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**EXPLOSION, FIRE, SINKING AND LOSS OF ELEVEN CREW MEMBERS ABOARD  
THE MOBILE OFFSHORE DRILLING UNIT DEEPWATER HORIZON IN THE GULF  
OF MEXICO, APRIL 20-22, 2010**

**ACTION BY THE COMMANDANT**

On April 20, 2010, in the Gulf of Mexico, an explosion occurred on the MODU *DEEPWATER HORIZON* during temporary abandonment operations when hydrocarbons entered the well, travelled up the riser and ignited. None of the well control efforts stopped the flow of hydrocarbons; explosions occurred and fires raged on the rig as the *DEEPWATER HORIZON* crew and visiting BP and Transocean executives evacuated. Of the 126 people aboard, 115 people evacuated safely. However, eleven men died and sixteen were injured. The *DEEPWATER HORIZON* continued to burn and later sank on April 22, 2010. The Macondo well spilled millions of barrels of oil into the Gulf of Mexico for 87 days while a response effort by BP and numerous federal agencies worked to cap the well, remove the discharged oil and mitigate its impact to the environment.

The tragic loss of life has weighed heavily on me, and my deepest sympathies continue to go out to the families and friends of those who gave their lives in the course of their duties. I also reflect on the enormous impact of this spill on the environment of the Gulf coast and the lives of the people who base their livelihood and recreation on the waters of the Gulf of Mexico. The actions I am directing, as a result of this investigation, reflect my commitment to all of those impacted by this historic event and underscore my commitment to the stewardship of our maritime environment.

The actions of the master and crew of the *DAMON B. BANKSTON* during the response to the *DEEPWATER HORIZON* casualty are especially noteworthy. Their heroic actions in the recovery and compassionate treatment of the 115 surviving members of *DEEPWATER HORIZON* were exemplary.

I have conducted a thorough review of the record and Volume I of the report of the Joint Department of the Interior and Department of Homeland Security Investigation (JIT). In addition, I have consulted with the Department of Homeland Security in accordance with the convening order, and this memo constitutes final agency action by the Coast Guard for the Coast Guard portion of the investigation. The record and Volume I of the report, including the facts, analysis, conclusions, and recommendations are approved subject to the following comments.

**COMMENTS ON THE REPORT**

1. *Adequacy of International and Domestic Safety Regime.* The *DEEPWATER HORIZON* casualty was a catastrophic event that was initiated by a failure of well containment, an area that

falls under the authority and jurisdiction of the Bureau for Ocean Energy Management, Regulation and Enforcement (BOEMRE) and is addressed in Volume 2 of the JIT report.

Volume 1 of the investigation reveals that, in general, the Coast Guard regulated safety systems aboard the MODU had a beneficial effect, despite the extreme nature of the event. Of the 126 persons on board, 115 survived the explosions and subsequent fire. All survivors were able to evacuate the MODU using the installed lifesaving equipment, except for at least six who, on their own initiative, jumped from the rig into the water. Even though significantly damaged by the explosions and initial effects of the fire, the *DEEPWATER HORIZON* was able to stay afloat for more than 48 hours while engulfed in a major fire, fed by an uncontrolled fuel source.

After careful review and thoughtful reflection on the recommendations of the JIT, I have determined that the Coast Guard can take additional action to protect the sea and those who work on it. I very much appreciate the importance of working with our international partners to advance maritime safety, especially at the International Maritime Organization (IMO). Many of the JIT's recommendations relate to work in the international arena at IMO. While I do not discount that dimension of our efforts as an international maritime agency, we can and should take action at the coastal state level to increase safety. These actions are through strong regulatory measures, enforcement efforts, as well as education and outreach to our maritime stakeholders.

While the Coast Guard regulated safety systems generally performed well under such extreme conditions, I have reviewed their performance and identified lessons learned from this tragic incident. I am directing measures to implement these lessons on MODUs operating on the U.S. outer continental shelf (OCS). The JIT report recommends numerous enhancements to MODU safety standards, primarily by amendment of the IMO MODU Code, however the most timely and appropriate method to enhance MODU safety standards on the U.S. OCS is by revision to applicable domestic regulations. As a coastal state, it is important to review and update our domestic regulations to ensure a consistent regime for operations on the continental shelf.

There are three regulatory regimes that apply to MODUs operating on the continental shelf. There are coastal state requirements, flag state requirements and international requirements established through the IMO. The Coast Guard regulates foreign flagged MODUs operating on the U.S. OCS under a coastal state regime. Coast Guard regulations offer a number of compliance options, including the option to comply with all standards applicable to U.S. domestic vessels, or standards developed by IMO and published as the MODU Code. Although the IMO MODU Code is a non-mandatory instrument, the U.S. currently accepts compliance with it as an equivalent to our regulations so long as the vessel complies with several additional specific requirements for operating on the U.S. OCS. Those additional requirements are implemented through our role as a coastal state, and are conditions that a foreign flagged MODU must comply with for the privilege of operating on the U.S. OCS. This regime is used by the vast majority of foreign flag MODUs, and was used by the *DEEPWATER HORIZON*.

The Coast Guard is a member, and, in fact, leads the relevant U.S. delegations to IMO. The Coast Guard can introduce revisions to the IMO MODU Code for the consideration of that body, but cannot unilaterally change the MODU Code. As a coastal state, we are obligated to ensure

the safety and environmental protection standards we apply to all MODUs operating on the U.S. OCS meet our national requirements, some of which may exceed those contained in the MODU Code. It is not necessary to amend the MODU Code in order to revise the standards applied to foreign flag MODUs operating on the U.S. OCS, I will not wait to do so, where appropriate.

However, as a leader in the international community and strong advocate of maritime safety and pollution prevention, I am directing that the Coast Guard continue to exercise our responsibilities within the international community. If in the course of evaluating our national standards we identify positive changes to the IMO MODU Code, where appropriate we will continue to work through IMO to make the necessary changes. I know full well the advantages of having a single international standard that is broadly accepted by all countries.

