel is removed from the definition of an installation. **Clarification Request:** 1. Define role of the CA & Boards in the CoF design phase. What are the expectations of each organization in the process? 2. Is there a mechanism for approval or acceptance of the Certification Plan? **General comment on overall theme of Certificate of Fitness:** CAPP is concerned about the ability of the Certifying Authority to self-define their scope of work. This unwarranted expansion of certifying requirements beyond the intended role and scope of the CA has been observed by industry and to the point where the industry is at risk of becoming less competitive with other regions. CAPP recommends that a system of checks and balances is needed to regulate the scope and role of the CA. An example of unwarranted CA scope expansion is the secondary verification of equipment being manufactured to a code or standard; i.e witnessing manufacturing processes that are already certified to a code/standard (3rd party witnessing). Suggest that where documentation is available to demonstrate the manufacturer's compliance to a code or standard that is required by the CA for any particular manufactured equipment or item, the CA shall not impose any additional requirements for witnessing of manufacture or assembly by the CA or any 3rd party. CAPP believe the proposed "Certification Plan" concept could provide an opportunity to address this issue on a case-by-case basis, or it may be appropriate to specifically address "double certifying" in this regulation. **Proposed Policy Text:** Suggest adding a 5th item to the list in Section 5.7: e. Identification of equipment that will have aspects of certification completed by an organization other than the CA (such as manufacturing verification of equipment made to API standards) **General Comment:** In reference to Section 5.7 (d), CAPP believes the policy text as stated is unmanageable and broad; and, recommends its removal.

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	Risk assessment and mitigation processes are a fundamental and imbedded component of operator processes, and the philosophy of ALARP span aspects broader than safety critical elements. The CA does have a role in aspects related to safety critical elements; however, section d could add confusion with regards to CAs becoming overly involved in aspects outside their purview. Certification Plan section is new and it appears to be a duplication of efforts that will be required through the regular course of business with the CA. It is not clear the basis for this requirement; seems to onerous and a duplication of items that can be covered in the scope of work. This additional step will add to the timeframe to obtain the COF, and when coupled with the extended CEAA process and OA requirements the result is an overly complex and extended timeframe to receive work authorizations and approval.
Note: Schedules 1, 2 and 3 referenced in this section will be finalized in the draft framework regulations. The elements covered under those three schedules will remain similar to the elements currently referenced under the existing Certificate of Fitness Regulations.	
5.8 SUBMISSION OF THE SCOPE OF WORK The Certifying Authority shall, for the purposes of issuing a certificate of fitness in respect of an offshore installation or vessel, submit a scope of work, based on the approved certification plan in s. 5.7, to the Chief Safety Officer for approval.	**Clarification Request:** CAPP request clarification in respect to the roles and responsibilities of the various organizations engaged in the development and administration of the proposed Certification Plan process?

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5.11 CERTIFICATION PERIOD (1) If the Certifying Authority determines that, when the installation or vessel is maintained in accordance with the programs submitted to it under subparagraph 5.5(a)(iii), the installation or vessel will meet the requirements of paragraph 5.2(a) for a period of at least five years, the Certifying Authority shall endorse on the certificate of fitness an expiration date that is five years after the date of issuance. (2) If the period of time referred to in subsection (1) is less than five years, the Certifying Authority shall endorse on the certificate of fitness an expiration date that is the number of years or months in that lesser period after the date of issuance. (3) A certificate of fitness shall expire on the expiration date that is endorsed on it.	**Rationale:** In reference to subsection (3) A certificate of fitness shall expire on the expiration date that is endorsed on it. CAPP recommends that provision be granted to permit temporary extensions of the CoF by the CA where safety, operational or other circumstances necessitate the continued operation of an installation or vessel. The expiration date should allow ability to safely complete or terminate the operations ongoing at the time of expiration and potential flexibility to reasonably extend the date based on certifying authority / C-NLOPB engagement and approval. **Proposed Policy Text:** (3) Unless granted a temporary extension that has been approved in writing by the CSO, a certificate of fitness shall expire on the expiration date that is endorsed on it.
5.12 APPLICABLE SITE OR REGION 1) The Certifying Authority shall endorse on the certificate of fitness a description of the site or region in which the installation or vessel is to be operated. (2) A certificate of fitness is valid for the operation of the installation or vessel at the site or in the region that is endorsed on it.	**General Comment:** For 5.12 (2) the policy text clearly states that a CoF issued for NL jurisdiction would not be valid for the NS jurisdiction, even though the CoF would be issued under the same legislation in both jurisdiction. CAPP recommend than an efficient and timely mechanism should be developed to execute the acceptance of a CoF issued by a recognized CA compliant with the Framework Regulations in NL or NS jurisdictions..

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5.13 CERTIFICATE NO LONGER VALID (1) Subject to subsections (2) and (3), a certificate of fitness ceases to be valid where a. the Certifying Authority or the Chief Safety Officer determines i. that any of the information submitted under subsection 5.5 was incorrect and that the certificate of fitness would not have been issued if that information had been correct, ii. that the installation or vessel no longer meets the requirements of paragraph 5.2(a), or iii. that the installation or vessel has not been inspected, monitored and maintained in accordance with any limitation endorsed on the certificate of fitness; or b. the Chief Safety Officer determines that the Certifying Authority has failed to carry out the scope of work relating to the installation or vessel in respect of which the certificate of fitness was issued. (2) At least 30 days before a determination is made pursuant to subsection (1), notice, in writing, that a determination is going to be made shall be given a. in the case of a determination by the Certifying Authority, by the Certifying Authority to the Chief Safety Officer and the person to whom the certificate of fitness in respect of which the determination is to be made has been issued; and b. in the case of a determination by the Chief Safety Officer, by the Chief Safety Officer to the Certifying Authority and the person referred to in paragraph (a). (3) Before making a determination pursuant to subsection (1), the Certifying Authority or the Chief Safety Officer, as the case may be, shall consider any information in relation to that determination that is provided by any person notified pursuant to subsection (2).	**Rationale:** Subsection (2) is difficult to read and should be re-worded for clarity. **Proposed Policy Text:** "At least 30 days before a determination is made pursuant to subsection (1), a written notice of the determination shall be given either by the Certifying Authority or the Chief Safety Officer. Each other party (Certifying Authority or Chief Safety Officer) shall be notified as well as the person to whom the certificate of fitness has been issued."

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5.14 CHANGE IN CERTIFYING AUTHORITY (1) Where a person to whom a certificate of fitness has been issued intends to change the Certifying Authority in respect of an installation or vessel, the person shall a. notify the Chief Safety Officer as soon as possible after that person determines that they will be changing the Certifying Authority; b. develop and submit to the Chief Safety Officer a detailed transition plan outlining all of the activities to be completed before transitioning from the outgoing Certifying Authority to the incoming Certifying Authority prior to the commencement of transition activities and must demonstrate that there will not be any gaps, delays or negative impacts on the extent and quality of the verification activities as a result of the transition from one Certifying Authority to another; and c. submit for approval to the Chief Safety Officer a new Scope of Work for the incoming Certifying Authority prior to the commencement of transition activities (2) There will only be one active Certificate of Fitness, and therefore only one Certifying Authority of record, at any given time. Therefore, there must be a defined point in time where the incoming Certifying Authority takes over as the Certifying Authority of record at which time their Certificate of Fitness is now the one of record and the outgoing Certifying Authority's Certificate of Fitness is no longer valid. (3) The operator shall not propose a change to occur until the initial Certificate of Fitness has been issued by the Certifying Authority involved as the Certifying Authority for the design, construction, transportation, installation or establishment and commissioning of the systems necessary to undertake all of the activities for which it has been designed, unless the initial Certifying Authority is not capable of completing the initial scope of work.	**General Comment:** The requirements to initiate a change in Certifying Authority seems overly prescriptive for a regulation; suggest that some of the comments and details be removed from the regulations and placed in guidance if required. 5.14 (1) / 5.14 (3) there are conflicting references to "person" and Operator 5.14 (1) (b) – "…demonstrate that there will not be any gaps…" – this statement is too subjective and therefore could be difficult to interpret and establish compliance requirements. 5.14 (1) (a) and (b) – submission of the transition plan prior to commencing transition; the Operator should have the flexibility to commence a transition prior to submitting a plan (i.e. could have two CAs engaged for the same activity); also not clear whether this transition plan is approved or what steps follow the submission of the plan (how does the Operator know that the proposed change can go ahead?) 5.14 (b) please clarify what "before transitioning" means. 5.14 (c) it's the responsibility of the CA to submit a scope of work not the operator or installation owner. CAPP recommends that this section be revised to clearly indicate that it is the responsibility of the incoming CA to submit a scope of work to the CSO (not the operator or owner) prior to commencement of transition activities. 5.14 (3) CAPP believe that it is necessary to allow provision for a change in certifying authority in case where unacceptable delays occur as a results of unjustifiable or unreasonable requirements are imposed that are not aligned with acceptable industry or certification practices. This policy text is unbalanced and biased in favour of the initial CA and presents a restrictive requirement on the Operator; not clear why a COF needs to be in place in order to propose a change; this should be able to be covered by the transition plan. Generally, CAPP believe that Section 5.14 unnecessarily limit operator's ability to transition CAs between, design/construction and commissioning/start of operations? CAPP also suggests that there may exist legal concern in respect of the overly prescriptive content under section 5.14. **Proposed Policy Text:** Recommend including the following additional text at the end of 5.14(3): For Section 5.14 (3): "…unless the initial Certifying Authority is not capable of completing the initial scope of work, ***or the initial Certifying Authority is creating unreasonable project delays such as through requirements not aligned with typical industry or certification practices***"

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5.15 REVALIDATION (1) The scope of work must be revalidated at the same frequency as the Certificate of Fitness renewal. (2) Further, the Chief Safety Officer can trigger a review of the scope of work under the following circumstances, should these circumstances impact the scope of work: a. changes to the regulations have been made since the scope of work was last approved/revalidated; b. new information that results from a major accident event in any jurisdiction has been brought to light; c. changes have been made in any of the codes or standards on which the certification is based; and d. a change in a phase of the lifecycle of the installation or vessel is taking place.	**General Comment:** CAPP propose the following revisions to section 5.15 (b) and (c) b. where new information *pertinent to the scope of work* that results from a major accident event in any jurisdiction has been made available; c. where material changes have been made to the codes or standards on which certification is based;

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5.16 REPORTING AND RECORDS (1) The Certifying Authority shall include in the scope of work the following reporting requirements: a. Certifying Authorities to provide the Boards any reports associated with the Certifying Authority's work on the initial issuance and ongoing verification of the fitness for purpose of the installation or vessel; and b. Certifying Authority to provide to the Boards any formal communication from the Certifying Authority to the operator or the owner of the installation or vessel confirming that elements are fit for purpose or indicating non-compliance or limitations. (2) The Certifying Authority shall provide annual reports to Ministers (with cc to the Boards), that include: a. a summary of the activities the certifying authority has undertaken across Canada related to its responsibilities as a Certifying Authority; and b. an update of its technical capabilities and experience. (3) The Certifying Authority must immediately notify the Minister (with cc to the Boards) of any changes to its organizational structure. (4) The Certifying Authority shall provide monthly reports to Boards providing a description of activities carried out for the purposes of the issuance or maintenance of each Certificate of Fitness it is responsible for. (5) Upon the request of the Board, the Certifying Authority shall disclose any information or report obtained or generated in carrying out the functions necessary to issue or maintain the certificate of fitness. (6) The Certifying Authority shall provide such information and assistance as required for the conduct of an audit of its certification activities pursuant to the Act upon request. (7) The Certifying Authority shall maintain records and drawings for every activity carried out in respect of the issuance and maintenance of a certificate of fitness.	**Rationale:** In reference to 5.16 (2) "provide annual reports" and subsection (3) "immediately notify the Minister. It is not clear to whom this report and notification is intended as there is no reference to "Minister" included in the definitions. Additionally, it is unclear to the content for the annual report and criteria for determining when an organizational change warrants notification to the Minister. CAPP suggests that the additional Ministerial reporting and notification requirements appear to be out of place given the CNLOPB's oversight. **General Comment:** CAPP recommend the removal of reporting to the Minster as it is understood that all Reports provided to the Boards are readily available to the Minister, thus CAPP propose that all report are submitted to the Boards and provided to the Minister as deemed necessary by the Minister. For 5.16 (1) b: the words "safety critical" should be placed in front of "elements". For 5.16(2)(b) suggest confirmation of technical capability rather than 'update'. 5.16(4) should be covered by the SOW and is not necessary for monthly reporting for all situations. 5.16(5) is too broad (disclose any information or report). Uncertain as to how the CA is regulated to provide the proposed information to the Minister/C-NLOPB.

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PART 6 – INSTALLATION ANALYSIS, DESIGN, CONSTRUCTION AND MAINTENANCE	
6.1 QUALITY ASSURANCE PROGRAM (1) The operator shall ensure that every installation is designed, constructed, installed, commissioned, inspected, maintained, decommissioned and abandoned in accordance with a comprehensive, established, documented and implemented process based quality assurance program to ensure that the installation is and remains fit for purpose and meets specified regulatory requirements. (2) The quality assurance program shall be based on the principles of client focus, leadership, engagement of people, process approach, improvement, evidence based decision making and relationship management in which risk based processes are used in formulating the program requirements. (3) The quality assurance program shall assign senior management to have overall accountability for the implementation and effectiveness of the program through: a. establishing and communicating the policy; b. ensuring appropriate resources and infrastructure are in place for the effective operation and control of all processes; c. ensuring that responsibilities, authorities and competencies for relevant roles are assigned, understood and complied with; d. establishing processes for reporting on the performance of the system and ensuring the integrity of the system is maintained when changes are planned and implemented; e. ensuring the system is subject to regular schedule of Internal audits with any corrective actions being adequately addressed to closure; and f. ongoing Management review at prescribed intervals. (4) The quality assurance program shall have a continuous improvement cycle in which all processes are planned and documented with established quality objectives at relevant functions and levels, implemented in accordance with the established plans, monitored, measured, evaluated and records maintained for the effectiveness in meeting the established objectives, and modified as necessary to improve overall performance.	**General Comment:** The regulations have several requirements associated with management systems that are largely redundant, specifically, the need for a Management System Part 2.1 and the Quality Assurance Program of Part 6.1. For example: Section 2.1 General of the Phase 1 Policy Intent states that the intent of the Management System is stated to include (the following list is an incomplete selection of requirements): The management system shall correspond to the scope, nature, and complexity of the proposed work or activity, and to the hazards and risks associated with the work or activity, and shall: • ensure compliance with the Act, these Regulations and any legal requirements of the Board; • integrate operational activities and technical systems with the management of financial and human resources; • cover all work or activity associated with the application for authorization; • include a continual improvement process for preventing and taking corrective actions respecting any deficiencies, non-conformances or areas for improvement; • processes and procedures for inspecting, monitoring and maintaining the integrity of all installations, facilities, vessels, pipelines, and all other equipment or systems associated with the application for authorization and that also includes evaluating the effectiveness of these processes and for taking corrective actions if deficiencies are identified; Section 6.1 states that intent of the Quality Assurance Program to include: i. The operator shall ensure that every installation is designed, constructed, installed, commissioned, inspected, maintained, decommissioned and abandoned in accordance with a comprehensive, established, documented and implemented process based quality assurance program to ensure that the installation is and remains fit for purpose and meets specified regulatory requirements. Closer review of the requirements of the Management System and the Quality Assurance Program indicate the two have largely the same scope and that the expectations of the management system would be sufficient to satisfy the requirements for the Quality Assurance Program. These requirements are again re-iterated under Part 6.24 as part of an Asset Integrity program. **CAPP Recommendation** CAPP recommends the removal of the requirement stated in Section 6.1 for a Quality Assurance Program.