*2. Adequacy of the Republic of the Marshall Island's Oversight of Recognized Organizations.*

In general, the use and oversight of recognized organizations by a Flag Administration is based on the IMO's "*Guidelines for the Authorization of Organizations Acting on Behalf of the Administration*," Assembly Resolution A.739(18), which was originally adopted in November 1993 and provides minimum standards for the use and oversight of recognized organizations acting on behalf of a flag Administration. The JIT report concludes that the Republic of the Marshall Islands (RMI) failed to ensure that the *DEEPWATER HORIZON* was in compliance with all applicable requirements. Specifically, the report concludes that RMI entrusted all flag state duties to recognized organizations, specifically the classification societies American Bureau of Shipping (ABS) and Det Norske Veritas (DNV), without sufficient oversight to detect mistakes. It bases these conclusions on apparent deficiencies that were present on board the *DEEPWATER HORIZON*, and that at least some of these deficiencies may have been factors in this incident. However, the JIT report does not identify specific instances where RMI failed to meet the international guidelines established in Assembly Resolution A.739(18). As such, while there may be weaknesses in RMI's use of recognized organizations, I do not believe they are due to a failure of RMI to meet its obligations as a Flag Administration as prescribed by current international conventions and guidelines. Instead, there may be underlying inadequacies with the guidelines that RMI was following.

*3. Adequacy of the Recognized Organizations* The JIT report concludes that the activities of ABS and DNV, as recognized organizations acting on behalf of RMI, were inadequate based on their apparent failure to identify and report deficiencies that may have been present on board the *DEEPWATER HORIZON*. At least some of these deficiencies may have been factors in this incident. However, the JIT report fails to identify any instance where either of the recognized organizations failed to meet the international guidelines. I believe, as with RMI, that the real factor may be inadequacies with the guidelines being used to govern the activities of recognized organizations acting on the behalf of Flag Administrations. Work is currently underway at the IMO where, through its Flag State Implementation Subcommittee, a new Code for Recognized Organizations is being developed. I anticipate that the new Code will be ready for adoption in 2012. This mandatory Code will include more specific and detailed requirements and guidelines for Recognized Organizations covering their management and organization, resources, certification processes, performance measurement, analysis and improvement, and quality management system certification. I am directing the U.S. delegation at IMO working on the Code to ensure that the results of this investigation are considered in IMO's development of the

Code. The Code will also include a section for flag state monitoring of Recognized Organizations.

4. *Response to Man Overboard.* The JIT report concludes that the crew of the *DEEPWATER HORIZON* did not execute the duties and responsibilities for a man overboard situation as required by its Station Bill. For example, the *DEEPWATER HORIZON* ship's whistle was not sounded and no instructions/orders were provided to post observers to monitor the persons in the water. Had a regulatory or Code requirement to perform man overboard drills been established, the MODU's crew may have been better prepared to respond to a man overboard.

The persons in the water (i.e. those that were "overboard") were those that had intentionally jumped from the MODU into the water in the process of abandoning it. The rest of the crew on the MODU were also in the process of evacuating, as they correctly determined that they would not be able to fight or control the fire. The source of fuel had not been shut off and their fire-fighting system was inoperable due to the lack of power. As such, I do not expect the crew of the MODU to halt their abandonment in order to sound the ship's whistle or post observers as they would do during a typical man overboard situation, especially when contact and arrangements had already been made with the *DAMON B. BANKSTON* for assistance.

#### **CONSIDERATION OF INPUT RECEIVED FROM PARTIES IN INTEREST**

The JIT investigation between the Coast Guard and the BOEMRE used procedures from both agencies to conduct the investigation and complete the report, including the procedures for a Marine Board of Investigation where appropriate. Because of the unique challenges in blending equities in a joint interagency investigation, the Coast Guard, in an effort to maintain transparency as well as ensure the Parties In Interest's (PIIs) rights were balanced by the agencies, implemented measures unique to this investigation that allowed PIIs to provide greater input than traditionally required in a Marine Board of Investigation. The Coast Guard members of the JIT published Volume I, including findings, analysis, conclusions, and safety recommendations, prior to completion of this Final Agency Action. PIIs were invited to submit comments on Volume I of the JIT report for my consideration. The results of my review and consideration of those comments regarding the findings of fact, analysis and conclusions is attached as an enclosure. Although comments were received and considered regarding the JIT report's recommendations, final disposition of the recommendations remains the purview of the Coast Guard under my direction herein.

#### **ACTION ON RECOMMENDATIONS**

The Coast Guard JIT members have submitted a number of recommendations for my consideration within Volume I of the report. I carefully reviewed the recommendations and hereby direct my staff to diligently and expeditiously implement the approved recommendations and keep me updated on their progress. My final action for all recommendations follows.

Recommendation 1A: It is recommended that Commandant work with the IMO to amend the MODU Code to include clear requirements for the long term labeling and control of all electrical equipment in hazardous areas. In addition, requirements should be established for the continued

inspection, repair and maintenance of electrical equipment in hazardous areas in the unit's safety management system.

Action: I concur with the intent of this recommendation. I agree that preventing ignition of flammable vapors under non-blowout conditions is important. I will evaluate the need to increase oversight to ensure MODUs operating on the U.S. Outer Continental Shelf comply with the International Electrotechnical Commission (IEC) standards referenced by the MODU code, and require independent, third party certification to these standards. However, the 2009 MODU Code regulation 6.6 refers to relevant IEC standards for clear labeling, identification, inspection, operation and maintenance of electrical equipment in hazardous areas. Safety management systems on MODUs are required to include compliance with regulatory requirements. The magnitude of the release experienced on the *DEEPWATER HORIZON* resulted in a large flammable gas cloud that formed well beyond the existing classified hazardous areas. Consequently, ignition of the resulting explosive atmosphere was likely not avoidable.

Recommendation 1B: It is recommended that Commandant work with the IMO to amend the MODU Code to provide more detailed guidance for the design and arrangement of fixed automatic gas detection and alarm systems as specified in paragraph 9.8 of the MODU Code (paragraph 9.11). The guidelines should include as a minimum, the recommended type and number of gas detectors, their arrangement, alarm set points, response times, wiring protocols and survivability requirements.

Action: I do not concur with this recommendation. The investigation does not conclude the gas detection system design was inadequate or did not function properly. Instead, its description of the incident and actions of those on board portrayed crew members who were not provided with training or procedures necessary to ensure they responded properly. As such, in lieu of the recommended action we will evaluate our inspection and examination policy and procedures to ensure they are sufficient to confirm adequate crew training and proper system function.

Recommendation 1C: It is recommended that Commandant work with the IMO to amend the MODU Code to provide more detailed guidance for establishing fire and explosion strategies on board units using dynamic positioning systems for station keeping. The guidelines should provide a hierarchy of recommended automatic and manual emergency shutdown actions following gas detection in vital areas. The guidelines should also provide accepted approaches for the design and arrangement of the emergency power source necessary for station keeping in the event of a flammable gas release.

Action: I concur with the intent of this recommendation. Upon detection of an explosive or hazardous condition, automatic initiation of Emergency Shutdown (ESD) systems is normally preferred. However, as discussed by section 6.5.2 of the 2009 MODU Code, special consideration should be given to a dynamically positioned MODU engaged in drilling because manual activation of shutdowns may be the most effective method of ensuring the appropriate response and protecting the people and environment. In lieu of the recommended action we will evaluate the need to confirm adequate crew training, procedures and proper system function for manual shutdowns during inspections and examinations.

**Recommendation 1D:** It is recommended that Commandant work with the IMO to amend the MODU Code to require specific minimum values for explosion design loads to be used in calculating the required blast resistance of structures. In addition, unified guidelines for performing the required blast resistance calculations should be developed.

**Action:** I concur with the intent of this recommendation. I will evaluate the need for fire and explosion risk analyses to ensure an adequate level of protection is provided for accommodation spaces, escape paths, embarkation stations, and structures housing vital safety equipment on MODUs operating on the U.S. OCS.

**Recommendation 1E:** It is recommended that Commandant work with the IMO to amend the MODU Code to require an explosion risk analysis of the design and layout of each facility. The analysis should use accidental blast loads defined by the Organization, to determine whether the levels of protection for accommodation areas, escape paths and embarkation stations provided by the prescriptive requirements in the Code are adequate.

**Action:** I concur with the intent of this recommendation. I will evaluate the need for fire and explosion risk analyses to ensure an adequate level of protection is provided for accommodation spaces, escape paths, embarkation stations, and structures housing vital safety equipment on MODUs operating on the U.S. OCS.

**Recommendation 1F:** It is recommended that Commandant work with the IMO to amend the MODU Code to require ventilation inlets for machinery spaces containing primary and emergency sources of power to be located as far as practicable from hazardous locations.

**Action:** I concur with the intent of this recommendation. The report of investigation indicates flammable gas may have entered a machinery space via the vent intakes located outside the classified hazardous areas, causing a secondary explosion that resulted in the entire MODU losing primary and emergency power. The magnitude of the release experienced on the *DEEPWATER HORIZON* resulted in a large flammable gas cloud that formed well beyond the existing classified hazardous areas. Consequently, it is unlikely that any additional distance between the inlets and hazardous areas would have prevented a secondary explosion. Existing sections 6.4 and 9.3 of the 2009 IMO MODU Code already contain several provisions to minimize the risk of explosive or hazardous gases entering machinery spaces via the ventilation inlets. I believe these provisions are sufficient and will confirm actions are taken to ensure compliance with them on MODUs operating on the U.S. OCS.

**Recommendation 1G:** It is recommended that Commandant prepare and submit a “lessons learned” information paper to the IMO strongly recommending that existing facilities reevaluate the placement of supply air intakes for main and emergency power sources, coordinated with the fire and gas detection system logic. The paper should recommend that training, policies and procedures are implemented to shut down ventilation systems and close dampers in the event flammable gas is detected in critical locations.

**Action:** I do not concur with this recommendation. As noted in my action for recommendation 1F, the magnitude of the release experienced on the *DEEPWATER HORIZON* resulted in a large

flammable gas cloud that formed well beyond the existing classified hazardous areas. Consequently, it is unlikely that any additional distance between the inlets and hazardous areas would have prevented a secondary explosion. Sections 6.4 and 9.3 of the 2009 IMO MODU Code contain several provisions to minimize the risk of explosive or hazardous gases entering machinery spaces via the ventilation inlets. However, I may take other lessons learned to the IMO after full consideration of the recommendations in this report.

Recommendation 1H: It is recommended that Commandant pursue the regulatory changes for dynamic positioned vessels recommended in Appendix I, including clear designation of the person in charge under both operating and emergency conditions for all MODUs operating on the U.S. OCS.

Action: I concur with this recommendation. I will include the issues addressed in the Commandant's Office of Maritime & International Law's memorandum dated February 11, 2011, regarding vessels employing dynamic positioning systems in a rulemaking project to amend 33 CFR Subchapter N. Among the issues to be addressed are new and/or amended definitions associated with Dynamic Positioning (DP) systems and requirements associated with the manning and operation of MODUs using DP systems.

Recommendation 1I: It is recommended that Commandant work with the IMO to evaluate the need to create a requirement for flag states to audit classification societies acting on their behalf as a recognized organization.

Action: I concur with the intent of this recommendation. I am currently working with the IMO through its Flag State Implementation Sub-Committee on a Code for Recognized Organizations. It is anticipated that the new Code will be ready for adoption in 2012, will be mandatory, and will include requirements and guidelines for flag state monitoring of recognized organizations acting on their behalf.

Recommendation 1J: It is recommended that Commandant evaluate the need to establish unannounced regulatory inspections.