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6.2 CONCEPT SAFETY ANALYSIS (1) Every operator shall, at the time the operator applies for a development plan approval, submit to the Chief Safety Officer a comprehensive concept safety analysis of the development concept that considers all activities associated with each phase in the life cycle of the development, [including the construction, installation, operation, decommissioning and abandonment phases], as well as all installations, facilities, equipment and systems that are proposed as part of the development concept. (2) The Concept Safety Analysis shall: a. Identify all hazards having the potential to cause a major accidental event; b. Include a detailed and systematic assessment of the unmitigated risks associated with each of those hazards, including the likelihood and consequences of each potential major accidental event; c. Define target levels of safety for the risk to life and the risk of damage to the environment that are to be achieved for all activities within each phase of the life-cycle of the installation, facilities, equipment and systems; d. Identify all underlying assumptions and control measures that are to be implemented to reduce those risks to a level that is as low as reasonably practicable; e. Specify any Canadian or international codes or standards that have been applied or will be applied as part of the design and control measures; f. Demonstrate that the selected codes or standards referred to in subsection (2)(e) are suitable and appropriate to the intended use and operating location; and, g. Provide a determination of the effects of any potential additional risks resulting from the implementation of the proposed control measures. (3) The operator shall ensure that the design assumptions and all control measures identified in the Concept Safety Analysis are included in the Safety Plan, Environmental Protection Plan and Contingency Plan, as appropriate, submitted with the authorization application. (4) Target levels of safety noted in paragraph 2)c) must be approved by the Chief Safety Officer at the time the operator applies for a development plan approval. (5) The target levels of safety referred to in subsection (2)c) shall be based on assessments that are a. quantitative, where it can be demonstrated that input data are available in the quantity and of the quality necessary to demonstrate the reliability of the results; and b. qualitative, where quantitative assessment methods are inappropriate or not suitable. (5) The operator shall include in the Concept Safety Analysis a definition of the situations and conditions, including changes in design basis physical and environmental operating conditions and limits, and of the changes in operating procedures and practices that would necessitate an update of the concept safety analysis.	**General Comment:** For 6.2(f) CAPP request clarification on the mechanism or bounds for satisfactorily demonstrating that selected codes and standards are appropriate for the intended use and operating location. For 6.2(4) CAPP believe that approval of target levels of safety is inherent in the Development Plan Approval process and recommend that policy text be removed. Otherwise it can be interpreted that the CSA and TLS must be submitted to the CSO for approval prior to the submission of the Development Plan. **Rationale:** In reference to subsection 6.2 (1), CAPP proposes that inclusion of "construction" implies that "construction of the facilities and equipment must be included in the concept safety analysis. CAPP believes that the physical construction of facilities and equipment is not relevant to the intent and purpose of the CSA; additionally, construction typically occurs outside of the jurisdiction of the Boards and in international locations outside jurisdiction of Canadian Authorities. **Proposed Policy Text:** (1) Every operator shall, ……., submit to the Chief Safety Officer a comprehensive concept safety analysis of the development concept that considers all "offshore" activities, associated with each phase in the life cycle of the development, [including offshore construction, installation, operation, decommissioning and abandonment phases], as well as all installations, facilities, equipment and systems that are proposed…… **Rationale:** The Concept Safety Analysis is a component of the Development Application process and is the overarching preliminary safety analysis of the development concept, usually at the FEED stage of design. The information in this preliminary safety analysis informs, and is incorporated into, future quantitative risk assessments and the installation's Safety Plan (Safety Case) or Basis of Safe Operations. It is these documents that are the "living" documents which require regular review and update. The way this section is currently written, subsections (5) and (6) require updating of the Concept Safety Analysis and this is an incorrect reference as it is the follow on "Safety Plan (i.e. Safety Case/Basis of Safe Operations) that must be reviewed and updated. It must be understood that the Concept Safety Analysis does not change and is superseded upon approval of the Safety Plan. **Proposed Policy Text:** In reference to Subsection (5) and (6) remove the term "Concept Safety Analysis" and replace with "Safety Plan" or Quantitative Risk Assessment **Note**: Subsection (5) appears to be duplicated numbering

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(6) The operator shall review, re-validate, maintain and update the Concept Safety Analysis as often as necessary, and, in all cases, at a minimum interval of every five (5) years, throughout the life of the development to account for changes in the installation(s) and design basis physical and environmental operating conditions and limits that may affect its validity and to verify the ongoing suitability of the control measures to maintain risk to a level as low as reasonably practicable.	

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6.3 INNOVATIONS (1) The operator shall ensure that any new proposed technology has been independently verified, through a systematic and comprehensive technology qualification process, to be safe and fit for purpose for its intended application. (2) Any proposal to apply design methods, materials, joining techniques, construction techniques, or other technologies that have not previously been used in comparable situations shall be proven through: a. engineering studies, prototypes or model tests, or a combination thereof, to demonstrate the adequacy of the method, material or technique; and b. implementation of a performance monitoring and inspection program that is designed to permit the determination of the effectiveness of the method, material or technique.	**Clarification Request:** In reference to subsection 6.3 (2) When referring to any "*proposal*", would this be in the form of an RQ or will this be something new? In reference to subsection 6.3 (1), when referring to any *"independently verified"* , Is this intended to include the R&D departments of major companies? For 6.3 (1) CAPP request clarification on the definition of new proposed technology as the reference is all-encompassing and will lead to differences in interpretation. For example some companies may define new technology as any technology not currently within their organization, while another company may define new technology as not having been used within the operating region.
6.4 PHYSICAL AND ENVIRONMENTAL CONDITIONS (1) The Operator shall ensure that every installation or pipeline is designed to withstand or avoid, without loss of overall structural integrity or main safety function, all foreseeable site-specific physical and environmental conditions, or any foreseeable combination of physical and environmental conditions at its intended location. (2) The Operator shall ensure that comprehensive and reliable environmental design criteria are systematically determined for every offshore installation or pipeline based on representative regional and site-specific data and statistical analysis and modeling of physical, oceanographic, meteorological, ice, geotechnical and seismic conditions and hazards, including: a. Oceanographic conditions, including waves and sea states, currents, tides, ice drifts, marine growth, water depth, bathymetry, variations in sea level and any potential submerged or partially submerged navigational and other hazards; b. Meteorological conditions, including wind speed and prevailing direction, air and sea temperature, precipitation, number of daylight hours, and variations in visibility, and; c. Geotechnical conditions, including seismic hazards, slope stability, sea floor and sediment characteristics, scour, erosion, subsidence, gas hydrates, shallow gas and permafrost conditions, if applicable and other geohazards; d. Ice conditions, including icebergs, sea ice, ice flow direction, ice scouring, strudel scouring, and any other associated ice features, as appropriate; and e. Any other naturally occurring phenomena that may affect or pose a hazard to the installation. (3) The Operator shall ensure that every installation operating in a marine environment where	**General Comment:** CAPP recommends the inclusion of a recurrence period acceptable to the Certifying Authority for design and/or operating criteria for the expected maximum physical and environmental conditions (i.e., 100yr, 50 yr, 10yr). **Proposed Policy Text:** For 6.4 (4) CAPP recommend • the removal of the phrase *"and under which it can survive"*, and • replace "limiting" with "design criteria" (4). Based on the results of analysis and tests described in s. 6.5, the Operator shall identify and record the physical and environmental design criteria under which the installation or pipeline can safely operate and shall ensure:…….

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ice could be expected is designed to withstand or avoid foreseeable ice conditions taking into consideration: a. Measures to manage, minimize or avoid ice loads on the installation; b. Measures to protect marine riser, offloading and other sub-sea systems; and, c. For mobile installations and vessels, i. Measures to protect or prevent damage to propulsion or positioning systems; and, ii. Measures to ensure safe transit through ice-infested waters. d. Measures to prevent or manage loads associated with ice and snow accumulation on the installation's structural components; and e. Measures to ensure that ice conditions would not adversely impact the functionality of safety and environmentally critical systems and related devices. (4). Based on the results of analysis and tests described in s. 6.5, the Operator shall identify and record the limiting physical and environmental conditions under which the installation or pipeline can safely operate and under which it can survive and shall ensure: a. All physical and environmental conditions that could pose a hazard to the installation or pipeline are documented and communicated to operating personnel; b. Safe operating environmental limitations are defined, communicated and included in operating procedures; and c. Measures to detect, avoid, prevent, reduce and manage physical and environmental hazards are developed and implemented in operations and/or incorporated into the design of the installation where required. COGOA Only (Additional onshore section): (5) The Operator shall ensure that comprehensive and reliable environmental design criteria are systematically determined for every onshore installation or pipeline based on representative regional and site-specific data and statistical analysis and modeling of land and inland water physical, meteorological, ice, geotechnical and seismic conditions and hazards, including: a. land and inland water conditions including currents, ice, terrain and shoreline features, and any potential submerged or partially submerged navigational and other hazards; b. Meteorological conditions including wind speed and prevailing direction, temperature, precipitation, ice, number of daylight hours, and reduced visibility; c. operating seasonal limitations; d. geotechnical conditions, including seismic hazards, slope stability, soil and	

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sediment characteristics, subsidence, gas hydrates, and permafrost conditions, if applicable; e. inland ice conditions, including ice flow directions, ice scouring, and any other associated ice features, as appropriate; and, f. other naturally occurring phenomena. (5)/(6) Design for cold climate operation, when identified as an environmental condition in the analysis required above, shall include suitable means to reduce safety and environmental risks associated with cold climate operations to as low as reasonably practicable, including but not limited to, materials selection, housings, windbreaks, insulation, heat tracing and other means or measures designed to: a. ensure reliable function of all safety and environmental protection related equipment and systems, including systems and equipment needed to operate in the event of an emergency; b. prevent fluids from freezing or having property changes where this would affect safety, the operability of the installation or lead to environmental damage; c. reliably prevent snow and ice accretion from occurring where any accretion endangers safety and the environment, d. reliably remove snow and ice accretion where it occurs and accumulation endangers safety and the environment, including redundant capabilities; e. permit drilling and production operations and inspection and maintenance activities to be conducted safely; f. ensure all electrical cabling in open or unheated spaces, [irrespective of system] shall maintain its properties under cold-climate conditions and is protected from mechanical damage from impact or damage.	

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6.7 PASSIVE FIRE AND BLAST PROTECTION (1) The operator shall ensure that every installation is equipped with sufficient passive fire and blast protection and barriers, that are designed, certified, arranged, installed and maintained, to reduce the effects of fire and blast to safety of personnel, the installation and the environment to a level that is as low as reasonably practicable, and to: a. prevent escalation of fire and explosion events from one area to adjacent areas; b. ensure the integrity of temporary safe refuge(s) and associated facilities for communication, command, monitoring, control and evacuation for the time necessary, as determined in accordance with 7.37; c. protect personnel from fire (heat and smoke) for sufficient time to enable escape to temporary safe refuge; d. protect safety critical systems and equipment including any equipment that is to remain active in the event of an emergency or the failure or malfunction of which would cause increase risk to safety or the environment; and e. maintain structural integrity for the required period of time [per 6.5 (4)(e)]. (2) The operator shall ensure that passive fire and blast protection and division arrangements are designed to protect against and mitigate foreseeable accidental events and loads identified in the fire, explosion and hazardous gas risk assessment required under 6.6. (3) At a minimum, the operator shall ensure that: a. the following areas shall be separated from other areas by divisions that are designed equipped, installed and maintained to prevent the passage of smoke and flame, and to limit the unexposed face to an average temperature increase of 139 ^{o}C and a maximum temperature rise of 180^{0}C above the initial temperature following 120 minutes of exposure to a hydrocarbon fire: i. external bulkheads of the Temporary Safe Refuge, accommodations, evacuation embarkation points excluding helidecks, and control rooms that are facing production or well heads; and ii. the bulkheads that segregate the well head and production process areas from other areas of the installation; and b. in respect to passive fire and blast protection, the offshore installation shall comply with the appropriate rules of a classification society as if it were an offshore installation to which those rules applied. (4) Fire and blast divisions shall be designed, built, installed, equipped and maintained for their required levels of protection. (5) The operator shall ensure that penetrations and openings in fire and blast divisions will be precluded where practicable but where penetrations and openings are necessary, they will be suitably equipped to maintain the overall fire and blast integrity of the division, including the means of operating closing devices outside the space being protected, where such devices require manual activation.	**Rationale: Under development** In reference to subsection (3)(a)(i) the prescriptive requirements will impact installations which meet a 60-minute standard for exposure and may not meet the 120-minute requirement. This prescriptive language could have significant impact on installations such as older MODU's currently operating in the jurisdiction. The temperature specifications do not allow distance and geometry to be used as basis to limit exposure and is an extremely restrictive approach segregating fire hazard and non-fire hazardous areas. CAPP propose the use of a Fire Risk Analysis (FRA) determining and assessing fire and explosion hazards and describing how the installation will deal with the consequences of these hazards. Further the FRA will describe the optimisation of passive and active fire protection with considerations for location of equipment/valves and separation distances for the areas noted under section 3ai. **Proposed Policy Text:** For 6.7 3(a) The operator shall ensure that the following areas shall be separated from other areas by divisions that are designed equipped, installed and maintained to prevent the passage of smoke and flame; and, rated according to H-Class based on the results of a Fire Risk Analysis: i. external bulkheads of the Temporary Safe Refuge, accommodations, evacuation embarkation points excluding helidecks, and control rooms that are facing production or well heads; and ii. the bulkheads that segregate the well head and production process areas from other areas of the installation; and **Clarification Request:** For 6.7 (3)(a) (i) would these criteria only apply to new builds or new installations coming into the area? For 6.7 (3) (b), is the intention that any offshore installation shall comply to a set of classification rules, even if the offshore installation concept would not be subject to classification society rules? CAPP believes 6.7 (3) (b should be reviewed for unanticipated implications or complications from applying class society rules in the case of this policy text. For 6.7(3) CAPP suggests removing "at a minimum" as it is not needed and implies a higher, unspecified standard could be applied. Simply state: *"The operator shall ensure that":*

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(6) Design of passive fire protection systems shall consider inspectability and maintainability of the passive fire protection systems as well as the divisions, structures and equipment they are intended to protect. (7) The design of passive fire protection systems shall not consider the cooling effect from active fire-fighting equipment.	

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6.8 PREVENTION AND MITIGATION OF MAJOR ACCIDENTS (1) The operator shall ensure that the reliability of every system, the failure of which could cause or contribute substantially to a major accident event or the purpose of which is to prevent or limit the effects of a major accident event, is demonstrated through formal and appropriate risk and reliability analysis techniques to identify required redundancies and measures to protect that system from failure. (2)The operator shall ensure that the results of the analysis in (1) are reflected in the design of installations, systems and equipment, and in associated operating and maintenance manuals.	**Rationale:** Agree that reliability / availability targets have benefit for active systems which need to respond to a major accident event (fire suppression, F&G, ESD, PSVs). Typically, a Safety Integrity Level (SIL) assessment is conducted on these systems. For other SCE's it's not possible to define their reliability targets. Examples are mechanical handling, pressure systems, structure, explosion proof equipment, TR etc. For these systems, it is more appropriate to demonstrate that they remain within the design criteria. If is intended to retain the proposed language CAPP request additional clarification in reference to "define reliability for every system" and methods fro the collection of relevant data. **Proposed Policy Text:** (1) The operator shall ensure that the reliability of identified safety critical elements, the failure of which could cause or contribute substantially to a major accident event…….. **Clarification Request:** New Section (general); clarification required, this section is vague. Assume they imply HAZOP, SIL, FMEA, etc.
6.9 OFFSHORE PIPELINES (1) The operator of a pipeline shall develop a pipeline integrity management program that anticipates, prevents, manages and mitigates conditions that could adversely affect safety or the environment during the design, construction, operation, maintenance or abandonment of a pipeline. (2) The operator shall ensure that all offshore pipelines are designed, constructed, installed, operated, and maintained in accordance with CAN/CSA-Z662-15 Oil and gas pipeline systems.	**Rationale:** The inclusion of specific standards within the context of regulation is not consistent with performance based principle and unnecessary to ensure the achievement of the intended outcome or goal. CAPP propose that specific standards be included within guidance documents which can periodically updated based on updates/revisions to standards, lessons learned and advances in technology or methods. **Proposed policy Text:** (2) The operator shall ensure that all offshore pipelines are designed, constructed, installed, operated, and maintained so as to ensure ……. **Clarification Request:** During the July consultation session FORRI noted that the pipelines being referenced here are "trunk lines going to shore" and are not the flow lines that connect assets offshore. If this is, in fact the intent, then it should be made clear in the regulation what pipelines are being covered.

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6.11 CLASSIFICATION The operator shall ensure that every installation that is a floating platform shall be classed by a classification society.	**General Comment:** CAPP recommends that this policy be included under Section 5 Installations and vessels.
6.12 AIR GAP AND FREEBOARD <u>Air gap:</u> The operator shall ensure that every offshore installation (i.e. bottom founded, column stabilized) has sufficient air gap to operate safely and without incidents under the maximum anticipated environmental load conditions. <u>Freeboard:</u> The operator shall ensure that every offshore installation [i.e. if and when it is floating, in service or in transit] has sufficient freeboard to operate safely and without incident under the maximum anticipated environmental load conditions. Definition of air gap: The clearance between the highest water or ice surface that occurs during the extreme environmental conditions and the lowest exposed part not designed to withstand wave or ice impingement. Definition of freeboard: The distance measured vertically downward between the top of the hull and the mean water surface at a given draft (ice or green water).	**General Comment:** In reference to 6.12, CAPP propose the establishment of a definition or object criteria for the consistent determination of the following: • “maximum anticipated environmental load conditions” • “extreme environmental conditions”

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6.13 MOTION RESPONSE AND STABILITY OF MOBILE OFFSHORE PLATFORMS (1) The operator shall ensure the stability and safe operability of every floating platform (under intact and damaged conditions) relative to all motions and loads to which it is anticipated to be subjected, including by: a. determining the stability and motion response characteristics using analytical methods or model tests, or a combination thereof; b. determining the critical maximum loads and motions the platform is capable of withstanding; c. monitoring all loads that could affect motions, stability and inclination of the platform; and d. ensuring that all equipment are properly sea-fastened to preclude their unintended movement. (2) The operator shall ensure that stability characteristics of every floating platform are determined and maintained in accordance with the relevant requirements of the International Maritime Organization MODU Code or Intact Stability Code as appropriate/ applicable and as amended from time to time. (3) The operator shall undertake a gap analysis between the requirements in the current version of the MODU code and the version that was used for the design and construction of the platform. Any gaps must be risk assessed and mitigations implemented as required by the risk assessment. Note: "The administration" in the codes and standards can be understood to mean the Boards and not the flag state. Where a standard says "should" or "may", any deviations to the specified requirement must be approved by the relevant Board. (4) An inclining test is required to be conducted during every 5-year classification society survey for every column-stabilized mobile offshore platform, except where there is no significant discrepancy between weight records and the results of the second test, in which case subsequent tests need only be carried out during every alternate 5-year survey.	**Clarification Request:** 6.13 Assumed that the reference to "floating platform" is intended to apply to all floating structures? **General Comment:** Requirement 6.13.3 should be generalized for the regulation to allow for existing MOU's to operate within the jurisdiction. It is not clear why a risk based approach is acceptable for Stability, but there is a firm expectation for an H120 wall under clause 6.7(3)(a)(i), when MOU's built to current standards are more typically A60 construction. It is also recommended that the CA should maintain a role in the approval of any deviation from specified codes or standards. **<u>General Comment:</u>** For 6.13(3) CAPP recommend that policy should state the goal or objective and not introduce subjective expectation such as requiring "gap analysis". It is inherent in the responsibility of the operator to maintain compliance with any code or standards applicable to an authorization or approval. Also, the statement "risk assessed and mitigated" CAPP believe this requirement is extremely vague and open to interpretation. Clarification required does the MODU code gap analysis to be within Class scope and not the responsibility of the Operator In reference to the Note following 6.13(3) the administration, CAPP propose that this statement may be inconsistent with the role and mandate of Transport Canada. CAPP suggests that the technical authority for interpretation and application of content within codes and standards should remain with flag state and classification society who are responsible for ensuring marine safety.

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6.15 STATION KEEPING Mooring Requirements (1) The operator shall ensure every mooring system for a floating platform is designed to maintain the platform's position and orientation within prescribed limits and is suitable for its intended use and location, taking into account changes to the condition of the mooring system and operating environment over time. (2) The design of every mooring system shall include sufficient analysis and model testing to ensure: a. safety; b. protection of the environment; c. stability and serviceability of the floating structure; d. sufficient redundancy to enable the installation to maintain position with the loss of a single mooring component, or, for thruster assisted mooring systems, the loss of the most effective thruster or a single failure in the power or control system; e. the installation is capable of moving from its position to avoid accidental events for which it is not designed; f. for thruster assisted moorings, survivability of the platform in the event of power blackout in extreme weather conditions; g. serviceability of the topsides equipment; h. integrity and serviceability of drilling, production, export or other types of risers; i. safe access to and clearances with respect to nearby subsea or surface installations, support vessels, and evacuation systems; and j. any other special positioning requirement. (3) Every floating platform must have systems and processes to actively detect loss of station keeping or failure of any mooring system component/station keeping component. Mooring line tensions shall be monitored and maintained within design parameters. (4) The operator shall ensure that suitable arrangements are in place to monitor and maintain the integrity of a mooring system throughout its design service life. (5) Inspection and maintenance procedures shall be developed, implemented and documented to ensure continued integrity to fulfill original design expectations, and shall include: a. planned maintenance and inspection of the system; b. periodic assessment of its condition; c. assessment of damage or suspected damage; and d. arrangements for timely repair and/or change-out in the event of damage or deterioration.	**Clarification Request:** In reference to subsection 6.15 (9) Is this specific to the installation itself? What about when tankers are connected, etc… for offloads? Would this be captured somewhere else?

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Dynamic Positioning Requirements: (6) The operator shall ensure that every dynamic positioning system on an installation is capable of reliably maintaining the platform's position and orientation within prescribed limits to ensure safety, protection of the environment and integrity of operations and property. (7) The design of every dynamic positioning system shall: a. be carried out with sufficient numerical analysis and model testing to ensure position reference and directional control can be maintained within specified tolerances to satisfy design operational requirements under all expected environmental and external [e.g. from risers and mooring lines] loads at its intended location; b. include a failure modes and effects analysis to ensure sufficient segregation and redundancy of safety critical systems and components to maintain position in the event of (credible scenarios of) equipment failure, fire or flooding; c. withstand loss of all dynamic positioning system components in any one watertight compartment or fire subdivision, from fire or flooding; and d. include systems to monitor critical system operability and integrity parameters, and to provide alerts for critical system faults. (8) Every dynamic positioning system shall be maintained to ensure continued reliability and integrity to design specification. (9) The operator shall ensure that the Emergency Disconnect System is initiated should the excursion limits be exceeded.	

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6.16 DISCONNECTABLE MOORING SYSTEM (1) The operator shall ensure that the mooring disconnection system included on an installation that is a floating platform to satisfy the requirements of 6.15(2)(e) (to limit exposure to foreseeable design situations that would exceed specified mooring system or structural design limits) is designed to ensure disconnection can be accomplished in a controlled manner without: a. impairing the safety of personnel on board the installation or a neighbouring infrastructure; b. creating undue risk to the environment; and c. risk of drift off. (2) Every disconnectable mooring system shall be designed and maintained to ensure that the combined risk of exposure to design situations that would exceed structural or mooring system design limits, and risk of failure to safely disconnect are as low as reasonably practicable, and, within approved target levels of safety. (3) Nothwithstanding (2), the design of every disconnectable mooring system shall include a primary system and at least one back up system to achieve disconnection, both of which can be operated from a local and remote location. (4) Every floating platform that has a disconnectable mooring system for the purposes of (1) shall be: a. capable of safely manoeuvering away under its own power; and b. capable of maintaining safe position and heading while disconnected. (5) The operator shall ensure that clear criteria and procedures are established for disconnect for all credible risk scenarios in accordance with 6.15(2)(e), [and that procedures are implemented (by qualified personnel) to monitor environmental conditions to forecast and provide alerts for worsening conditions that may require disconnection. (6) The operator shall ensure that every disconnectable mooring system is capable of (and has been demonstrated to be capable of): a. planned disconnection, which allows ample time for depressurizing and flushing of flowlines and for start-up of production after the platform has been reconnected; b. emergency disconnection, which allows sufficient time to safely shut in wells and subsea assets; and c. safe reconnection to be carried out in an orderly sequence and within pre-determined environmental limits. (7) The operator shall ensure that the disconnect capability is demonstrated on a periodic basis for the installation it is being used.	**Clarification Request:** In reference to subsection 6.16 (5) “Provide alerts for worsening conditions that may require disconnection”. Would this be specific alerts for that purpose or general alerts of worsening conditions with interpretation from the installation as to how to manage?

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6.20 VENTILATION OF HAZARDOUS AND NON-HAZARDOUS LOCATIONS (1) The operator shall ensure that every enclosed hazardous area on an offshore installation is ventilated: a. to allow the replacement of air at a rate sufficient to prevent toxic, flammable or explosive accumulations in the enclosed area; b. so all air entering the enclosed area is from a non-hazardous location; c. to prevent the exhausted air from that area from increasing the hazard level in an existing hazardous location or from creating a hazard in an otherwise non-hazardous location; and d. so the ventilation system for every non-hazardous location is separate from the ventilation system for every hazardous areas. (2) The operator shall ensure that, where a mechanical ventilation system is used for the purpose of subsection (1), the air in the enclosed hazardous area shall be maintained at a pressure that is lower than the pressure of each adjacent hazardous area that is classified as less hazardous. (3) All air let out of an enclosed hazardous area shall be let into an outdoor area that would be classified as the same as or less hazardous than the enclosed hazardous area if it did not receive the air from the enclosed hazardous area. (4) A differential pressure gauge shall be installed to monitor any loss of ventilation pressure differential required by subsection (1) and/or (2) or maintained under section 6.19, and to activate audible and visual alarms at the appropriate control point after a suitable period of delay not exceeding 30 seconds if a loss occurs. (5) Without limiting the generality of (2), the control station and all accommodation areas (or any area which is intended to operate in an emergency shutdown) on an installation shall additionally: a. be maintained at a positive overpressure relative to atmospheric pressure; and b. have airlock arrangements on all external doors. (6) The power for a mechanical ventilation system provided in accommodation areas, working areas, flammable liquid storage areas and other hazardous locations of an installation shall be capable of being shut off from the control station and from a position that is outside the area being served by the ventilation system and that will remain accessible during any fire that may occur within the area being ventilated. (7) The main inlets and outlets of all ventilation systems shall be capable of being closed from a position that is outside the area being served by the ventilation system and that will remain accessible during any fire that may occur within the area being ventilated.	**Rationale:** In reference to 6.20 (4) Differential pressure monitoring has proven very difficult to use as a reliable means of monitoring. It is quite common for the majority of installations on the Norwegian Continental Shelf to accept positive flow in the ventilation system as a means to ensure that the system is operating as intended. **Proposed Policy Text:** (4) The use of suitable measuring device shall be installed to monitor any significant variation in the functionality of the ventilation system required by subsection (1) and/or (2) or maintained under section 6.19, and to activate audible and visual alarms…. Subsection 6.20(4) we recommend the word “gauge” should be changed to “instrument”. **Rationale:** In reference to subsections 6.20 (6) & (7), the provisions are prescriptive and prohibitive and may inadvertently prevent the adoption of effective measures required for ensuring the safety and protection of personnel in certain emergency scenarios. CAPP recommend that the policy permit the operator to develop smoke control philosophy for the installation and arrange for shut down of ventilation systems in accordance with the installations smoke control philosophy. E.g. in areas with relative low fire potential it can be better for evacuation of personnel, search & rescue and the fire team to combat a fire to have the ventilation system operative to evacuate parts of the smoke rather than close it down and fill the area with smoke. For large areas the continuous feed of fresh air may not have that large effect on the development of the fire compared to the other advantages. The development of an installation smoke control philosophy would permit owners and operators to group enclosed areas into low-risk and high-risk areas with respect to fire and smoke potential and thus control the operation of the ventilation system for these areas in a fire situation as required. **General Comment:** In reference to Section 8 c – to implement remote seals for all non- hazardous areas is not practical on a floating drilling platform. No current installations meet this requirement. This is also a misalignment with requirements in all other jurisdictions which will limit the ability to import drilling installations for short term periods to do exploration work.

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(8) The operator shall ensure that every ventilation system serving for non-hazardous areas on installations is equipped with emergency or contingency measures in the event of a mechanical ventilation failure or gas detection, including: a. audible and visual alarms; b. automated means of isolation to prevent gas from entering the non-hazardous area; and c. the ability to remotely seal the area (including inlets and outlets of all ventilation systems) from the control station and from a position outside the area being served by the ventilation system which will remain accessible during any fire that may occur within the area being ventilated.	

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6.23 OFFSHORE TRANSPORTATION AND INSTALLATION OF FACILITIES (INSTALLATIONS) (1) The Operator shall ensure that the transporting and positioning of an offshore installation are: a. completed in a manner that protects the safety of the installation, personnel and the environment; b. completed in a manner that causes the least possible encumbrance and danger to other activities in the vicinity; c. monitored by a Marine Warranty Surveyor; and, d. in the case of a self-elevating unit, completed with the legs secured in a manner acceptable to the classification society. (2) The operator shall further ensure that, prior to all transit moves a. a risk assessment is completed that considers: i. personnel requirements; ii. towing vessels, towing arrangements and associated equipment; iii. processes and measures to be implemented to ensure the safety of the installation, personnel and the environment; iv. weather conditions, weather forecasts, and other physical environmental factors that may affect the safety of the installation, personnel or the environment; and v. contingency plans, in the event of adverse environmental conditions or any other foreseeable event during transit; and b. a transit plan has been established and has taken into account any requirements of the class society and marine warranty surveyor.	**Rationale:** The addition of Section 6.23(1)(d) introduces an overlap of scopes for the CA and MWS. Historically, the CA has deferred the transportation and installation oversight to the MWS and only required suitable evidence that the MWS review had been conducted. **Clarification Request:** Clarity should be added to this section as it relates to the CA SoW in Section 5.2(a). Additionally, details pertaining to subsection 5.2 have yet to be developed and should be reviewed in totality prior to issuance of draft regulation. Refer to CAPP comments in Section 5.2 “Issuance of Certificates of Fitness”. Request clarification on the role for classification society in a transit plan – why would this be a regulatory requirement? It is not clear who the surveyor works for / reports to / approves or accepts / or selects. Also it is unclear why the Board would require this as opposed to the Operator.
6.24 ASSET INTEGRITY (1) The operator shall ensure that all installations, facilities, equipment and systems are tested, inspected, maintained and operated to ensure safety and environmental protection and prevent waste under the maximum load and operating conditions that may be foreseeable during any operation and continues to perform in accordance with the original design standards. (2) The operator shall ensure that winterization of all installations, facilities, equipment and systems is confirmed, in place and operable prior to conducting operations in cold climate as per s. 6.4. (3) The operator shall ensure that a non-destructive examination of critical joints and structural members of an installation at an interval to ensure continued safe operation of the installation and in any case, at least once in every five-year period. (4) The operator shall design and implement a monitoring, testing, inspection, and maintenance program that	**General Comment:** A definition of Performance Standard would be helpful. In reference to Section 6.24 the following are suggested re-wording/comments by section: (1) “installation, facilities, equipment and systems”, this description is too broad and unnecessarily wordy. Simply state “Safety Critical Elements”.- CAPP request clarification on whether the scope being discussed under section 6.24 (1) is broader than SCE? (2) Why is winterization selected as a factor in asset integrity when there are many other barriers to major accident events which are not identified here? All barriers are covered by Safety Critical Elements. If this is going to be kept in the regulation suggest change from “winterization of all installations, facilities, equipment and systems” to “freeze protection of safety critical elements”. By explanation, the CA frequently gets involved in heat trace

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a. is designed to achieve the objectives established under paragraph (1) b. is based on identified failure modes and mechanisms and their causes in relation to safety critical elements; c. includes inspection and monitoring activities that occur at a frequency and in a manner to ensure any potential failures determined in accordance with sub-paragraph (b) are anticipated, managed and mitigated and that any safety critical elements are repaired or replaced in a timely manner to ensure safety critical elements functionality and reliability are maintained; d. is delivered by qualified persons e. includes specific predictive and preventive maintenance programs for each safety critical element that: i. includes a maximum specified time period for comprehensive inspection of the equipment or system; ii. considers the recommendations of the original equipment manufacturer and relevant industry standards or best practices; iii. for rotating equipment, includes partial or complete dismantling and inspection at a frequency necessary to maintain its condition, functionality, availability, reliability and performance in accordance with the original design standards; iv. for any low running hour equipment [e.g. emergency generators, essential generators, fire pumps], includes a time based maintenance regime; and v. includes a spare parts management program whereby the critical spare parts necessary are available on the installation to ensure the continued functionality, availability, reliability and performance of the equipment or system to its original design standards. (5) The operator shall ensure that records of maintenance, tests and inspections are kept. (6) The operator shall ensure that a preservation program is in place to ensure the integrity of any out of service equipment being stored is maintained and the equipment is confirmed fit for purpose prior to being brought back in to service. (7) The preventative maintenance and inspection program outlined in (3) shall consider the condition of the out of service equipment at the time it is being brought back into service. (8) The operator shall develop and implement a weight control program for every offshore installation to ensure that weights and centres of gravity are maintained safely within design limits.	systems which are required for process heat conservation for which failure does not have major accident hazard potential. It does not make sense to focus on one Safety Critical Element in this section. (3) "critical joints and structural members" It should be clarified that *critical* is considered to have major accident hazard potential. Suggest changing to "safety critical joints and structural members" if the intention is to prevent a major accident hazard. (3) In reference to "non-destructive examination", it is often acceptable for a visual inspection to be sufficient for identifying a degradation mechanism. Clarification is requested to confirm that visual inspection can be an effective/acceptable option? (3) Requirement for five year inspection of critical joints and structural members. The five year interval is typical for steel jacket platforms in harsh environments but may differ for a GBS, especially topsides. Suggest that inspection requirements for gravity based structures and topsides structures be developed based on risk based inspection principles and not be prescriptive to a five year interval. (3) In summary, what if this requirement doesn't align with OEM requirements? Recommend this prescription be removed, as it is not consistent with goal based regulation intent. Inspection frequency should be limited to a statement regarding "interval to ensure continued safe operation of the installation (4) In reference to the statement: *"…implement a monitoring, testing, inspection and maintenance program that…."* CAPP propose the sentence simply state *"…implement a maintenance program for Safety Critical elements that…."*. *The reference to a maintenance program will automatically encompass* monitoring, testing and inspection. (4e) In reference to the statement: "Includes specific predictive and preventive maintenance programs for each safety critical element that….". CAPP propose that regulation should state: *"For identified safety critical elements, the operator shall establish performance standards that…..*". Also state that it is the responsibility of the operator to ensure that SCEs are able to perform their intended functions with the required availability and reliability throughout their lifetime. Section 4e (i-v) are qualitative or quantitative statements of the performance required of a Safety Critical Element in order for it to fulfil its purpose as a major accident hazard barrier. **4 (e) (i)** In reference to the statement: *"maximum specified time period for comprehensive inspection"*, CAPP propose that rather than prescribing a frequency for a comprehensive inspection, maintenance techniques should be performance based and assure that the required performance of the system is demonstrated during operations at

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	defined test intervals. Provision should also be included that permits the use of condition based monitoring For example, it can be demonstrated that an emergency generator can supply the required load for the time specified at an X year frequency; or, it can be demonstrated that a fire pump can provide minimum, rated and 150% load within 5% of the manufacturers pump performance curve. Otherwise an engine or a fire pump could be needlessly stripped down and rebuilt it when it is perfectly capable of achieving its performance standard. **4 (e) (ii)** In reference to the statement: *"considers the recommendations of the original equipment manufacturer"* While OEM recommendations are always considered during the development of a maintenance program, at times the maintenance program for a particular piece of equipment will deviate from the manufacturer's recommendations where condition-based maintenance (CBM) provides assurance of performance. In certain cases CBM may require maintenance service to be accelerated as performance indicators warrant. This is also relevant to time based service as noted in 4 (e) (i). CAPP also acknowledges the use of non-prescriptive text applied in policy 4 (e) (ii) where OEM recommendation is to be considered in the development of the maintenance program. **4 (e) (iii)** The use of condition based maintenance removes the need for dismantling. What is important is that the operator and the CA are assured of the equipment's performance. CAPP believes that the use of the term "rotating equipment" is too general. CAPP recommends that the policy text refer to *"rotating equipment which provides a safety critical function"*. For example, performance of an emergency bilge pump is safety critical, performance of a gas compressor is not safety critical – but their protection systems are. **4 (e) (iv)** With reference to a time-based maintenance regime for equipment with low running hours, this is not aligned with maintenance practices and uses resources completing intrusive maintenance which does not decrease major accident hazard risk and may actually increases risk. For these systems, a performance based maintenance program is entirely appropriate. Additionally, thereis no consideration for OEM requirements in this policy text. 4 (e) (v) This requirement is overly prescriptive, as logistically it is impracticable and impossible to maintain spare parts for all SCEs offshore. At minimum this requirements should be focused on safety critical equipment and where practical maintain critical spares on the installation. The text does not consider redundant equipment or the possibility to stop production if spare parts not available and continued operations results in unacceptable risk. For 6.24(6) the requirement for a preservation program for out of service equipment does not consider the Operators option to choose to not preserve and take the business risk.