Action: I concur with the intent of this recommendation. I agree that an evaluation of the need for unannounced regulatory inspections should be conducted. However, I also believe that such an evaluation needs to be coordinated with BOEMRE, and needs to be part of an overarching evaluation that addresses challenges in the implementation of such a program, identification of gaps in available versus necessary resources, and consideration of the cost versus benefits of implementation. It must also account for our recently implemented procedures for risk-based targeting of foreign flagged MODUs described in our action for recommendation 5A.

Recommendation 1K: It is recommended that Commandant work with Recognized Organizations to evaluate the need to create a complete stand-alone regulatory check list that does not rely on the result of other surveys to ensure a 100% regulatory check of the MODU.

Action: I do not concur with this recommendation. Some Recognized Organizations do use stand-alone survey forms for certain statutory surveys; however, I do not believe the findings in

this report support the need for this recommendation. As such, I see no benefit, nor need in dictating the use of specific survey forms or checklists, so long as a Recognized Organization demonstrates that their statutory surveys are complete and in accordance with the appropriate international conventions and laws/regulations of the Administrations they act on behalf of.

Recommendation 1L: It is recommended that Commandant evaluate the need for improving inspection guidance documents and case work entry standards to ensure the proper documentation of Certificate of Compliance examinations.

Action: I concur with this recommendation. As a first step, I have published CG-543 Policy Letter 11-06, "*Risk-Based Targeting of Foreign Flagged Mobile Offshore Drilling Units (MODUs)*", which provides procedures for risk-based targeting of foreign flagged MODUs operating on the U.S. OCS. It considers management, flag, recognized organization, vessel history, and MODU particulars to prioritize and coordinate the examination of MODUs currently operating on the U.S. OCS, as well as each subsequent MODU that enters a Coast Guard Officer in Charge, Marine Inspection's (OCMI), area of responsibility. In addition, it includes policy and guidance for documentation of examination activities using standard forms, and the Coast Guard's Marine Information for Safety and Law Enforcement (MISLE) data system in order to improve the consistency and accuracy of all examination records. I will continue with a comprehensive review of the remaining guidance provided on documentation of all Coast Guard conducted marine inspections including Certificate of Compliance examinations for MODUs.

Recommendation 2A: It is recommended that Commandant work with the IMO to amend the MODU Code to require that fire pump systems should be self contained and depend on no other onboard systems. This should include dedicated fuel supplies for at least 18 hours of operation.

Action: I do not concur with this recommendation. The existing requirements in 46 CFR §108.415 and § 108.421 and Section 9.7 of the 2009 MODU Code provide redundancy by requiring at least two independently driven fire pumps located in different spaces such that both cannot be rendered inoperable by a fire in a single space. I believe these existing requirements are adequate.

Recommendation 2B: It is recommended that Commandant work with the IMO to amend the MODU Code to require H-60 fire separations between the drilling area and adjacent accommodation spaces as well as any spaces housing vital safety equipment.

Action: I concur with the intent of this recommendation. I will evaluate the need for fire and explosion risk analyses for inclusion in Coast Guard regulations to ensure an adequate level of protection is provided for accommodation spaces, escape paths, embarkation stations, and structures housing vital safety equipment on MODUs operating on the U.S. OCS.

Recommendation 2C: It is recommended that Commandant work with the IMO to amend the MODU Code to develop uniform guidelines that can be used as a basis for performing engineering evaluations to ensure that the level of fire protection of the bulkheads and decks separating hazardous areas from adjacent structures and escape routes is adequate for likely drill floor fire scenarios.



Action: I concur with the intent of this recommendation. I will evaluate the need for fire and explosion risk analyses to ensure an adequate level of protection is provided for accommodation spaces, escape paths, embarkation stations, and structures housing vital safety equipment on MODUs operating on the U.S. OCS.

Recommendation 2D: It is recommended that Commandant work with the IMO to amend the MODU Code to require a fixed deluge system or multiple high capacity water monitors for the protection of the drill floor and adjacent areas. Consideration should be given to requiring automatic operation upon gas detection.

Action: I concur with the intent of this recommendation. Fixed deluge systems or multiple high capacity water monitors would provide additional protection in the vicinity of the drill floor. Early employment of a deluge or monitor spray system during a drilling mishap could serve to prevent or delay ignition of an uncontrolled release of product and/or mitigate the effects of ignition. I will evaluate the need to develop suitable requirements for all MODUs operating on the U.S. OCS.

Recommendation 2E: It is recommended that Commandant work with the IMO to amend the MODU Code to require a fire risk analysis to supplement the prescriptive requirements in the MODU Code. The risk analysis should be a performance-based engineering evaluation that utilizes defined heat flux loads to calculate the necessary levels of protection for structures, equipment and vital systems that could be affected by fires on the drill floor, considering the unique design, arrangement and operation of each MODU.

Action: I concur with the intent of this recommendation. I will evaluate the need for fire and explosion risk analyses to ensure an adequate level of protection is provided for accommodation spaces, escape paths, embarkation stations, and structures housing vital safety equipment on MODUs operating on the U.S. OCS.

Recommendation 3A: It is recommended that Commandant work with the IMO to amend the IMO MODU Code to establish performance standards concerning the maximum allowable radiant heat exposure for personnel at the muster stations and lifesaving appliance lowering stations, along with guidelines for calculating the expected radiant heat exposure for drill floor fire events for each MODU hull type.

Action: I concur with the intent of this recommendation. I will include this issue in my evaluation of the need for fire and explosion risk analyses to ensure an adequate level of protection is provided for accommodation spaces, escape paths, embarkation stations, and structures housing vital safety equipment on MODUs operating on the U.S. OCS.

Recommendation 3B: It is recommended that Commandant work with the IMO to harmonize the IMO MODU Code with International Convention for the Safety of Life at Sea (SOLAS) regulation III/16.7 to require adequate emergency lighting of Muster Areas, Lifeboat and Liferaft Lowering Stations and the corresponding waters into which the lifeboats/liferafts will be launched.