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	In summary for Section 4 (e) (i-v) CAPP propose the following policy text: *Section 4: The operator shall design and implement a maintenance system or program that:* *(e) "For identified safety critical elements:* i. Includes the required performance standards which document all assurance activities (i.e. maintenance during operations) that are required to maintain the SCE in a suitable, fit for purpose condition; ii. Documents all verification activities that are carried out by the CA to either directly establish suitability of the SCE, or to establish that suitable assurance activities have been undertaken; iii. Ensures that assurance activities are performed in a at the appropriate time by competent personnel; iv. Details the recordkeeping requirements for all maintenance related activities; and, v. A management system with the capacity to identify and correct any failure to meet the Performance Standard such that the operator and the CA can consider that the safety critical element remains safe to operate because it is Fit for Purpose and major accident hazard risk is kept at ALARP.
PART 7 – SYSTEMS AND EQUIPMENT DESIGN, OPERATION AND MAINTENANCE	
7.1 REPAIR, REPLACEMENT AND MODIFICATION OF INSTALLATIONS (1) The operator of an offshore installation shall notify the Certifying Authority, for matters within their scope of work, and the Chief Safety Officer immediately if the operator notices any deterioration of the installation or equipment, or of any well, that could impair the safety of the installation or damage the environment. (2) The operator shall ensure that any defect in the installation, equipment, pipeline, vessel and support craft that may be a hazard to safety or the environment is rectified without delay. (3) If it is not possible to rectify the defect without delay, the operator shall ensure that it is rectified as soon as the circumstances permit and that mitigation measures are put in place to minimize the hazards while the defect is being rectified. (4) Subject to subsection (5), no holder of a certificate of fitness in respect of an offshore installation shall make any repair, replacement or modification to safety critical elements, or bring on board an installation any equipment, that would change the design, performance or integrity of safety critical elements, without notification to the Chief Safety Officer and the Certifying Authority. (5) In an emergency, the operator of an offshore installation may repair or modify the	**Rationale:** In reference to Section 7.1(2), the term "defect" is not defined and could be open to a wide range of interpretation. Additionally, although the reference to "defect" is contained in the current regulation, the use of the term is inconsistent with terminology applied in regulatory guidance issued in 2017. CAPP recommend the term "defect" be replaced by "impairment to Safety Critical Equipment". This approach would then be consistent with the requirements for reporting impairments of safety and environmentally critical equipment as outlined within the 2017 version of the Boards "Incident Reporting and Investigation Guidelines. Alternatively, define "defect" to be "a situation where a piece of Safety Critical Equipment is no longer a barrier to a major accident event" 7.1(2) &(3) - Ideally, it would be good if this wording could be changed to incorporate a risk assessment process, ie. use an approved risk assessment process to review the defects and. CAPP also recommend the inclusion of the text "made safe"

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installation when the manager of the installation considers that the delay required to comply with subsection (4) would endanger personnel or the environment. (6) Where an operator makes a repair or modification to an installation pursuant to subsection (5), the operator shall immediately notify the Chief Safety Officer and the Certifying Authority.	**Proposed Policy Text:** (2) The operator shall ensure that any defect in the installation, pipeline, vessel or support craft that may impair safety critical equipment or be a hazard to safety or environment is subject to risk assessment and develop mitigation and repair plans as required *to ensure the equipment is made safe and* rectified. **General Comment:** Section 5 & 6 appear to be incorrectly numbered. In reference to subsection (5) CAPP propose the following text: (7) the operator shall immediately *after dealing with the emergency*, notify the Chief Safety Officer and the Certifying Authority
7.2 FACILITIES FOR INSPECTION AND MAINTENANCE The operator shall ensure that every installation is designed and equipped to be accessible, and provided with clear markings and identifications of areas to be inspected, in a manner that allows safe and effective: a. monitoring, maintenance and inspection of the installation or pipeline; and b. in the case of an installation not intended to be periodically dry docked, on-location inspection of the hull and other underwater appurtenances.	

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7.3 PIPING SYSTEMS (1) This Part does not apply to: a. a heating boiler that has a heating surface of 3 m2 or less; b. a pressure vessel that has a capacity of 40 L or less; c. pressure systems that are installed for use at one atmosphere of pressure or less or less; d. a pressure vessel that has an internal diameter of 152 mm or less; e. a pressure vessel that has an internal diameter of 610 mm or less and that is used for the storage of hot water; f. a pressure vessel that has an internal diameter of 610 mm or less and that is connected to a water pumping system containing air that is compressed to serve as a cushion; g. a refrigeration plant that has a capacity of 18 kW or less of refrigeration; or h. domestic water and plumbing systems Design (2) The operator shall ensure that boilers and pressure systems are designed to minimise the risk of hazards to personnel and property by establishing the following barriers: a. preventing an abnormal condition from causing an undesirable event; b. preventing an undesirable event from causing a release of hydrocarbons; c. safely dispersing or disposing of hydrocarbon liquids releases; d. preventing formation of explosive mixtures; e. preventing ignition of flammable liquids or gases and vapours released; and f. limiting exposure of personnel to fire hazards. (3) The operator shall ensure all boilers and pressure systems, including components, used on an installation are designed, constructed, installed, tested, inspected, operated and maintained to ensure they will safely withstand all foreseeable combinations of loads, forces, pressures, temperatures and fluids and substances to which they may be exposed during design service life. (4) The operator shall ensure that the design of boilers and pressure systems and components equipment shall: a. utilize comprehensive methods which are known to incorporate adequate safety margins and shall include such analyses and numeric modeling as are necessary to determine their behavior and failure modes under all foreseeable operating conditions, and shall consider:	

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i. internal and external pressure; ii. ambient and operating temperatures; iii. static pressure and mass of contents in operating and test conditions; iv. foreseeable dynamic loading, reaction forces and moments resulting from, but not limited to, supports, attachments, and piping; v. corrosion, erosion, and fatigue, and any other threats that may be identified through risk analysis; vi. changes in contained fluids and substances over time [e.g. H2S], including decomposition of unstable fluids and substances;	

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b. eliminate or reduce hazards as far as reasonably practicable and, where hazards cannot be eliminated, include protection measures to ensure safety, with consideration of: i. closures and openings, including measures to indicate closure status and prevention of opening or physical access whilst pressure differential exists; ii. containment of hazardous substances, including dangerous discharge of pressure relief blow-off; iii. surface temperature; and iv. decomposition of unstable fluids; c. include provisions to monitor and to reliably protect against exceeding safe limits of pressure, temperature and fluid levels; d. include provisions to permit all examinations of critical pressure components necessary to ensure ongoing integrity; e. include means for draining and venting, to permit safe cleaning, inspection and maintenance, and to avoid harmful effects such as water hammer, vacuum collapse, corrosion and uncontrolled chemical reactions, at all stages of operation, including pressure testing; f. include provisions to prevent escalation of foreseeable external accidental events; [e.g. fire, dropped objects, etc.] and g. include provisions to limit and mitigate effects of any loss of containment [e.g. containment of fluids and drainage to safe location]. (5) The operator shall ensure that materials used for the manufacture of boilers and pressure systems and components are: a. suitable for their intended application and location under all foreseeable operating and abnormal conditions and in any foreseeable emergency event, taking into account material properties or dimensions that may vary over time [e.g. creep, corrosion, erosion], or distortions or deformations imposed during construction and handling [e.g. transportation, installation]; and b. compatible with their operating environment and chemically resistant to contained fluids, as may change over time, during design service life. (6) The operator shall ensure that the design of every boiler and pressure system and component shall be verified to be fit for purpose by the Certifying Authority. Construction, Testing and Installation (7) The operator shall ensure that every boiler and pressure system, including components used on an installation shall be constructed, installed and commissioned by a qualified person, and shall include such inspections and tests [including non destructive evaluation and proof tests] as are necessary to ensure integrity of pressure components, joining and assemblies, and compliance with approved designs.	

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Use, Operation, Repair, Alteration and Maintenance (8) The operator shall ensure that a boiler or pressure system or component will not be used unless it has been inspected and tested by an authorized inspector and verified by the Certifying Authority to be fit for purpose and in accordance with the approved design: a. after installation; and b. after any welding, alteration or repair is carried out on it. (9) The operator shall ensure that every boiler or pressure system used on an installation must be operated within safe operating envelope, maintained and repaired by a qualified person, in accordance with operating procedures. (10) The operator shall ensure that Operating procedures shall be established and must inform users of operating hazards [that could not be eliminated in design] and indicate whether it is necessary to take appropriate special measures to reduce risks at the time of installation and/or use. (11) The operator shall ensure that Repairs and alterations shall not be made to a pressure-retaining component of a boiler or pressure system without the prior approval of the Certifying Authority. (12) A person must not alter, interfere with or render inoperative any boiler or pressure system fitting except for the purpose of adjusting or testing the fitting. Inspections (13) The operator shall ensure that every boiler or pressure system in use on an offshore installation must be inspected by a qualified person under a monitoring, testing, inspection, and maintenance program developed in accordance with 6.24, and as frequently as is necessary to ensure that the boiler, pressure vessel or piping system is safe for its intended use. Records (14) The operator shall ensure that a register of all boilers and pressure systems and components is maintained, including accurate records of: a. design calculations, drawings and specifications, including evidence of design approval by an authorized inspector; b. design code or standard applied; c. operating limits including pressure and temperature ratings; d. manufacturer's data report, including:	**Proposed Text:** CAPP believe that 7.3(11) as stated is too broad and recommend the policy state: "The operator shall ensure that Repairs and alterations shall not be made to a pressure-retaining component of a boiler or pressure system that may alter its design without the prior approval of the Certifying Authority. **General Comment:** In reference to subsection 7.3(15) which refers to the Authority having Jurisdiction. That language should be replaced with the Boards to clarify that the offshore Boards hold jurisdiction or Regulatory Authority as it relates to Pressure Vessels or systems offshore. Suggest adding this as a separate definition in the Definitions Annex.

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i. documented evidence that construction, testing and installation have been carried out in accordance with the approved design under a suitable quality assurance program accredited by an authorized inspector; ii. approved welding, brazing and non-destructive examination procedures, test records and the results of welder qualification tests against the procedures; iii. records of qualification for qualified persons involved in manufacture, inspection and testing, and welder qualification records; and iv. materials traceability records.	

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e. a record of each inspection carried out under 7.3 (6) and (13), which must be completed and signed by the inspector or qualified person who carried out the inspection and must include: i. the date of the inspection; ii. the identification and location of the boiler or pressure system that was inspected; iii. the range of safe operating pressure and temperature at which the boiler or pressure vessel may be operated, iv. a declaration as to whether the boiler or pressure system meets the standards against which it was designed and constructed; v. a declaration as to whether, in the opinion of the inspector or qualified person who carried out the inspection, the boiler, pressure vessel or piping system is safe for its intended use; vi. if appropriate in the opinion of the inspector or qualified person who carried out the inspection, recommendations regarding the need for amendments to the monitoring, testing, inspection and maintenance program established under 7.3 (13) vii. any other observation that the inspector or qualified person who carried out the inspection considers relevant to the safety of employees; and f. a record of each repair or alteration made to the boiler or pressure systems. Marking (15) The operator shall ensure that every boiler or pressure system shall be uniquely identified and marked with sufficient information acceptable to the authority having jurisdiction to permit safe installation and operation and reference to relevant records of design, construction, inspection, testing, maintenance and repair. Certification (15) All operating procedures in 7.3 (10) and records noted in 7.3 (14) shall be verified to the satisfaction of the Certifying Authority, at a frequency described in the approved scope of work of the Certifying Authority to allow for the ongoing determination of the fitness for purpose of every boiler or pressure system.	**General Comment:** In reference to subsection 7.3(15) which refers to the Authority having Jurisdiction. That language should be replaced with the Boards to clarify that the offshore Boards hold jurisdiction or Regulatory Authority as it relates to Pressure Vessels or systems offshore. Suggest adding this as a separate definition in the Definitions Annex.

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Proposed Definitions (included in the Definitions Annex) "Pressure Systems (and components)": means piping, vessels, safety components and pressure components; where applicable, pressure components include elements attached to pressurized parts, such as flanges, nozzles, couplings, supports, lifting lugs, safety valves, gages, and similar "Authorized Inspector" means a suitably qualified person, including the Certifying Authority or another person approved by the authority having jurisdiction to inspect process vessels and pressure piping systems.	

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7.4 MECHANICAL EQUIPMENT (1) The operator shall ensure that all mechanical equipment on an installation: a. is fit for its intended function and will operate, and be operated, safely and reliably under all foreseeable environmental and operating conditions, including with consideration for the manufacturer's instructions; and b. is designed, selected, located, installed, commissioned, protected, inspected, operated and maintained to ensure that risks to safety, and to the environment are identified and reduced to a level that is as low as reasonably practicable. (2) The operator shall ensure that means to prevent safety and environmental hazards are undertaken and selected based on a risk assessment that considers the following: a. loss of containment of hazardous substances; b. overspeeding and loss of restraint of high energy machine elements; c. extreme surface temperatures and moving parts; d. loss of control and integrity, or escalation, following foreseeable accidental events; and e. ignition of potentially explosive atmospheres in hazardous areas from sparks, flames and excessive heat. (3) The operator shall ensure that every internal combustion engines and turbine is: a. suitably equipped to prevent ignition, and hazardous area rated and certified for its area of operation and with: i. combustion air supplied from a nonhazardous area; and ii. exhaust discharged to a non-hazardous area; and b. equipped with safety devices, including manual shut off and automatic fuel shut off, to prevent catastrophic damage from overspeeding, high exhaust temperature, high cooling water temperature, low lubricating oil pressure, or other foreseeable hazards to safe operation, except where automatic shut-off will increase risk to safety and the environment. (4) The operator shall ensure that mechanical equipment critical to emergency response, including but not limited to, emergency generators and fire pumps, are not subject to (2)(b), but must have automatic overspeed shut off protection. (5) The operator shall ensure that controls and manual shut offs shall be located so they remain protected and accessible for safe operation in the event of foreseeable accidental damage and events should the associated equipment become inaccessible as a result of the damage or events. (6) The operator shall ensure that mechanical equipment that is essential to the safety and propulsion of a floating or mobile platform will continue to operate safely and reliably at full rated power under static and dynamic angles of inclination specified by the IMO MODU Code and Classification Society Rules.	**Rationale:** Although the primary focus should always strive for hazard prevention, it is not always possible, thus CAPP recommend that policy text should also be reflective of ability and need to mitigate hazards vs. simply prevention. **Proposed Policy Text:** (2) The operator shall ensure that means to prevent *or mitigate* safety and environmental hazards are undertaken and selected based on a risk assessment that considers the following:

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(7) The operator shall ensure that operating limits are determined for each mechanical equipment and included in the operations manual, and that clear instructions are available for reference. (8) The operator shall ensure that basic operating instructions for every internal combustion engine shall give details of stop, start and emergency procedures and be permanently attached to the engine.	

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7.6 CONTROL SYSTEMS (1) The operator shall ensure that, where practicable and required to minimize risks to safety, control systems shall be designed so that: a. the controlled equipment cannot be inadvertently activated; b. an effective basic diagnostic capability is incorporated; c. operator controls are designed taking into consideration simultaneous operation from multiple stations; and d. human factors are taken into consideration. (2) The operator shall ensure that control systems shall be designed, where practicable, so that the controlled equipment does not create a safety hazard where the system fails or is shut down. (3) The operator shall ensure that equipment operated by a new or altered control system shall not be used until that control system has been thoroughly checked and tested to verify that it functions in the intended manner. (4) The operator shall ensure that there is up-to-date documentation that is readily available that describes the design, installation, operation and maintenance of the control systems. (5) The operator shall ensure that control system hardware is protected from circumstances that could adversely affect the performance of the system, including mechanical damage, vibration, extreme temperatures or humidity level, high electromagnetic field levels and power disturbances. (6) The operator shall ensure any wireless remote control system shall incorporate: a. error checking to prevent the controlled equipment from responding to corrupt data; and b. identification coding methods to prevent a transmitter other than the designated transmitter from operating the equipment.	**General Comment:** In reference to section 7.6 CAPP recommend that the context for "Control Systems" be inclusive of safety and environment as follows: (1) The operator shall ensure that, where practicable and required to minimize risks to safety *and environment*, control systems shall be designed so that: (2) The operator shall ensure that control systems shall be designed, where practicable, so that the controlled equipment does not create a safety *or environmental* hazard where the system fails or is shut down.

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7.7 INTEGRATED SOFTWARE DEPENDENT SYSTEMS (1) The operator shall ensure the initial and ongoing availability, reliability, maintenance, safety and security of all integrated software dependent systems, the failure or malfunction of which would cause a hazard to safety or the environment. (2) The operator shall ensure that safety critical software shall be designed, commissioned and maintained by qualified personnel and demonstrated to be safe, reliable, maintainable, and fit for purpose through a formal and comprehensive testing and validation program that shall consider: a. all foreseeable operating and emergency conditions; and b. systems complexity, dependencies and interactions between integrated systems, failure modes, and level of risk associated with malfunction or failure. (3) The operator shall ensure that a comprehensive software management system (including processes and procedures) is developed and implemented to ensure that any changes made to any customizable features of critical software are not undertaken without thorough assessment, testing and approvals and to ensure the software continues to operate as intended and without increasing hazards to safety or the environment.	**Rationale:** The requirement to develop a software management system is unnecessarily prescriptive. Under a goal based regime, the policy should make reference to assessment of changes, and allow operators to manage it in accordance with identified and defined procedures within its integrated management system. **Proposed Policy Text:** (3) The operator shall ensure that any changes made to any customizable features of critical software are not undertaken without thorough assessment, testing and approvals and to ensure the software continues to operate as intended and without increasing hazards to safety or the environment.

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7.8 MONITORING SYSTEMS (1) The operator shall ensure that: a. operations such as processing, transportation, storage, injection, re-injection and handling of oil and gas and other produced fluids on the installations are effectively monitored to prevent incidents and waste; b. all alarms, safety, monitoring, warning and control systems associated with those operations are managed to prevent incidents and waste; c. all appropriate persons are informed when the applicable alarm, safety, monitoring, warning or control systems associated with those operations are taken out of service, and when those systems are returned to service; and d. when such alarm, safety, monitoring, warning or control system are taken out of service, or found to be impaired, the related operations are either suspended until the system is brought back into service or appropriate measures are implemented to offset the risk while the system is not available. (2) The operator shall develop and implement a monitoring program for the physical environment during any work or activity to ensure: a. sufficient data on the physical environment is collected and maintained to support hazard identification and risk analysis; b. appropriate mitigation measures may be initiated in a timely manner to address identified risks to safety or the environment; and c. contingency plans may be initiated in a timely manner to protect the health and safety of all personnel, the integrity of the installation, and to minimize potential environmental impacts. (3) The operator shall ensure that the installation or operations site is sufficiently equipped, and is supported by the additional use of external measures and equipment, to enable observing, measuring and recording of physical environmental conditions as required by (2). (4) The operator shall make all physical and environmental data monitored under this section which are of significance to safety in carrying out petroleum activities, publicly available.	**7.8 1a recommend removing reference to waste, or inserting "limiting waste" as waste products are inevitable in offshore operations (hence what operators require waste management plans).** **7.81b. all alarms, safety, monitoring, warning and control systems associated with those operations are managed to prevent incidents and waste; recommend removing reference to waste, or inserting "limiting waste"** **Rationale:** In reference to 7.8 (4), Producing operators have as a condition of approval under their Operations Authorization that requires operators to make environmental data available to the public, which is accomplished through issuance of Environmental Effects Monitoring (EEM) Reports. The data collected through an EEM program "Environmental data" would be data collected during an environmental program (as defined within the policy intent document) and not of significance to safety in carrying out petroleum activities. Section 1, Introduction in the "*Offshore Physical Environmental Guidelines" states:* *"The primary objective of the PEGs is to provide to the Operator, a set of clear and precise program and best practice procedures which, when followed, will fulfill the regulatory requirements pertaining to the Physical Environment. Information collected during the program is also necessary to establish a sound and reliable data base, which in turn will assist Operators in carrying out Environmental Effects Monitoring programs and in planning future operations in the area, and the Regulators in performing their duties relating to environmental assessment, review of design and operating criteria, and review and approval of applications and contingency plans".* **Proposed Policy Text** CAPP proposes that the reference be stated more explicitly to avoid misinterpretation and duplication of reporting requirements. The policy should state: "The operator shall make all physical environmental data which are of significance to safety in carrying out petroleum activities, publicly available". **7.8 (4) The operator shall make all physical and environmental data monitored under this section which are of significance to safety in carrying out petroleum activities, publicly available. This seems a bit too broad. What information available through monitoring systems could benefit the public? How much work will it be to make this information available? This is an overly onerous requirement? The only way for data to be significant to safety would be for real time data to be made public, and there is no current mechanism established for doing so. What mechanism is NRCan or the Offshore boards establishing to allow data to be made public?**

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7.11 GAS RELEASE SYSTEMS (1) The operator shall ensure every installation that includes process tanks, process vessels and piping has a gas release system that enables the safe and controlled release of pressure and is designed to: a. reduce pressure in the entire process system in a timeframe that ensures a safe release of pressure as quickly as possible; b. release gas without posing a hazard to personnel or equipment; c. minimize the effect on the environment; d. be activated from the main control centre; and e. be activated from control stations that are located and spaced so that they remain protected and accessible for safe operation in the event of foreseeable accidental damage and events and in accordance with a risk management analysis. (2) The operator shall ensure any flaring system and its associated equipment are designed a. to ensure a continuous flame using an automatic igniter system, including redundant ignition capabilities; b. to withstand the radiated heat at the maximum flaring rate; c. to prevent flashback; and d. to withstand all loads to which it may be subjected. (3) In addition, the operator shall ensure every gas release system shall be designed and located, taking into account the amount of combustibles to be released, the prevailing winds, the location of other equipment and facilities, including rigs, the dependent personnel accommodation, the air intake system, embarkation points, muster areas, the helicopter approaches and other factors affecting the safe, normal flaring or emergency release of the combustible liquid, gases or vapours, so that when the system is operating it will not damage the installation, other installations, the land or other platforms in the vicinity used for the exploration or exploitation of resources, or injure any person. (4) The operator shall ensure that every gas release system shall be designed and installed taking into account the limits set out in the applicable *Occupational Health and Safety Regulations* regarding maximum noise and thermal radiation on areas where personnel may be located. (5) Any vent that is used to release gas to the atmosphere without combustion shall be located and designed to minimize the risk of accidental ignition of the gas.	**Rationale:** In reference to Section 7.11 (2), Modern production facilities are not necessarily designed with continuous burning pilot – ignition reliability is made dependent on the consequences of non-ignition. The regulation and subsequent guidance documents should discern between safety critical flare ignition and 'ordinary' flare ignition. Safety critical would imply that an unlit release to the flare would produce gas concentration of more than 50% of LEL where ignition sources may be present. In such cases a dual ignition system or continually burning pilots would be required. However, experience has shown that when dispersion calculations are performed it is very uncommon to reach 50% LEL for the gases that are present in the flare system of production facilities. Flare tower height is determined by heat radiation (refineries are a different scenario where heavier-than-air gases are common). Note that gas concentrations of more than 100% of LEL should not be permitted with any kind of ignition system, including permanently lit pilots. The flare tower height has to be increased to keep below this limit. A continuous burning pilot is a source of GHG emissions and in some jurisdictions older installations are required to make modifications to eliminate the continuous pilot. The continuous flame pilot requirement does not align with the federal government's ambitions to reduce GHG emissions and could lead to costly retrofits in the future to align with international best practices in environmental stewardship related to GHG emissions and flare emissions reduction. **Proposed Policy Text:** 7.11 (2) The operator shall ensure any flaring system and its associated equipment are designed: a. such that, *if an unlit release to the flare may produce gas concentration of more than 50% LEL where ignition sources are present*; a continuous flame using an automatic igniter system, including redundant ignition capabilities exist; b. to withstand the radiated heat at the maximum flaring rate; c. to prevent flashback; and, d. to withstand all loads to which it may be subjected. **Note:** For 7.11 (2) CAPP also recommend removal of redundant ignition capabilities as Operators will have capacity of manual ignition in the event of impairment; and redundant ignition. For further clarity, the following is an excerpt from an Operator's Technical Requirements related to safety critical ignition: *"Where flare gases are combusted for safety reasons, the ignition system shall be capable of igniting the main flame under all weather conditions that may result in more than 50% LEL where ignition sources exist, i.e. the reliability*

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	can typically be reduced above a plant specific wind speed/condition. *A ballistic ignition system and pilot system shall be installed. At weather conditions that may result in more than 50% LEL where ignition sources exist, the pilots shall burn continuously".* Further information and details are available upon request**?**
7.12 HELICOPTER FACILITIES AND OPERATIONS (1) The operator shall ensure every helicopter deck that is part of an installation is designed and equipped to prevent incidents or damage from the use of helicopters or aircraft, including: a. an obstacle-free take-off and approach that is appropriately oriented relative to prevailing winds; b. ability to withstand the static and dynamic functional loads imposed by helicopters; c. ability to accommodate expected helicopter sizes; d. emergency response and fire-fighting equipment so that helicopter emergencies can be responded to safely and effectively; e. fuel storage tanks located safely and protected against damage, impact and fire; f. conspicuous markings and signage; g. suitable lighting for reduced visibility conditions; h. suitable communication and meteorological equipment to enable safe helicopter operations; and i. ready and safe access to the helicopter deck and helicopters, notably from the temporary safe refuge and the accommodations. (2) The operator shall ensure that the helicopter deck and associated operations and maintenance shall conform to the requirements of *CAP 437 Standards for Offshore Helicopter Landing Areas* as published by the UK Civil Aviation Authority.	**General Comment:** Will removal of reference to TP4414 remove the obligation to comply with existing Canadian regulation? Recommend removal of specific reference to a standard and permit Operators determine applicable standard to be monitored by CA. There are concerns with CAP 437 relative to legacy facilities and with CAP 437 reference to other UK based standards/regulations. The broad adoption of CAP 437 needs to considered and reviewed in detail. **Proposed Policy Text** 7.12 (1) (g) suitable lighting for *safe operations* including reduced visibility;

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7.13 CRANES AND HANDLING DEVICES (1) The operator shall ensure every crane or other handling device on an installation is designed, constructed, operated and maintained, to the extent that is reasonably practicable: a. with necessary safety devices and features to ensure safe operations; b. within pre-defined safe operating limits; c. so that if there is a failure of any part of the material handling equipment, it will not result in loss of control of the equipment, or create a safety or environmental hazard; and d. based on the conditions under which it is to be used, including consideration of movements of: i. supply vessels relative to the installation; and ii. on a floating platform, the platform itself. (2) The operator shall ensure that cranes or other handling devices are operated, tested, maintained and inspected by competent and trained personnel taking into consideration the recommendations of the original equipment manufacturer and relevant industry standards or best practices. (3) The operator shall ensure that every crane has emergency slewing and lowering capability. (4) The operator shall ensure that every crane and other material handling equipment shall be uniquely identified and marked with sufficient information to permit safe operation and reference to relevant records of design, construction, inspection, testing, maintenance and repair. (5) Before a materials handling equipment is placed in service, a qualified person shall inspect, proof test and certify in writing the rated capacity of a materials handling equipment in accordance with criteria established by the manufacturer or applicable design or safety standard where: a. the equipment is new; b. the rated capacity of the equipment cannot be determined; c. the continued safe use of the equipment cannot be assured due to its age or history; d. repairs or modifications have been made to load carrying components; e. modifications have been made which affect the rated capacity; f. the materials handling equipment has been in contact with an electric arc or current; or g. in any case, at a period interval that will ensure continued safe operations.	**General Comment:** In reference to Section 7.13(3), not all cranes are capable of slewing. For example a gantry crane cannot be slewed and are commonly present on offshore installations. For subsection 7.13 (5) (g) CAPP recommend the removal of “period” and propose the following text: in any case, at an interval that will ensure continued safe operations. For subsection 7.13 (6) The operator must ensure that every crane must: a. has ***available*** inside the crane control cab load capacity charts that specify the boom angle and safe working load for each block and for each operating mode (static, dynamic and personnel lifting), as required; and,

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6) The operator must ensure that every crane must: a. have posted inside the crane control cab load capacity charts that specify the boom angle and safe working load for each block and for each operating mode (static, dynamic and personnel lifting), as required; and, b. be equipped with: i. a safe load indicating system, inclusive of load and moment measuring devices which is programmed for the different operating modes; ii. boom and block travel limiting devices; and iii. a load measuring device that has been calibrated, at minimum, according to manufacturer's specifications; iv. a device to indicate the boom angle where the rated capacity is affected by the boom angle; v. a device to indicate the boom extension or load radius where the rated capacity of the equipment is affected by boom extension or load radius; vi. an anemometer; and vii. emergency stop capabilities. (7) The operator shall ensure that all crane hooks must be equipped with positively engaged safety latches or equivalent that will prevent a load from falling out of the hook under all operating conditions. (8) A person must not move a crane in the vicinity of a helicopter deck when a helicopter is landing or taking off.	

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7.14 NAVIGATION AIDS The operator shall ensure that every offshore installation shall be equipped with the navigation lights and sound signal systems that are required by the *Collision Regulations*, as if the offshore installation were a Canadian vessel.	**Rationale:** For Section 7.14, the reference to requirements stipulated in the "Collision Regulations under Transport Canada Regulations will require an RQF for height of fog horns and lights from sea level of fixed installations due to the height restrictions identified in that regulation. Provision should be made in the Framework regulation to address this and therefore, negate the requirement for future RQFs on this topic, at least for heights from sea level which are going to be significantly different on an offshore installation than on a vessel. As an example, the Hibernia, Sable and Hebron installations all have an RQ in place because of this reference in the current regulations. **Proposed Policy Text** The operator shall ensure that every vessel or offshore installation be equipped with the navigation lights and sound signal systems: a) that are required by the *Collision Regulations*, as if the offshore installation were a Canadian vessel; or, where compliance with these regulations is not possible, b) be installed to maximize their visual and audible alerting capabilities for collision avoidance,
7.15 DRILLING FLUIDS SYSTEM The operator shall ensure that: a. the drilling fluid system and associated monitoring equipment is designed, installed, operated and maintained to provide an effective barrier against formation pressure, to ensure safe drilling operations, to prevent pollution and to allow for proper well evaluation; b. the indicators and alarms associated with the monitoring equipment are strategically located on the drilling rig to alert onsite personnel; and c. continuous monitoring is provided by dedicated personnel at the location and remote from the driller's station through/via an independent monitoring system of parameters critical to the safety of the drilling operations or critical to the detection of a gain or loss of drilling fluid while connected to the well and taking returns to the installation.	**Rationale:** In reference to Subsection 7.15 (c) "…..continuous monitoring is provided by dedicated personnel at the location and remote from the driller's station through/via an independent monitoring system of parameters critical to the safety of the drilling operations…". CAPP believes the policy text is very prescriptive and may not represent the ideal approach for the continuous monitoring of critical system parameters. **Proposed Policy Text:** c) Parameters critical to the safety of the drilling operation or critical to the detection of a gain or loss of drilling fluid are continuously monitored to ensure the safe operation and integrity of the drilling fluid system.

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7.16 WELL CONTROL (1) The operator shall ensure that adequate procedures, materials and equipment are in place and utilized throughout the life of the well to prevent the loss of well control. (2) The operator shall ensure that, during all well operations, reliably operating well control equipment is installed to control kicks, prevent blow-outs and safely carry out all well operations. (3) Where the conductor and/or surface hole is drilled riserless, the operator shall ensure that measures necessary to mitigate the risk of shallow hazards shall be implemented. (4) Prior to drilling out the surface casing shoe and any operation thereafter, the operator shall ensure that at least two independent and tested well barrier envelopes are in place. (5) If there is a failure in either of the two defined well barrier envelopes the operator shall ensure that no other well operations take place other than those intended to restore or replace the barrier envelopes. In the event of a replaced barrier envelope the operator shall ensure that every effort is made to restore the barriers to the originally approved well design in a timely manner. (6) The operator shall ensure that, except when drilling under-balanced, one of the two barriers to be maintained is the drilling fluid column. (7) The operator shall ensure that pressure control equipment associated with well operations is installed and pressure-tested on installation and as often as necessary to ensure its continued safe operation. (8) If well control is lost or if safety, environmental protection or resource conservation is at risk, the operator shall ensure that any action necessary to rectify the situation is taken without delay.	CAPP propose the following revisions to policy text: **Proposed Policy Text:** 7.16 (3) During riserless operations (no BOP installed), the operator shall ensure that measures necessary to mitigate the risk of shallow hazards shall be implemented. 7.16 (4) The drilling BOP shall be installed prior to drilling out of the surface casing, and there shall be a minimum of two (2) verified well barriers throughout the life of the well. 7.16 (5) If a well barrier fails, securing and re-establishing the well barrier shall take priority over any other well operation or activity. Before transferring a barrier function from one element to another, the capability of the new barrier element shall be verified. (6) The operator shall ensure that, except when intentionally drilling under-balanced, one of the two barriers to be maintained is the drilling fluid *envelope*. **General Comment:** *In reference to Sections* 7.16 (5) and 7.19.1.j CAPP recommend stating “Or alternate approved barriers”, rather than prescribing the original barriers.

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7.17 CASING AND CEMENTING (1) The operator shall ensure that, for the life of the well, the casing is designed so that a. the well can be drilled safely, the targeted formations evaluated and or developed and waste prevented; b. the maximum anticipated conditions, forces and stresses that may be placed upon them are withstood; c. the integrity of gas hydrate and permafrost zones — and, in the case of an onshore well, potable water zones — is protected; d. that wellhead design fatigue is understood through appropriate analysis and the well is operated so as not to exceed the wellhead design fatigue life; and e. if the annulus is to be utilized for production or injection operations that as part of the design process a barrier analysis is conducted to confirm that two barrier envelopes will be maintained even in the event of a casing impairment. (2) The operator shall ensure that the casing is installed at a depth that provides for adequate kick tolerances and well control operations that provide for safe, constant bottom hole pressure. (3) The operator shall ensure that, for the life of the well, the cement slurry is designed, installed and verified so that: a. the movement of formation fluids is prevented and, where required for safety, resource evaluation or prevention of waste, the isolation of the oil, gas and water zones is ensured; b. support for the casing is provided; c. corrosion of the casing over the cemented interval is retarded; d. the integrity of gas hydrate and permafrost zones — and, in the case of an onshore well, potable water zones — is protected; and e. if the annulus is to be used for production or injection operations, or if the cement is a common critical barrier element in the primary and secondary barrier envelopes, the cement placement is verified by pressure testing and logging. Cement design and slurry analysis (4) The operator shall ensure that the cement design has been subjected to a comprehensive suite of lab testing and pre-job quality control as per the design to ensure that the design will provide the expected isolation and can be placed effectively, including contingencies for upset conditions that could occur during the cement job.	**General Comment:** Waste is mentioned nine times in the policy intent document but not defined. Waste should be defined to ensure that it is clearly understood by the reader as the loss of oil and gas resources and not to be confused with "waste material". Many non-technical users of this policy document could confuse the intent of the waste prevention regulation. The Drilling & Production Regulations define *"waste material"* to mean any garbage, refuse, sewage or waste well fluids or any other useless material that is generated during drilling, well or production operations, including used or surplus drilling fluid and drill cuttings and produced water. Whereas, "waste" in addition to its ordinary meaning, means waste as understood in the petroleum industry, any action that results or tends to result in a reduction in the quantity of petroleum ultimately recoverable from a reservoir. For a more detailed definition of "waste" refer to the Atlantic Accord Implementation Act and the Drilling and Production Guidelines – August 2017. In reference to Section 7.17 (1) (e) Does this intend for 3 barriers? Refer to proposed policy which follows. **Proposed Policy Text:** In reference to subsections 7.17 (1) and 7.17 (2), CAPP propose the following revision to the policy text: 7.17 (1) The operator shall ensure that, for the life of the well, the casing **and wellhead system** is designed so that a. the well can be drilled safely, the targeted formations evaluated and or developed and waste prevented; b. the maximum anticipated conditions, forces and stresses that may be placed upon them are withstood; c. the integrity of gas hydrate and permafrost zones — and, in the case of an onshore well, potable water zones — is protected; d. that the wellhead fatigue design is accounted for; and e. if the annulus is to be utilized for production or injection operations that as part of the design process a barrier analysis is conducted to confirm that two barrier envelopes will be maintained even in the event of a casing impairment. 7.17 (2) The operator shall ensure that the casing is installed at a depth that provides for adequate kick tolerances and **safe well control operations**.