Action: I concur with the intent of this recommendation. I note however that paragraphs 10.4.3, 10.4.7, and 10.7.6 of the 2009 MODU Code already address this issue by requiring the areas in question be adequately illuminated by emergency lighting.

Recommendation 3C: It is recommended that Commandant work with the IMO to amend the Lifesaving Appliances (LSA) Code and its testing recommendations to ensure the adequacy of lifesaving appliance standards.

Action: I concur with the intent of this recommendation. However, I believe the existing minimum requirements in the LSA Code are adequate, and allow for application of higher weight and larger size criteria than specified. I have already approved a number of SOLAS lifeboats suitable for occupant average weights higher than the current standard 181.5 lbs in response to demand from the offshore market, and will continue to do so. Regarding stretcher access, current LSA Code IV/4.4.3.4 states, "The lifeboat shall be so arranged that helpless people can be brought on board either from the sea or on stretchers." It does not explicitly state that the stretchers themselves are expected to fit in the lifeboat. While rescue boat seating space requirements in the LSA Code include space for a person lying on a stretcher, lifeboat requirements do not. A requirement to accommodate even a single stretcher in a lifeboat would substantially reduce the seating capacity or increase the size of a lifeboat. At this time, I do not believe the results of this investigation justify the significant costs that would be associated with such a change.

Recommendation 3D: It is recommended that Commandant remove or specifically define the term "when practicable" in Title 46 Code of Federal Regulations (CFR) § 109.213(G)(5). It is further recommended that Commandant work with the IMO to amend the IMO MODU Code, Section 14.11.2.7.

Action: I partially concur with this recommendation. Inflation of a liferaft as part of a training evolution provides valuable experience, but is essentially a destructive test in that it renders the liferaft unusable until it is repacked by an approved facility. As such, we will evaluate the need to clarify that the term "when practicable" reflects the use of an operational liferaft for this purpose, and is only appropriate and practicable immediately prior to it being removed for service and replaced with another liferaft.

Recommendation 3E: It is recommended that Commandant work with the IMO to amend the International Convention on Standards for Training, Certification and Watchkeeping (STCW) to establish MODUs as a "Special Ship" within Chapter V and develop specialized training standards and competencies for masters, officers, particular ratings and special personnel assigned to MODUs to include training for crowd control and crisis management.

Action: I concur with the intent of this recommendation. Certain mariners on MODUs should receive training in crowd control, crisis management and human behavior as described in STCW Table A-V/2. However, amending STCW would only apply such requirements to a small number of mariners subject to STCW and working on MODUs. Instead, I will evaluate the need to amend or add additional requirements for both U.S. and foreign flagged vessels operating on

the U.S. OCS to ensure that appropriate MODU personnel, including those not subject to STCW, are required to receive such training.

Recommendation 3F: It is recommended that Commandant work with the IMO to amend the IMO MODU Code to include the type, frequency, extent, randomness and evaluation criteria for all emergency contingency drills.

Action: I do not concur with this recommendation. The report indicates that drills were being conducted, but that the crew was not taking the drills seriously. I believe this is not a problem with the standards identified in the MODU Code, but rather this represents a leadership problem where a climate of complacency was accepted. Section 14.11 of the 1989 MODU Code and section 14.12 in the 2009 MODU Code list the requirements for practice musters and drills. In addition, section 14.12.2 of the 2009 MODU Code references IMO Assembly Resolution A.891(21) provides training and assessment criteria for emergency drills on board MODUs. I believe these requirements are adequate and do not need to be amended.

Recommendation 3G: It is recommended that Commandant work with the IMO to amend the STCW to develop standards and competencies for the operation of lifesaving appliances that serve liferafts.

Action: I do not concur with this recommendation. This issue is already adequately covered in the current STCW Table A-vi/2-1, column 3. Additionally sections 14.9.3 – 14.9.9 of the IMO MODU Code state that there should be a sufficient number of certified persons on board for launching and operating the survival craft to which personnel are assigned and that certified persons be placed in command.

Recommendation 3H: It is recommended that Commandant evaluate the adequacy of inflatable liferafts served by a launching appliance installed on MODUs whose hull design is not of a traditional ship's hull and determine if other suitable lifesaving appliances could enhance occupant safety.

Action: I do not concur with this recommendation. Each MODU must carry lifeboats installed in at least two widely separated locations on different sides or ends of the unit. The arrangement must provide sufficient capacity on each side or end to accommodate the total number of persons on board. Alternatively, a MODU may carry one or more free-fall lifeboats capable of being free-fall launched over the end of the unit, of aggregate capacity to accommodate the total number of persons on board. Inflatable liferafts are a secondary or tertiary lifesaving measure, intended for use only in the event the primary and secondary lifeboats are not available. They cannot realistically be constructed to provide meaningful protection from fire. However, I will evaluate the need to develop requirements for fire and explosion risk analyses to ensure an adequate level of protection is provided for embarkation stations on all MODUs operating on the U.S. OCS.

Recommendation 3I: It is recommended that Commandant work with the IMO to develop a symbol for "knife" and require the placement of a label to identify its location in all lifesaving appliances requiring the tool.

Action: I concur with the intent of this recommendation. I will investigate the need to add a symbol for "knife" to the relevant IMO publication, or an appropriate ISO standard to be referenced in IMO publication.

Recommendation 3J: It is recommended that Commandant work with the IMO to amend the IMO MODU Code to prohibit the dual purpose acceptance of life boats as rescue boats, and adopt the "widely separated location" philosophy applied to the quantity and location of rescue boats on board MODUs.

Action: I concur with the intent of this recommendation. Rescue boats are not survival craft – they are primarily designed for man overboard situations, and if available, during abandon ship to help marshal liferafts. If a life/rescue boat is fully loaded and being used as a survival craft, it is not available for use as a rescue boat. I intend to evaluate the need for carriage of at least one dedicated SOLAS rescue boat in addition to the required lifeboats.

Recommendation 3K: It is recommended that Commandant revise the 33 CFR, Subchapter N regulations, to establish designated standby vessels for MODUs engaging in oil and gas drilling activities on the U.S. Outer Continental Shelf (OCS).