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Waiting on Cement Time (5) After the cementing of any casing or casing liner and before drilling out the casing shoe, the operator shall ensure that the cement has reached the minimum compressive strength sufficient to support the casing and provide zonal isolation. Casing Pressure Testing (6) After installing and cementing the casing and before drilling out the casing shoe, the operator shall ensure that the casing is pressure-tested to the value required to confirm its integrity for maximum anticipated operating pressure over the life of the well.	**Clarification Request:** **In reference to section 7.17 (1) (e)** more clarity is requested in what constitutes a barrier analysis? **In reference to subsection 7.17 (3) d**, what are the implications if a planned cement top does not reach/cover a gas hydrate zone (immediate remediation, etc.)? Does a gas hydrate zone also imply a hydrocarbon zone? **In reference to subsection 7.17 (3)** e, logging is a long-standing requirement – although not always the best means for cement verification and is subject to interpretation. Some additional flexibility in this area would be beneficial) What are the implications of a bond log that shows a poor quality or lower than anticipated cement top (immediate remediation, dispensation to address during final well abandonment, etc.)? In addition, depending on the circumstance, there is no way to verify cement placement by "pressure testing" (assuming this means pressure testing the casing). The cement top can be estimated by analyzing final pump pressure during the cement displacement process, job reports and pressure match data and analysis can be used CAPP recommend the removal of the requirement to conduct logging operations for verification of cement placement.

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7.18 FORMATION LEAK-OFF OR INTEGRITY TESTING The operator shall ensure that a. a formation leak-off test or a formation integrity test is conducted before drilling more than 10 m of new formation below the shoe of any casing other than the conductor casing; b. a formation leak-off test or a formation integrity test is conducted before drilling more than 10 m of new formation when sidetracking through casing; c. the formation leak-off test or the formation integrity test is conducted to a pressure that allows for safe drilling to the next planned casing depth and to verify the adequacy of the cement at the shoe prior to drilling ahead; and d. a record is retained of each formation leak-off test or formation integrity test and the results included in the daily well operations drilling report referred to in section 14.12 and in the well history report referred to in section 14.18.	**Rationale:** In reference to 7.18 (b) CAPP recommend removal of 10 m since may not be effectively into the side-track at the depth. The 10m specification might cause issue with certain types of casing milling or whipstock systems. The pilot mill might actually be more than 10m from the casing when the window is fully opened. This is impractical and unnecessary for shallow kick-offs when drilling to shallow targets, such as in conductor casing or in shallow surface casing where little formation strength exists and where drilling is normally done riserless. In reference to subsections 7.18 (a) & (b), CAPP recommends to combine the policy text and revise. **Proposed Policy Text** 7.18 (a) a formation leak-off test or a formation integrity test is conducted before drilling a distance more than 10m horizontal or vertical displacement from the previous casing string or upon confirmation of well bore separation. **7.18 WELL INTEGRITY FUNDAMENTALS, WELL BARRIER ELEMENTS (WBEs) & VERIFICATION** CAPP propose the following ideas about the introduction and philosophy of Well Barriers and well integrity. **7.18.1 General** A well shall be designed to have two defined independent well barriers without common barrier elements. The actual position and status of the barriers or barrier elements shall be known at all times. Scenarios with dependant or common barrier elements during construction, and other critical barrier failure scenarios, shall be covered in the Risk Evaluation. The well barrier(s) towards external and internal leak paths shall be defined and described prior to commencement of any drilling and well activity. Well barriers should be installed as close as possible to potential source of inflow. After installation of the BOP, prior to drilling out of the surface casing and throughout the life of the well, there shall be a minimum of two (2) verified well barriers. If a well barrier fails, securing and re-establishing the well barrier shall take priority over any other well operation or activity. **7.18.2 Well barrier identification and visualization**

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Well Barrier Schematics (WBS) shall be available for every operational stage of the well (e.g. drilling, completion, production / injection, intervention and permanent P&A). The WBS shall:

a) Describe well barrier envelope(s)
b) Identify each Well Barrier Element (WBE)
c) Describe the method of verification
d) Describe the applicable monitoring of the WBE

For injector wells the WBS shall reflect the injection loads. Gas Lift Wells shall have a WBS visualizing the barriers for gas lift.

7.18.3 Number of well barrier(s)

Flow source	Number of barrier(s)		
	Drilling, completion, interventions and P&A operational activities	Production/ injection phase	Final status after Permanent P&A
1. Shallow hazard valid for Pilot Hole and deepwater Top Hole drilling	1 barrier	N/A	1 barrier*
2. Normal pressured Overburden Formation with no flow potential to surface	1 barrier	N/A	N/A
3. Abnormal Pressured formation with no flow potential	2 barriers	1 barrier	Open Hole to Surface plug
4. Abnormal pressured Overburden Formations with limited flow potential	2 barriers	2 barriers**	2 barriers**
5. Reservoirs and/or Formations with flow potential	2 barriers		

Shallow Hazards shall have 1 barrier in Permanent P&A independent of hole size.
** A Risk Evaluation shall document whether 1 barrier is acceptable for Production/ injection phase and permanent P&A.

7.18.4 Well barrier qualification, design and construction principles

The well barriers shall be qualified, designed and constructed as per the following:

a) Able to withstand maximum anticipated loads and the environment (pressure, temperature, fluids) it may be exposed to, for the time the barrier element is in use.
b) Be leak tested, Function Tested or verified by other methods
c) An annulus barrier or open hole barrier plug shall be placed in an impermeable formation
d) Barrier failure

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	e) e scenarios shall be accounted for in the design **7.18.5 Verification of well barriers** Primary and secondary barriers for completed wells shall be verified to withstand Well Design Pressure (WDP). The integrity of any well barrier element shall be verified prior to use, by one of the following methods: a) Application of a differential pressure b) Application of a load (weight) c) Function Testing of WBEs that require activation d) Verification by other specified methods (i.e. logging, fluid Monitoring) Re-verification shall be performed when changes occur in worst case loads (e.g. well design pressure, environment, tubular wear) The test pressure shall to the extent possible be applied in the flow direction. The test pressure can be applied opposite the direction of flow, providing that the WBE is constructed to seal in both directions.
7.19 WELL COMPLETION (1) An operator that completes a well shall ensure that: a. it is completed, tested and produced in a safe manner and allows for maximum recovery; and does not cause waste or pollution for the life of the well; b. except in the case of commingled production, each completion interval is isolated from any other porous or permeable interval penetrated by the well; c. if applicable, the production of sand, carbonate or other solids is controlled and does not create a safety hazard or cause waste; d. each packer is set as close as practical to the top of the completion interval and that the pressure testing of the packer to a differential pressure is greater than the maximum differential pressure anticipated under the production or injection conditions; e. if practical, any mechanical well condition that may have an adverse effect on	**Proposed Policy Text:** **For 7.19 (1) (a),** propose the following revision: a. it is completed, tested and produced in a safe manner and allows for maximum economic recovery in accordance with an approved development plan **For 7.19 (1) (b)** CAPP believe the section needs further definition as it may not be possible to isolate every porous/permeable interval **For 7.16 (5) and 7.19 (1) (j)** recommend stating “Or alternate approved barriers”, rather than prescribing the original barriers. **For 7.19 (1) (d),** recommend the removal of "is greater than the" and change to "equal to the maximum differential

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production of oil and gas from, or the injection of fluids into, the well is corrected; f. the injection or production profile of the well is improved, or the completion interval of the well is changed, if it is necessary to do so to prevent waste; g. if different pressure and inflow characteristics of two or more pools might adversely affect the recovery from any of those pools, the well is operated as a single pool well or as a segregated multi-pool well; h. during completion operations and prior to the removal of pressure control equipment and handover for operations, all barrier elements are to be tested to the maximum pressure to which they are likely to be subjected, and where possible pressure testing is to be in the direction of flow; i. after commencement of operations of the well, dual well barrier envelopes that have been tested must be in place and if there is a failure in either of the two defined well barrier envelopes the operator shall ensure that no other well operations takes place other than those intended to restore or replace the barrier envelopes; j. in the event of a replaced well barrier envelope the operator shall ensure that every effort is made to restore the well barriers to the originally approved well design in a timely manner; and k. following any workover or intervention, any affected barrier elements are pressure-tested. (2) The operator of a segregated multi-pool well shall ensure that: a. after the well is completed, segregation has been established within and outside the well casing and is confirmed; and b. if there is reason to doubt that segregation is being maintained, a segregation test is conducted within a reasonable timeframe.	pressure anticipated". This would bring this wording in line with and consistent with other sections i.e. 7.17 Casing and Cementing, Section 7.20 Production Tubing and Section 7.23 Well, Well Head and Tree Equipment. **For 7.19 (1) (h),** recommend replacing the term “likely with anticipated or designed **For 7.19(2) (a and b):** CAPP request additional detail on what is actually intended by these statements.

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7.22 MARINE RISER (1) The operator shall ensure that every marine riser is, throughout the duration of the well operation, capable of: a. furnishing access to the well; b. isolating the well-bore from the sea; c. withstanding the differential pressure of the drilling fluid relative to the sea; d. withstanding the maximum anticipated loads; and e. permitting the drilling fluid to be returned to the installation. (2) The operator shall ensure that every marine riser is supported in a manner that effectively compensates for the forces caused by the motion of the installation, the drilling fluid or the water column. (3) The operator shall ensure that riser analysis and weakpoint analysis when required is completed and submitted to the Certifying Authority for acceptance.	For 7.22 (3), when is this riser and weakpoint analysis required to be completed?
7.24 FORMATION FLOW TEST EQUIPMENT (1) The operator shall ensure that: a. the equipment used in a formation flow test is designed to safely control well pressure, properly evaluate the formation and prevent pollution; b. the rated working pressure of formation flow test equipment upstream of and including the well testing manifold exceeds the maximum anticipated shut-in pressure; and c. the equipment downstream of the well testing manifold is sufficiently protected against overpressure. (2) The operator of an offshore well or a well in a sour environment well shall ensure that the formation flow test equipment includes a down-hole safety valve that permits closure of the test string above the packer for development wells. (3) In the case of a flow test program for an exploration or delineation well, a downhole safety valve is required unless it can be demonstrated and approved as part of the well testing program application process that the alternative arrangement provides an equivalent or lower level of risk than using a downhole safety valve. (4) The operator shall ensure that any formation flow test equipment used in testing an offshore well that is drilled with a floating drilling unit has a subsea test tree that includes: a. a valve that may be operated from the surface and automatically closes when required to prevent uncontrolled well flow; and b. a release system that permits the test string to be hydraulically or mechanically disconnected within or below the blow-out preventers.	**General Comment:** CAPP believe there needs to be a differentiation or clarification of what type of flow test is being contemplated here (DST) and that it is not to be confused with other acceptable flow tests for the purpose of a Significant Discovery Declaration (SDD). The concern with the current wording is that by association of specific terminology / operational language (i/e downhole safety valve, disconnect systems, etc) with the term ‘Formation Flow Test’ that a prescriptive interpretation could be taken that the only acceptable ‘Formation Flow Test’ is a DST. This has been a regulatory issue in the past, there is now an acceptance that alternates to a DST will meet the regulatory requirements for a Formation Flow Test is support of a SDD; the language proposed could be a step backwards in this context.

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7.25 DRILLING AND WELL OPERATING PRACTICES The operator shall ensure that adequate equipment, procedures and personnel are in place to recognize and control normal and abnormal conditions, to allow for safe, controlled well operations and production operations and to prevent pollution.	
7.26 WELL VERIFICATION SCHEME (1) The operator must establish a well verification scheme, commensurate with the risk criticality ranking for the well, such that the design ensures well integrity for the life of the well, is in keeping with the regulations and reflects industry best practices. (2) The verification scheme shall also be applied to any changes made to the design that occur during the construction or ongoing operation of the well. (3) The verification must be undertaken by a qualified person who is not involved with the original design and that is separate from the business unit responsible for the original design.	**General Comment:** **In reference to 7.26 (2)** CAPP recommend that the verification scheme apply to design changes that occur during the construction or ongoing operation of the well when deemed necessary as a result of a review of the changes through the management of change or risk assessment process. External or independent review is triggered based on risk, and would not occur for all changes. **In reference to 7.26(3)** CAPP suggest removal of "and that is separate from the business unit responsible for the original design". Verification by a separate business unit may be difficult to achieve given reporting structures and varied organization structures. The statement "verification must be undertaken by a qualified person who is not involved with the original design" should adequately address and ensure a cold eyes / independent review.
7.27 REFERENCE FOR WELL DEPTH The operator shall ensure that any depth in a well is measured from a single reference point, which is either the kelly bushing or the rotary table of the drilling rig.	**General Comment:** CAPP recommends the removal of the reference to "Kelly bushing" and retain the reference to "rotary table". CAPP are unaware of any kelly's being used in drilling off or onshore any longer, and certainly not in the areas that these regulations would apply.

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7.29 SUBSEA PRODUCTION SYSTEMS (1) The operator shall ensure that all subsea production systems are designed, built, installed, commissioned, tested, operated, inspected, monitored and maintained to reduce risks to safety and to the environment to as low as reasonably practicable under all foreseeable environmental and operating conditions, for all modes of operation. (2) The operator shall ensure that the design of subsea production systems shall ensure: a. the effect of a single failure cannot develop into a situation that may cause a major accidental event; b. barriers in each conduit capable of carrying fluids are sufficiently redundant, reliable and arranged to: i. prevent uncontrolled flow of well fluids; ii. minimize the release of conduit inventory in the event of unintended release; and iii. permit testing of the barrier integrity without increasing risk to safety or the environment; c. subsea facilities and pipeline systems can withstand and are sufficiently protected from mechanical damage caused by other activity [including from dropped objects, drilling and well intervention, as well as activities such as trawling and anchor drags]; d. subsea facilities are arranged to permit safe accessibility for operation, maintenance, inspection and testing during design service life; e. foreseeable threats to safety and the environment can be identified in sufficient time to enable the system to avoid the threats or be brought to a safe state to prevent escalation; f. production risers are sufficiently protected or designed to withstand or safely avoid all foreseeable hazards and environmental loads for the site, [including but not limited to ice loads, motion of the installation and excursion limits], but excluding icebergs; g. the ability to support the blowout preventer during drilling and the tree and any workover or intervention pressure control equipment after completion; h. that the subsea production system supports and seals connections to the well, offshore pipelines, other subsea production systems or other installations; and i. that in the event of a loss of control or communication, the subsea production system is designed to revert to a failsafe state.	**General Comment:** In reference to 7.29 (2) (i). “that in the event of a loss of control or communication, the subsea production system is designed to revert to a failsafe state.” CAPP believe the policy should be revised to accommodate existing subsea production systems that would require significant modification to comply. **Proposed Policy Text** i. that in the event of a loss of control or communication, the subsea production system is designed, where reasonably practicable, to revert to a failsafe state. **General Comment:** Section 7.29 (4) The language is very prescriptive in requiring a FMEA. The assessment method should not be specified. **General Comment:** For 7.29 (2)(b) CAPP believe that the effect of a single failure cannot develop into a situation that may cause a major accidental event." This is not practical, in that a failure of a pipeline/flowline or connector could represent a single point failure that could lead to a major event. These single point failure points will obviously have to meet the requirements of the design basis, but can’t get fully eliminated.

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(3) The operator shall ensure that, where risers are designed to disconnect to avoid foreseeable hazards, riser fluids shall be able to be safely isolated or displaced by water. (4) The operator shall ensure that no subsea production system shall be considered to comply with this section until it has been assessed through a failure modes and effects analysis. (5) The operator shall ensure that, when a riser has been disconnected, its integrity shall be demonstrated through testing once reconnected, before being brought back into service. (6) The operator shall ensure that, if the installation is designed to leave station under the pre-determined environmental operating limits, the riser will be designed to disconnect, and will meet the requirements of s. 6.16 that speaks to disconnectable mooring systems. (7) The operator shall ensure that subsea production systems will only be controlled by one facility at any given time.	

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7.30 FIRE AND GAS DETECTION (1) The operator shall ensure that every installation is equipped with a fire and gas detection system that is designed, selected, installed, tested and maintained to: a. provide continuous, reliable automatic monitoring functions to alert personnel to the presence and location of hazardous fire and flammable and toxic gas conditions; and b. enable control actions to be initiated manually or automatically in order to prevent escalation of abnormal conditions into major accident events. (2) The operator shall ensure that every fire and gas detection system is designed, arranged, including location, number, and types of detectors, tested and maintained such that: a. they are based on the Fire, Explosion and Hazardous Gas Risk Assessment in 6.6 and that they will ensure that any such fire, explosive or toxic gas accumulation, or other foreseeable abnormal conditions related to hazards identified in the Assessment will be detected; b. upon detection of such hazards the system shall activate automatically, and be capable of being activated manually in suitable locations, an alarm system that includes distinct audible and visual alarms at the main control center and in areas where personnel are normally present, to enable response that is appropriate to the nature and level of the hazard or event; c. as far as practicable, the system is functionally and physically independent of other systems; d. system components, including fire and gas detection devices are selected and located to ensure: i. reliable and early detection, taking into account response characteristics, redundancy and performance under foreseeable conditions for which detection is required; ii. they are demonstrated to be suitable for detection of foreseeable types of fire or gas in their area of operation; and iii. they include [health status] features to indicate their failure or malfunction (i.e. self-monitoring features); e. flammable or toxic gas (including smoke) will be detected in air intakes of mechanically ventilated non-hazardous areas; f. inspection and testing of field devices, system internal functions and executive outputs can be carried out without impeding system functionality;	For 7.30 (2) (j) with respect to “means to manually initiate the fire and gas alarm shall be available at the office of the manager of the installation” …. CAPP recommend the removal of the reference to the “office of the manager of the installation.

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g. in the event of failure of the normal power source, the system will switch over to an emergency source of electrical power to ensure uninterrupted operation of the system for the duration required to restore main power or to safely evacuate personnel and an audible and visual indication will be provided at the control center; h. the system can be reset when conditions are confirmed to be returned to a safe state. i. the system and its components are suitably protected from mechanical, fire and environmental damage to remain capable of fulfilling their intended functions under foreseeable operating and environmental conditions [under which they must operate]; j. all necessary information is continuously provided at the control center and other strategic locations to permit personnel to manage emergency situations; k. means to manually initiate fire and gas alarm shall be available at the office of the manager of the installation, at the control center, at every control station and other defined locations throughout the facility identified in the Fire, Explosion and Hazardous Gas Risk Assessment required under 6.6; and	**General Comment:** In reference to (2)(k) "means to manually initiate fire and gas alarm shall be available at the office of the manager of the installation". CAPP request clarification as to what is intended or meant. Currently the majority of offshore installations will not possess the ability to manually initiate the fire and gas alarm systems from the OIM's office. Typically, the OIM must contact the Control Room to initiate the alarm and/or request a shutdown. CAPP propose that all actions pertaining to the manual activation for the fire and gas alarm system should be taken from the Control Room or the alternate control station as well stations located throughout the facility other than the OIM office.

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7.31 IGNITION PREVENTION (1) The operator shall ensure that materials and equipment on an installation are arranged, at all times, to prevent ignition of combustible and explosive fluids, and that measures are taken: a. to prevent fire and explosion, including measures to prevent uncontrolled release or accumulation of combustible or explosive substances; and b. to prevent the ignition of such substances and atmospheres. (2) All mechanical and electrical equipment located in a hazardous area identified in accordance with 6.19(2) shall be suitably designed, rated, protected, ventilated and maintained for safe operation in their intended location. (3) All equipment that is not suitably rated for use in a hazardous area shall be operated only at a safe distance from any potential source of combustible or explosive fluids and shall be equipped with automatic and manual means of deactivation in the event of gas detection (deactivation includes shut off and de-energize). (4) Any equipment that is to remain active in the event of an emergency associated with gas release is to be suitably rated for operation as if it was located in a hazardous area. (5) The operator shall ensure that hot work is only carried out under a permit to work system that has pre-determined safe distances from sources of ignitable and explosive fluids and other risk mitigation measures identified through risk analysis to prevent ignition. (6) The operator shall ensure that the requirements in this section are supported by comprehensive risk assessments specific to the installation. (7) The operator shall ensure that cargo tank internal atmospheres are maintained below the lower explosive limits and that such systems will be designed, equipped with sufficient barriers, alarms and redundancy to: a. prevent risks to safety during all modes of cargo operations; and b. ensure that personnel are made aware when such systems become impaired.	**Rationale** In reference to 7.31 (7) CAPP recommend the policy text be revised to accommodate the safe practice of hydrocarbon gas blanketing for cargo tanks. **Proposed Policy Text** (7) The operator shall ensure that the concentration of explosive gas inside a cargo tank is maintained outside the explosive limits and that such systems will be designed, equipped with sufficient barriers, alarms and redundancy to: a. prevent risks to safety during all modes of cargo operations; and b. ensure that personnel are made aware when such systems become impaired.
7.32 EMERGENCY SHUTDOWN AND BLOWDOWN (1) The operator shall ensure that every installation has an emergency shutdown system that is capable of shutting down, isolating and depressurizing all potential sources of ignition and sources of flammable liquids or gases, and that is designed, installed, tested and maintained: a. to prevent escalation of abnormal conditions into major accident events; and b. to limit the extent and duration of any major accident events which may foreseeably occur. (2) The operator shall ensure that the emergency shutdown system design shall be based on a	In reference to Section 7.32 (2) (f)..”control of subsurface, subsea and pipeline safety valve(s)”; the text seems to imply that control and ESD systems can be combined which may be a deviation from 3a)? **Clarification Request:** CAPP request clarification on this potential conflict and recommend a definition be included for “pipeline safety valve”.

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formal risk assessment and analysis, and that shutdown logic shall include a hierarchy of shutdown levels, action sequences and timelines that are appropriate to the degree of risk posed by identified hazards, and shall consider: a. automated and manual activation to ensure effective shutdown b. isolation of hydrocarbon and flammable fluid inventories, including but not limited to, reservoirs, wells, production systems, and pipelines from sources of ignition; c. shutdown of electrical, mechanical and other equipment and systems, to bring them to a predefined safe state, unless suitably rated and designed to remain operational at those predefined safe states; d. sizing and segregation of hydrocarbon inventory to limit the quantity of material released on loss of containment; e. emergency depressurization and disposal of hydrocarbon inventory to a safe location (which cannot include cold venting). f. control of subsurface, subsea and pipeline safety valve(s); g. essential systems and timelines that are necessary to support safe escape, shelter and evacuation of personnel, or to maintain the integrity of the installation; h. selective shutdown of ventilation systems required by s. 6.20, except the fans necessary for supplying combustion air to engines required to operate during emergency situations unless gas has been detected in the intake to engines; and i. any activation of fixed fire suppression systems required under 7.33. (3) The operator shall ensure that emergency shutdown systems: a. are designed, arranged and maintained to have a high degree of reliability and, as far as practicable, to be functionally and physically independent of other systems such that they will not adversely affect or be adversely affected by the operation of other safety critical systems or essential emergency systems that are required to remain live during an event; b. are suitably protected from mechanical, fire, explosion and environmental damage, and capable of fulfilling their intended functions under all operating and environmental conditions under which they must operate; and c. remain capable of fulfilling critical shutdown functions during testing and maintenance that may affect the operation of the emergency response system. (4) The operator shall ensure that emergency shutdown systems are arranged and maintained such that: a. emergency shutdown initiation activates audible and visual alarms in the control center and at locations outside the central control room such that all	**Rationale:** In reference to subsection 7.32 (4) (l) “temporary equipment on an installation shall be integrated into the emergency shutdown system of the installation” Temporary equipment is transported and used offshore on a regular basis which is not designed or intended to be tied into the ESD system of the installation. If a piece of temporary equipment is intended to take the place of a piece of permanent equipment for a period of time, it makes sense to tie it into the ESD system. However not all temporary equipment warrants being tied into the ESD system. Given the many types of temporary equipment that is mobilized to offshore installation and vessels CAPP believe the definition of temporary equipment must be very clear to avoid interpretation challenges and the necessity for regulatory equivalencies due to differences in interpretation and application. **Proposed Policy Text:** “when deemed necessary based on hazard analysis and intended use, temporary equipment on an installation shall be integrated into the emergency shutdown system of the installation”

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personnel are alerted; b. system status is continually monitored in the control center, including, where applicable, status, extent and duration of any overriding commands; c. adequate information is continuously provided at the control center to ensure emergency response personnel have the necessary information to manage the emergency, including but not limited to: i. emergency shutdown level initiation and source of initiation; ii. emergency shutdown effects which have failed to be executed upon emergency shutdown activation; and iii. status, including failure, of emergency shutdown system components; d. the activation of a manual emergency shutdown activation point will initiate the installation's general alarm; e. emergency shutdown can be initiated from multiple manual activation stations that are: i. well marked; ii. protected against unintentional activation and degradation from environmental conditions under which they would be operating; and iii. located at strategic positions which provide a high likelihood of being able to be activated in emergency conditions, with at least one located outside hazardous areas; f. manual activation points for highest level or complete shutdown of the installation are provided at the control center, and at other suitable locations including, but not limited to, the helicopter deck and emergency evacuation stations; g. where a hydraulic or pneumatic accumulator is used to operate any part of the emergency system, the accumulator shall: i. be located as close as is practicable to the part that it is designed to operate, except where that part is part of a subsea production system; ii. have capacity for a sufficient number of operations to ensure shutdown can be reliably achieved; and iii. notwithstanding ii), in the event of a failure of the accumulator, the shutdown valves shall revert to a fail-safe mode; h. the system contains facilities for testing of both input/output devices and internal functions in order to ensure the functionality of the complete system; i. in the event of failure of the normal power source, uninterrupted operation of the system shall be assured until the normal power source is restored or all emergency shutdown operations have been completed;	

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j. systems or equipment are to revert to a fail-safe or least hazardous condition if failure of the emergency shutdown system or any critical function or component will increase risk; k. where two or more installations or facilities are connected, or where temporary equipment is on an installation: i. emergency shutdown systems shall be linked such that emergency shutdown signals can be transmitted to any of the connected installations or systems, and vice versa; and ii. consideration shall be given to command sequence and priority between the connected systems; l. temporary equipment on an installation shall be integrated into the emergency shutdown system of the installation; m. once activated, it will not be possible to override or reset the emergency shutdown system until such time as the events that triggered the system are returned to a safe state and the equipment is locally confirmed to be safe for operations; and n. overriding commands and functions cannot be inadvertently engaged. (5) Where the override capabilities exist for the purposes of maintenance and testing, they are applied for the shortest amount of time as possible with as few as possible simultaneously applied, managed through the established permit to work system, and in any case, do not impair the emergency shutdown function. (6) In the case of a production installation, on activation of the emergency shutdown system, the surface-controlled subsurface safety valve shall close in not more than two minutes after the tree safety valve has closed, except where a longer delay is justified by the mechanical or production characteristics of the well.	

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7.33 FIRE PROTECTION SYSTEMS AND EQUIPMENT (1) The operator shall ensure that all safe and reasonable measures are taken at every installation and operations site to control and extinguish or control fires as appropriate and to minimize any danger to safety or the environment that results or may be reasonably expected to result from the fire. (2) The operator shall ensure every installation is equipped with protection systems and equipment that are designed, inspected, maintained, tested, and operated, to be capable of controlling and extinguishing fires on the installation, of operating effectively and of minimizing dangers and hazards to personnel (related to the use of the systems), and that include appropriate redundancies to ensure the system is operable in case of the failure of one of its components; including: a. automated fixed fire suppression systems with capability for manual activation outside the space being protected; b. fixed monitors and foam systems; and c. manual firefighting systems and equipment. (3) The design and selection of fire protection systems and equipment, including suppression agents is appropriate for its intended use based on the Fire, Explosion and Hazardous Gas Risk Assessment required in 6.6. (4) The operator shall ensure that the systems and equipment are protected to ensure they remain functional in all operating conditions. (5) The operator shall ensure that all accommodation areas and any enclosed space on an installation where there is a risk of fire are outfitted with a fixed fire suppression system. (6) The operator shall ensure that at least two dedicated and independently driven fire pumps will service a dedicated firewater ring main and each fire pump shall also be equipped with at least two independent starting arrangements. (7) Firewater pumps, piping and associated valves shall be designed and placed such that a sufficient supply of firewater is ensured to any area on the facility, including if a segment of the ring main firewater piping is damaged. (8) The firewater system must be able to run continuously for a minimum of 18 hours. (9) The number and position of the hydrants and/or fire hose reels shall be such that at least two jets of water, not emanating from the same location, may reach any part of the installation normally accessible. (10) Audible and visible alarms will be activated at the control center upon activation of any of the fixed fire suppression systems, or upon a loss of any firewater pressure. (11) For unstaffed installations, sections (5) to (9) do not apply.	**Rationale:** In reference to subsection 7.33(9) to accommodate areas on the facility beyond capabilities and use limitation of fire hydrants and hoses, such as top of derrick structures for which portable fire extinguishing equipment is generally installed. **Proposed Policy Text:** (9) The number and position of the hydrants and/or fire hose reels shall be such that at least two jets of water, not emanating from the same location, may reach any part of the installation normally accessible. For areas where the use of hydrants and hose reels is deemed impractical portable fire extinguishing equipment may be provided (i.e. derrick structures). **Rationale:** In reference to 7.33 (5), Industry is currently transitioning from the use of fixed systems in LQ due to high maintenance intensity. Instead the focus is on limiting use of combustible material, firezoning, highly sensitive detection systems, smoke control in corridors and manual intervention/response teams. Alternatives such as low flammable materials to limit fire risk, reasonable room segregations to contain small fires within the room/group of rooms, smoke detection systems and manual fire fighting by fire team should be considered. Accommodation fires are often slow developing and the smoke development can continue for a long time before heat detection device is activated. The introduction of this policy will be a challenge for existing installations including MODU's**.** **Clarification Request:** (5) Is this to be understood as a requirement to have a fixed fire suppression system installed in all accommodation areas, or is it required only if there is a credible fire risk in the areas?

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7.34 TEMPORARY AND PORTABLE EQUIPMENT (1) The operator shall ensure that any temporary or portable equipment used on an installation is suitable and fit for its intended use and in compliance with these regulations. (2) Before any temporary or portable equipment is installed or taken into service on an installation, a systematic assessment shall be carried out of the equipment and its integration to determine its impact on existing safety critical elements and the concept safety analysis. (3) The operator shall identify and implement procedures and arrangements necessary to manage temporary equipment to reduce risk to as low as reasonably practicable and without compromising target levels of safety. (4) Temporary or mobile equipment that is or affects a safety critical element shall be verified by the Certifying Authority, considering initial suitability, safe placement and hook-up, and continuing suitability (as necessary) [in the context of the Concept Safety Analysis and the Certificate of Fitness.]	**Rationale:** Section 7.34(1) suggests that temporary equipment must be compliant to the regulations. Historically, this has been impractical and difficult due to the myriad types of equipment being supplied by companies who trade internationally. Third Party drilling equipment is a good example. In that case, the CA conducts a review and provides a fit for purpose statement or inspection release note signifying fit for purpose. The policy text stated under Section 7.34(4) currently reflects how the offshore Boards have been approaching temporary equipment to date. **Proposed Policy Text:** CAPP propose the removal of the policy text in 7.34 (1) *"and in compliance with these regulations* *" The revised policy text:* (1) The operator shall ensure that any temporary or portable equipment used on an installation is suitable and fit for its intended use. **Proposed Policy Text:** For 7.34 (2) the reference to concept safety analysis should be replaced with Quantitative Risk Assessment (QRA) **Proposed Policy Text:** For 7.34 (4) the reference to concept safety analysis should be removed.

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7.36 EVACUATION AND ESCAPE (1) The operator shall ensure that every installation has adequate and effective facilities and best technology practicable for safe and controlled emergency response during accidental events, including: a. routes and other necessary equipment and devices which allow personnel to escape from the immediate effects of a hazardous event to a place of temporary refuge; b. provision of temporary refuge for the time required for incident assessment and controlled evacuation; c. arrangements to permit the rescue of injured personnel; and d. arrangements for safe evacuation of all personnel from the installation. (2) The operator shall ensure that safe, direct, protected and unobstructed exits, access, and escape routes are provided from all areas of the offshore installation, that are intended to be regularly occupied by personnel, to temporary refuge, muster areas and embarkation or evacuation points. (3) The operator shall ensure that all areas intended to be regularly occupied by personnel are provided with at least two exits and escape routes, separated as widely as practicable such that at least one exit and the connected escape route will be passable during an accidental event. (4) The operator shall ensure that primary escape routes are provided on both sides of the offshore installation. (5) The operator shall ensure that all escape routes from the accommodation areas and temporary safe refuge to the evacuation and embarkation stations, as well as those stations, are provided with fire protection for sufficient period of time, and suitably marked and illuminated, to allow for the safe evacuation of personnel, and in any case for a minimum of at least two hours. (6) Escape routes shall be of suitable size to enable efficient movement of the maximum number of personnel who may require using them, and for unrestricted manoeuvring of fire-fighting equipment and use of stretchers. (7) The operator shall ensure that every offshore installation is equipped with temporary safe refuge that, in an emergency response event, including an uncontrolled incident, will: a. protect personnel from fire, explosion, and associated hazards, including but not limited to gas and smoke, during the period of time for which they may need to remain on the installation; b. enable safe evacuation c. provide sufficient space, signage, lighting and arrangements to accommodate the maximum number of persons that could be located in the temporary safe refuge prior to evacuation; and	**Clarification Request:** In reference to subsection 7.36 (2) it can be interpreted as being required to provide enclosed or protected escape tunnels from all areas of a production facility and/or mobile offshore drilling unit. Is the requirement for protected escape from process or wellbay to TR to be understood as a prescriptive requirement (i.e. there is a need for escape tunnels)? **Rationale:** In reference to subsection 7.36 (5). The time limit must be related to a defined accidental event. It may be read such that installations exposed to blow-outs, riser fires or cargo tank fires must have protection against worst thinkable scenario lasting for 2 hours – which is practicably impossible. Additionally, the policy text can be interpreted to require passive fire protection to be installed to protect all escape routes mentioned in the sentence. **Proposed Policy Text:** (5) The operator shall ensure that all escape routes from the accommodation areas and temporary safe refuge to the evacuation and embarkation stations, as well as those stations, are protected against impact from fire for a sufficient period of time, and suitably marked and illuminated, to allow for the safe evacuation of personnel. **For section 7.36 (1) CAPP propose the following text:** The operator shall ensure that every installation has ~~adequate~~ most suitable and effective facilities and ~~best~~ technology practicable for safe and controlled emergency response during accidental events, including:…..