Action: I concur with the intent of this recommendation. However, such a revision would require a legislative change to give the Coast Guard the authority to implement such a requirement. Historically, consideration of such a requirement has identified both the possible risks associated with it, as well as the likely benefits. Each time it was decided not to establish the requirement. I intend to evaluate the need for designated standby vessels for MODUs engaging in oil and gas drilling activities on the U.S. OCS and seek additional authority as appropriate.

Recommendation 3L: It is recommended that Commandant work with the IMO to amend the IMO MODU Code to address the need for a fast rescue boat/craft on board MODUs.

Action: I do not concur with this recommendation. There has been no evidence presented to support the need for the enhanced capabilities of a fast rescue boat on MODUs. However, as noted under 3J, I intend to evaluate the need for carriage of at least one dedicated SOLAS rescue boat.

Recommendation 3M: It is recommended that Commandant amend 46 CFR § 109.213 and work with the IMO to amend the IMO MODU Code to require the performance of a man overboard drill on at least a quarterly basis.

Action: I concur with the intent of this recommendation. I will evaluate the need for quarterly man overboard drills in future rulemaking efforts.

Recommendation 3N: It is recommended that Commandant revise the 33 CFR, Subchapter N regulations, to require the owner/operator of a MODU operating on the U.S. OCS, instead of the leaseholder, to develop and submit an emergency evacuation plan (EEP).

Action: I concur with the intent of this recommendation. I believe the current requirement for the lease holder to develop and submit an emergency evacuation plan (EEP) is appropriate. However, I intend to consider amendments to 33 CFR Subchapter N addressing the need for the owners, operators, masters, and crews of MODUs to be able to demonstrate knowledge of and proficiency in use of the lease holder's EEP.

Recommendation 3O: It is recommended that Commandant revise the 33 CFR, Subchapter N regulations, to establish performance and evaluation criteria and require the annual exercise of the EEPs, including all identified emergency resources, equipment and agencies necessary to perform a mass evacuation.

Action: I partially concur with this recommendation. Drill performance and evaluation are best required by the owner, operator, master or person in charge. Annual EEP exercise is already required in 33 CFR § 146.125. Even so, I intend to clarify this requirement as applied to MODUs by including it as an issue in the rulemaking project to amend 33 CFR Subchapter N.

Recommendation 4A: It is recommended that Commandant revise the current policy with respect to response plan requirements for vessels engaging in oil and gas drilling activities on the U.S. OCS. Operator's response plans should specifically address responses to vessel fires in addition to well fires.

Action: I concur with the intent of this recommendation. I believe improvements can be made to the response to fires, and explosions. However, as described in my final action to recommendation 4D, I believe a more appropriate way forward is to consider the application of salvage and marine firefighting requirements of 33 CFR § 155, Subpart I, to vessels engaging in oil and gas drilling activities on the U.S. OCS.

Recommendation 4B: It is recommended that Commandant evaluate regulatory requirements for operators of vessels engaging in oil and gas drilling activities on the U.S. OCS to maintain a continuously manned shore based operations center for monitoring operations and maintaining primary and emergency communications for responding to casualties.

Action: I concur with this recommendation. I will evaluate regulatory requirements for operators of vessels engaging in oil and gas drilling activities on the U.S. OCS to maintain a continuously manned shore based operations center.

Recommendation 4C: It is recommended that Commandant evaluate regulatory requirements for vessels engaging in oil and gas drilling activities on the U.S. OCS to relay daily loading information to a designated person ashore.

Action: I do not concur with this recommendation. The report does not provide adequate justification for such a requirement.

**Recommendation 4D:** It is recommended that Commandant require that MODUs and floating production, storage and offloading vessels engaging in oil and gas drilling activities on the U.S. OCS be subject to the salvage and marine firefighting requirements of 33 CFR § 155, Subpart I.

**Action:** I concur with the intent of this recommendation. I believe implementing such a requirement might be beneficial in improving the response to explosions and fires, and will evaluate whether it is appropriate to move forward with implementation.

**Recommendation 4E:** It is recommended that area committees evaluate the adequacy of their area contingency plans for responding to incidents involving vessels engaging in oil and gas drilling activities on the U.S. OCS.

**Action:** I concur with this recommendation. A project to evaluate, compare, and harmonize Coast Guard Area Contingency Plans (ACPs) and the BOEMRE Offshore Response Plans (OSRPs) is currently underway.

**Recommendation 4F:** It is recommended that Commandant evaluate the current policy regarding the implementation of an incident commander to perform both the search and rescue mission coordinator and federal on scene coordinator duties during an event consisting of a mass rescue operation and a major marine casualty.

**Action:** I concur with this recommendation. The U.S. Coast Guard Addendum, COMDTINST M16130.2E addresses the SAR/ICS interface. Section 1.1.4.2 of the Addendum states “If a Coast Guard Incident Commander (IC) is designated, the SMC function will be placed under the umbrella of the ICS organizational structure, typically as the SAR Branch Director or SAR Sector Supervisor in the Operations Section.” However, the Addendum does provide the latitude for Incident Commanders to be designated as SAR Mission Coordinator (SMC) as long as they meet the requirements for SMC as provided in ALCOAST 04/11 and the CG Addendum Chapter 1.3. The Office of Search and Rescue (CG-534) and Office of Incident Management and Preparedness (CG-533) will coordinate to identify, define situations, and create policy that provide for the SAR function of SMC within the ICS during large scale multi-mission responses.

**Recommendation 4G:** It is recommended that Commandant review all organization policy on marine firefighting to ensure consistency.

**Action:** I concur with this recommendation. My Office of Search and Rescue (CG-534) will coordinate with the Marine Transportation Systems Management Directorate (CG-55) to amend the Coast Guard’s policy for marine firefighting on vessels within the SAR Addendum and within the Marine Safety Manual, Vol. VI, Ports and Waterways Activities, COMDTINST M16000.11 (series). This will ensure that it provides for an adequate accounting and coordination with the vessel salvage and firefighting arrangements required of the marine industry under 33 CFR § 155. Specifically, I intend to provide expanded guidance to the SMC concerning coordination of firefighting efforts for vessel fires beyond the port environment.