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d. provide sufficient facilities for communication, command, monitoring and control of any major incident until personnel have been evacuated or the situation has been brought under control. (8) In particular, the operator shall ensure every accommodation installation, temporary safe refuge, the main control centre, dependent personnel accommodations, and any area required to remain safe for human occupation in an emergency at every installation are a. designed to prevent ingress of hazardous or toxic substances, and b. located and designed to enable occupation for a sufficient period of time following onset of an emergency to implement emergency procedures and evacuate personnel. (9) The operator shall implement measures to validate the temporary safe refuge performance on a regularly defined basis (usually defined in safety plan).	
7.37 LIFESAVING EQUIPMENT FOR OFFSHORE INSTALLATIONS (1) The operator shall ensure every offshore installation is designed for and equipped with sufficient lifesaving equipment, survival craft and launching facilities to enable safe evacuation of all personnel, and that are: a. designed and installed based on reasonable expectations of the loads to be encountered during the life span of the operations; and b. include sufficient redundancy to ensure availability in any foreseeable emergency situation. (2) The operator shall ensure that copies of the plan showing the position of all lifesaving appliances are posted on every installation, including in the control center and in each accommodation area and work area. (3) The operator shall ensure that each installation should carry lifeboats installed in at least two widely separated locations on different sides or ends of the unit. (4) The arrangement of the lifeboats should provide sufficient capacity to accommodate the total number of persons on board if: a. all the lifeboats in any one location are lost or rendered unusable; or	**Rationale:** These provisions are prescriptive and due to this may not provide highest level of safety for <u>all</u> reasonably foreseeable emergency scenarios. For subsection 7.37 (3) and (4) the policy text prescribes lifeboats to be located in a 2x100% configuration which is widely separated. This prescription may cause that location of lifeboats is not optimal with respect to shielding against impacts from hazards in process/well head areas. For example, placing lifeboats on different sides of an installation, may eliminate the protection offered by locating them on the safe side of the accommodation block where the lifeboats are well protected by the accommodation block. For subsection 7.37 (4)(b) This section could be problematic in the context of vessel-based production installations as three of the four lifeboats on the FPSO are located at one end of the vessel (near accommodations). This would be a similar situation for any vessel type installation as lifeboats are typically located near accommodations since the accommodations are likely to be the main muster location and act as the temporary safe refuge. The need for duplication and physical segregation of the systems should be based on an understanding of the

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b. all the lifeboats on any one side, any one end, or any one corner of the unit are lost or rendered unusable. (5) In addition, each installation should carry liferafts suitable for the operating height from which they will be deployed, of such aggregate capacity as will accommodate the total number of persons on board. (6) The operator shall ensure that lifeboats meet the requirements for Class I lifeboats as set out in Schedule V.1 and are equipped with Class A equipment as described in Schedule II to the *Life Saving Equipment Regulations*, as if the installation were a Class I ship to which those Regulations apply. (7) The operator shall ensure that liferafts meet the requirements set out in Schedule XIII and are equipped with Class A equipment as described in Schedule I to the *Life Saving Equipment Regulations*, as if the liferafts and lifeboats were in waters and on vessels to which those Regulations apply. (8) The operator shall ensure that the launching devices for the lifeboats and liferafts meet the requirements for launching devices set out in Schedule IX to the *Life Saving Equipment Regulations*, as if the launching devices were located in waters to which those Regulations apply. (9) The operator shall ensure that evacuation systems and equipment sizing and capacity is suitable for the demographics of the workforce in the operating region. (10) The operator shall implement measures to demonstrate functionality and performance of all evacuation systems and equipment on a regularly defined basis (usually defined in safety plan). (11) The operator shall ensure that emergency locator equipment are installed as required by the *Life Saving Equipment Regulations* and *Ship Station Radio Regulations*.	hazards and the layout of the installation. If required to manage evacuation during special scenarios, like capsizing or 'split platform', it may be necessary to have multiple stations and duplication (Note requirements in 7.36). Redundancy should however always be required to accommodate maintenance situations, equipment failure or incorrect operation during an emergency. For 7.37 (4) The section as writ ton will be problematic for implementation of lifeboat arrangements and locations depending on the agreed definition of "one side, one location, any one end, or any one corner of the unit." For example, Hibernia has capacity for 6x70 (420) POB at the SLBS, but only 2x70 (140) POB at the NLBS with a normal POB of 280 - If the SLBS was lost/unusable, the facility is not in compliance. In fact, no offshore facility on the East Coast would meet the strict language of this section. While Hibernia **and others have** more than 200% POB LB capacity per current regulation and do provide back-up at the opposite side/end of facilities for POB that cannot reach TSRs in an emergency, they do not comply with this clause as currently written. **Proposed Policy Text** CAPP propose the following text for Section 7.37: **For subsection 7.37 (1) (b)** "include sufficient redundancy; or, are designed and protected to ensure availability in any reasonably foreseeable emergency situation or damage condition". **For subsection 7.37 (3):** The operator shall ensure that each installation arrange for lifeboats in at least two separate locations; and, ensure that those locations, based on hazard analysis, provide the optimal redundancy for evacuation from the installation for all reasonably foreseeable emergency scenarios. **For subsection 7.37 (4):** The arrangement of the lifeboats should provide sufficient redundant capacity to accommodate the total number of persons on board if any, or all of the lifeboats in any one location are lost or rendered unusable. CAPP proposes the removal of the policy text under subsection 4 (b).

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PART 8 – GEOSCIENCE, GEOTECHNICAL AND ENVIRONMENTAL OPERATIONS	
8.1 GEOSCIENCE, GEOTECHNICAL AND ENVIRONMENTAL OPERATIONS (1) An operator conducting a geoscience, geotechnical or environmental operation shall ensure: a. all equipment and materials that are used during the operation are handled, operated, inspected, tested and maintained to ensure safety and environmental protection, taking into consideration the manufacturer's instructions and any safety standards available; b. all equipment is regularly inspected and any defective components are promptly repaired or replaced with components that comply with the manufacturer's instructions; c. the installation, operation and maintenance is performed by qualified and competent personnel; d. all energy sources are: i. kept free from any substance that could create a hazard; ii. operated in a manner that prevents accidental activation of the energy source; e. in the case of an electrical or electromagnetic energy source, the energy source is equipped with circuit breakers on the charging and discharging circuits, and cables that are adequately insulated and grounded to prevent current leakage and electrical shock; f. where a seismic or electrical energy source is used, all such operations must be completed in a manner that eliminates all potential safety risks to divers and that minimum distances required to ensure safety of divers have been identified and followed; and g. for onshore operations, (Note: Onshore COGOA only) i. work conducted close to a survey monument does not cause damage or displacement; ii. particular care is taken to protect the environment when in proximity to lakes, streams or rivers; iii. where an electrical energy source is used, all electrodes on the land surface are clearly flagged or cordoned off to prevent unauthorized access; iv. charges are loaded into a shot-hole and detonated using safe equipment, tools and procedures; v. shot holes loaded with explosives are properly flagged;	For 8.1 (f) CAPP recommend the use of the term "mitigate" all potential safety risk as there as there are various ways of minimizing risk of which elimination is one form..

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vi. shot hole drilling procedures address the possibility of encountering flowing water and shallow gas and, if encountered, remedial action is taken without delay to minimize danger and potential damage to near-surface aquifers and the land surface; vii. all persons are protected from the possibility of contact between electrical cord and overhead power lines; viii. seismic energy sources or equipment do not cause detonation of another shot hole, damage or cratering; ix. no attempt is made to remove a charge from a shot hole; x. if a charge fails to detonate, actions are taken to prevent future access to the charge; and xi. shot holes are plugged and other surface disturbances are remediated following conduct of a geophysical operation.	
8.3 TESTING OF ENERGY SOURCES (1) The operator shall minimize energy source testing on the deck of a vessel or installation. (2) Where an energy source is activated for testing purposes during a geoscience, geotechnical or environmental operation, the operator shall ensure that a. the person in charge of a vessel, platform or aircraft, or at the operations site, is advised that the test is being carried out; b. all persons aboard the vessel, platform or aircraft, or at the operations site, are adequately alerted and measures put in place to isolate them from exposure to any hazard; c. all equipment is properly secured; and d. the testing is carried out in a manner that does not create a hazard. (3) The operator shall ensure that every operator conducting an offshore geoscience, geotechnical or environmental operation from a vessel or platform that any electrical or electro-magnetic energy source are fully immersed in water when tested. (4) The operator shall ensure that all primary vessels involved in a geoscience, geotechnical or environmental operation are classed by a Classification Society.	**Rationale:** In reference to 8.3 (4), fishing vessels are rarely classed and therefore this would prohibit their use for the fishing component of EEM programs. Use of fishing vessel for the fishing component of EEM programs has been the practice for 20 years and is an important part of the relationship that Operators have with the fishers. There continues to be an issue with the definition of “environmental program” or “environmental operation” in the policy intention with respect to EEM programs. **Proposed Policy Intent** (4) The operator shall ensure that all primary vessels involved in a geoscience, geotechnical or environmental operation are: a) classed by a Classification Society; or, b) posses the regulatory licences or permits necessary for the intended scope of work as mandated by Transport Canada. **For 8.3 (2) (b)** CAPP suggest the following wording change as hazards may be present in any area onboard, but the intent of this should be the energy source. b. all persons aboard the vessel, platform or aircraft, or at the operations site, are adequately alerted and measures put in place to isolate them from exposure to hazards associated with the energy source;

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	General Comment: Recommend moving 8.3 (1) to Section8.1 as it does not fit under heading of "8.3 Testing of Energy Sources" - Recommend moving this to 8.1. For 8.3 (2) Classification Society as defined within this document does not contain any language pertaining to vessels, only offshore installations, CAPP recommend revising definition to include vessels.
8.4 VESSEL CLASSIFICATION AND HELICOPTER DECK If the geoscience, geotechnical or environmental program is proposing to transfer personal with helicopters, the helicopter deck should meet the requirements of CAP 437 for helicopter deck.	**Rationale:** 8.4 The mandatory application of CAP 437 may preclude use of some vessels if helidecks are built to other standards **Proposed Policy Text:** If the geoscience, geotechnical or environmental program is proposing to transfer personal with helicopters, the helicopter deck should meet the requirements: a) outlined in CAP 437 for helicopter deck; or, b) complies with the classification requirements outlined by the vessels Classification Society.
8.5 MARINE WARRANTEE SURVEYOR The operator shall ensure that a Marine Warranty Surveyor has assessed and certified all seismic equipment packages that are installed temporarily on a vessel to conduct a seismic program.	**General Comment:** It is unclear why a marine warranty surveyor is required for this activity. A MWS is typically used to assist with large development and construction projects, which is not consistent with the work scope of Geoscience, Geotechnical or Environmental projects. Recommend requiring Offshore Vessel Inspection Database (OVID) inspectors for this inspection, which is widely used by the geophysical industry. OVID was developed by the Oil Companies International Marine Forum (OCIMF), and is used by the International Association of Oil and Gas Producers (IOGP) and International Association of Geophysical Contractors (IAGC) to conduct vessel safety inspections world-wide. OVID is widely used by the seismic industry, and utilizes a web based inspection tool and database of inspection reports conducted by professional, trained and accredited inspectors.

PROPOSED POLICY INTENTIONS FOR PHASE 3 OF THE FRAMEWORK REGULATIONS	CAPP Consolidated Comments
8.6 EVACUATION SYSTEMS The operator shall ensure that evacuation systems and equipment sizing and capacity on all vessels is suitable for the demographics of the workforce in the operating region.	
8.7 TRAINING REQUIREMENTS Note: Policy Intentions not finalized. To be presented with the final draft regulations prior to CG 1.	**General Comment:** CAPP request an opportunity to review this policy text prior to publication in Canada Gazette 1.
PART 9 – SUPPORT OPERATIONS	

PROPOSED POLICY INTENTIONS FOR PHASE 3 OF THE FRAMEWORK REGULATIONS	CAPP Consolidated Comments
9.1 SUPPORT CRAFT AND SAFETY ZONE (1) The operator shall ensure that all support craft are designed, constructed, operated and maintained to provide the necessary support functions and operate safely in the foreseeable physical environmental conditions prevailing in the area in which they operate. (2) The operator of an installation on which persons are normally present shall ensure that at least one support craft is a. available at a distance that is not greater than that required for a return time of twenty minutes; b. available in the immediate vicinity [close proximity] of the installation and fully ready [prepared to conduct] to undertake rescue and recovery operations, whenever a helicopter is landing or taking off, or personnel are working over the side, or otherwise exposed to the risk of falling in the water, and c. suitably equipped to supply the necessary emergency services including rescue and first aid treatment for all personnel on the installation in the event of an emergency. (3) The operator shall ensure that, for any vessels undertaking diving, construction, or geoscience, geotechnical or environmental operations, a fast rescue craft is available and ready for deployment in the event of an emergency. (4) If the support craft exceeds the distance referred to in paragraph 9.2(1)(a), both the installation manager and the person in charge of the support craft shall log this fact and the reason why the distance or time was exceeded. (5) Under the direction of the installation manager, the support craft crew shall keep the craft in close proximity to the installation, maintain open communication channels with the installation and be prepared to conduct rescue operations during any activity or condition that presents an increased level of risk to safety.	**Clarification Request:** Not all diving or construction vessels would be equipped with a FRC, but instead would have a crew overboard boat. CAPP request clarification that a FRC within the operating field on a standby vessel would satisfy this requirement. (4) If the support craft exceeds the distance referred to in paragraph 9.2(1)(a), (typo, should read 9.2(2)(a) both the installation manager and the person in charge of the support craft shall log this fact and the reason why the distance or time was exceeded. Section 9.2 is missing. **General Comment:** For 9.1(3) Many vessels that undertake support to our Industry are fitted with FRC's however vessels of opportunity that may support "environmental operations" example: fish sampling may not be so fitted. Consider restating the policy text to require a rescue craft or work boat.

PROPOSED POLICY INTENTIONS FOR PHASE 3 OF THE FRAMEWORK REGULATIONS	CAPP Consolidated Comments
ANNEX 1 – WELL CONTAINMENT AND CONTROL (1) The operator must demonstrate in the Contingency Plan, and throughout the authorization period, as promptly as possible, and deploy as soon as the circumstances permit, measures to stop the flow from an uncontrolled well and to minimize spill duration and environmental effects, and must demonstrate the adequacy of those measures. (2) The operator must have access to and the ability to promptly deploy the Source Control and Containment Equipment. (3) The operator must submit a description of the source control and containment capabilities when submitting the Contingency Plan. The description must include: a. the type of subsea containment and capture equipment to be utilized in the event of a loss of well control; b. the identification of suitable relief well rig arrangement; c. details of the ownership of, and confirmation of any contractual arrangements for, the subsea containment and capture equipment and relief well rig, the arrangements for transport to, and mode of deployment at, the incident location; d. the schedule and plan for the mobilization, deployment and operation of such equipment, including mitigation measures and actions to minimize deployment time and taking into consideration required regulatory approvals; and e. the required support systems and equipment, such as vessels and remotely operated vehicles and necessary consumables (e.g. spare wellhead and casings and access to bulk additives required for a relief well). NOTE: This policy intent will be integrated in the appropriate sections of the regulations.	**General Comment:** In reference to Annex 1 (1), CAPP recommends the inclusion of a definition for “Contingency Plan”? For Annex 1 (2), Containment systems are different from source control equipment. The two are often used in the singular. It’s believed that the intent here is for the capping stack (i.e. source control equipment). Containment equipment is a large amount of subsea infrastructure that redirects the flow to a tanker. Each process should be defined and discussed separately. For Annex (3) (c) requiring details of the ownership of, and confirmation of any contractual arrangements for, the subsea containment and capture equipment and relief well rig, CAPP recommend that this requirement should be replaced to demonstration of regular market evaluation of suitable relief well rigs availability and the arrangements for transport to, and mode of deployment at, the incident location;
ANNEX 2 – DEFINITIONS	
“(well) barrier envelope” means envelope of one or several well barrier elements preventing fluids from flowing unintentionally from the formation into the wellbore, into another formation or to the external environment	D&P Guidelines - means any fluid, plug or seal that prevents petroleum or any other fluid from flowing unintentionally from a well or from a formation into another formation.
"drill site" means a location where a drilling rig is or is proposed to be installed	

PROPOSED POLICY INTENTIONS FOR PHASE 3 OF THE FRAMEWORK REGULATIONS	CAPP Consolidated Comments
"human factors" means the scientific discipline concerned with the application of validated scientific research about people, their abilities, characteristics and limitations to the design of systems they use, environments in which they function and interact, and jobs they perform to optimize human well-being and overall system performance	Suggest alternate definition of Human Factors: Human Factors is the term used to describe the interaction of individuals with each other, with facilities and equipment, and with management systems. This interaction is influenced by both the working environment and the culture of the people involved.