**Recommendation 4H:** It is recommended that Commandant update the regulations to include the requirement to conduct a deadweight survey every five years for all (U.S. and foreign-flagged) column stabilized MODUs to be consistent with the current IMO MODU Code.

**Action:** I concur with the intent of this recommendation. However, contrary to what was concluded in Volume I of the JIT report, I note that a deadweight survey was conducted as required by the IMO MODU Code. I intend to evaluate the need to develop deadweight survey requirements for all MODUs operating on the U.S. OCS.

**Recommendation 5A:** It is recommended that Commandant develop a risk-based Port State Control targeting program to provide additional oversight for foreign-flagged MODUs working on the OCS based on predetermined evaluation criteria, including the identity of the flag state.

**Action:** I concur with this recommendation. I have published CG-543 Policy Letter 11-06, "*Risk-Based Targeting of Foreign Flagged Mobile Offshore Drilling Units (MODUs)*" which provides procedures for risk-based targeting of foreign flagged MODUs operating on the U.S. OCS. It considers management, flag, Recognized Organization, vessel history, and MODU particulars to prioritize and coordinate the examination of MODUs currently operating on the U.S. OCS as well as each subsequent MODU that enters an OCMI area of responsibility.

**Recommendation 5B:** It is recommended that Commandant develop more comprehensive inspection standards for foreign-flagged MODUs operating on the OCS.

**Action:** I concur with this recommendation. I have chartered an Outer Continental Shelf Activities Matrix Team (OCSAMT), which is tasked to provide recommendations regarding the establishment and implementation of an enhanced oversight regime for foreign flag MODUs on the U.S. OCS. The recommendations are to address: the systems that present the greatest risk to MODU safety and environmental stewardship; the standards that should be developed or applied when assessing these systems; and the frequency and procedures with which the enhanced oversight should be conducted including plan review, examinations for initial certification, and in-service examinations. The recommendations should be scalable with regard to the number of MODUs and systems subject to enhanced oversight, and the frequency of the oversight examinations.

**Recommendation 5C:** It is recommended that Commandant work with the IMO to develop a code of conduct for Recognized Organizations to ensure that verification of all flag state requirements are being conducted properly.

**Action:** I concur with the intent of this recommendation. I am currently working with the IMO through its Flag State Implementation Sub-Committee on a Code for Recognized Organizations. It is anticipated that the new mandatory Code will be ready for adoption in 2012. The Code is expected to will include requirements and guidelines for Recognized Organizations covering their management and organization, resources, certification processes, performance measurement, analysis and improvement, and quality management system certification. The Code will also include a section for flag State monitoring of Recognized Organizations.

**Recommendation 5D:** It is recommended that Commandant further develop the Operational Risk Assessment model (Appendix M) for use by MODU personnel and government inspectors.

**Action:** I do not concur with this recommendation. While the use of an operational risk assessment model may provide some benefit, I believe the proper implementation of all existing international and U.S. safety requirements is sufficient to ensure safety. This includes the implementation and exercise of a safety management system in conjunction with adequate oversight by the Flag Administration, Recognized Organizations where applicable, and coastal/port State authorities.

**Recommendation 5E:** It is recommended that Commandant work with International Association of Classification Societies to improve implementation of its Procedural Requirement 17.

**Action:** I concur with the intent of this recommendation. The Coast Guard is not a member of the International Association of Classification Societies (IACS), and therefore must garner IACS support in development and implementation of their procedural requirements. In addition, while the report describes the responsibilities under Procedural Requirement (PR) 17 and alleges that it did not achieve the expected results, it fails to identify any specific situations where there was a failure by one of the classification societies to adhere to its requirements. Even so, I will forward this recommendation to IACS for its evaluation and determination of any improvements it finds might be appropriate.

**Recommendation 5F:** It is recommended that Commandant revise the current marine casualty reporting requirements and drug testing requirements for foreign-flagged MODUs operating on the OCS and make them consistent with the requirements for U.S.-flagged MODUs.

**Action:** I partially concur in this recommendation. I am directing that regulatory project to amend Subchapter N include the requirement that both foreign flag and U.S.-flag MODUs engaged in OCS activities comply with the same marine casualty reporting requirements.

**Recommendation 5G:** It is recommended that Commandant evaluate the benefit of combining current OCS inspection responsibilities assigned to multiple OCMI zones into one inspection office responsible for covering all OCS inspection activities.

**Action:** I concur with this recommendation. I will evaluate the benefit of combining current OCS inspection responsibilities into one inspection office.

**Recommendation 5H:** It is recommended that Commandant determine how to continue to maintain a properly trained and educated Coast Guard work force for MODU and OCS inspections.

**Action:** I concur with this recommendation. I will conduct an analysis to determine the staffing and training needs to maintain the necessary base inspector workforce. This analysis will include identification of increases in the inspector workforce necessary to address any increase in the frequency and scope of MODU and OCS inspections.



Recommendation 5I: It is recommended that Commandant investigate the role of Safety Management System failures in recent marine casualties and based upon those investigation findings, determine if a change in the current inspection and enforcement methods is required to increase compliance with the International Safety Management (ISM) Code. The investigation should include a request to the National Research Council, Commission on Engineering and Technical Systems, Marine Board to perform a comprehensive investigatory assessment of the effectiveness of the ISM Code as used in the marine environment.

Action: I concur with the intent of this recommendation. A study into the role of Safety Management System failures as factors in marine casualties will be conducted. I will consult with appropriate professional organizations such as the National Research Council, Commission on Engineering and Technical Systems, and Marine Board.

Recommendation 5J: It is recommended that Commandant work with BOEMRE to evaluate the benefits of shifting to a “Safety Case” approach similar to that used in the North Sea, a method in which there is a more holistic approach to safety.

Action: I partially concur with this recommendation. Although there is nothing in the report to suggest that the use of a “safety case” approach would have had any impact on the outcome of this casualty, I believe it is appropriate to evaluate the benefits and costs of such an approach.

Recommendation 5K: It is recommended that Commandant require and coordinate expanded International Safety Management (ISM) Code examinations of all Transocean vessels that are subject to the ISM Code and engaging in oil and gas drilling activities on the U.S. OCS.

Action: I concur with the intent of this recommendation. Using the risk-based targeting methodology I published in CG-543 Policy Letter 11-06, “*Risk-Based Targeting of Foreign Flagged Mobile Offshore Drilling Units (MODUs)*”, I will evaluate Transocean vessels that are subject to the ISM Code and engaging in oil and gas drilling activities on the U.S. OCS, taking into consideration the management, flag, recognized organization, vessel history, and MODU particulars. Based on the results of that evaluation, I will prioritize and coordinate the examination of those vessels to ensure compliance with the ISM Code, as well as other safety requirements.

Recommendation 5L: It is recommended that Commandant work with the Republic of the Marshall Islands to require an immediate annual verification of the safety management system of Transocean offices (Main and North America). Because this investigation has questioned DNV’s performance as the recognized organization for the RMI, another approved recognized organization should perform the verification.

Action: I concur with the intent of this recommendation. I will work with the Republic of the Marshall Islands to determine an appropriate course of action to ensure Transocean’s effective implementation of its Safety Management System.

Administrative Recommendation 1: The crew of *DAMON B. BANKSTON* should receive a Public Service Award for their outstanding actions during the response to the *DEEPWATER*

*HORIZON* casualty with special emphasis on their heroic efforts in the recovery and compassionate treatment of the 115 surviving crew members of *DEEPWATER HORIZON*.

Action: The crew of the *DAMON B. BANKSTON* was awarded the U.S. Coast Guard's Distinguished Public Service Award on April 15, 2011.

Administrative Recommendation 2: Captain [REDACTED] of *DAMON B. BANKSTON* is recommended for special personal recognition for his heroic actions in responding to *DEEPWATER HORIZON* casualty. Captain [REDACTED] actions were instrumental not only in the safe recovery of the 115 crew members from *DEEPWATER HORIZON*, but also in providing extraordinary leadership and guidance during the continuing search and rescue and fire-fighting efforts despite personal risk to himself and his crew.

Action: Captain [REDACTED] of *DAMON B. BANKSTON* was awarded the U.S. Coast Guard's Certificate of Valor on April 15, 2011.

Administrative Recommendation 3: Engineer [REDACTED] and Able Bodied Seaman [REDACTED] of *DAMON B. BANKSTON* are recommended for special personal recognition for their heroic actions in piloting *DAMON B. BANKSTON's* Fast Recovery Craft and heroically recovering five *DEEPWATER HORIZON* crew members from the water and towing *DEEPWATER HORIZON's* liferaft loaded with an additional seven crew members safely away from the burning vessel despite personal risk to themselves.

Action: Engineer [REDACTED] and Able Bodied Seaman [REDACTED] of *DAMON B. BANKSTON* were each awarded the U.S. Coast Guard Silver Lifesaving Medal on April 15, 2011.

Administrative Recommendation 4: The crew of the recreational vessel *RAMBLIN' WRECK*, [REDACTED] should receive a Public Service Award for their outstanding efforts in providing tenacious search and rescue efforts following the casualty.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 5: Chief Mate [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. At great personal risk to himself, he attempted to locate and rescue injured personnel and then proceeded to his Fire and Emergency Station on the Drill Floor in an attempt to fight the raging fire. Once he determined the fire was out of control, he immediately proceeded to the Liferaft Embarkation Station and prepared the liferaft for launching in order to evacuate the crew members still on board, including loading the last injured person [REDACTED] from *DEEPWATER HORIZON*. Upon the liferaft reaching the water, he and two other persons, immediately jumped into the water and began swimming the liferaft away from the burning vessel. His efforts were instrumental in ensuring the safe evacuation of the crew members from *DEEPWATER HORIZON* and attempting to ensure that no crew members were left behind.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 6: Chief Engineer [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. He was instrumental in the efforts to attempt to start the standby generator in order to regain power to operate the fire pumps to fight the fire. When those efforts failed, he immediately went to the Liferaft Embarkation Station and assisted with loading injured personnel into the liferaft, and when the liferaft hit the water, he jumped out and assisted again by helping swim it away from the burning vessel.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 7: Chief Electrician [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. Immediately following the explosion, he made his way from near the Pump Room through the accommodations spaces assisting injured and trapped crew members as he went. Later, after making it to the Central Control Room/Bridge and subsequently to the Lifeboat Embarkation Station, he was instrumental in helping evacuate injured personnel ([REDACTED]) safely from the MODU.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 8: Chief Electronics Technician [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. Immediately following the explosion, he helped injured personnel in the Engine Control Room escape to the Lifeboat Embarkation Station. He was instrumental in assisting the efforts to start the standby generator in order to regain power to operate the fire pumps. When those efforts failed, he immediately went to the Liferaft Embarkation Station and was critical in releasing the davit and getting the liferaft successfully launched before jumping from the flight deck into the water.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 9: Motorman [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. Despite suffering injury from the explosions, he evacuated another injured person from the Engine Control Room, attempted to start the standby generator in order to regain power to operate the fire pumps to fight the fire, assisted with loading injured personnel ([REDACTED]) into a lifeboat and got it successfully launched before jumping from the flight deck into the water.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 10: Electrical Supervisor [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. Immediately following the explosion, he made his way through the accommodations spaces assisting injured and trapped crew members as he went. Later, after making it to the Lifeboat Embarkation Station, he was instrumental in helping evacuate injured personnel [REDACTED] safely from the MODU.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 11: Senior Toolpusher [REDACTED] of *DEEPWATER HORIZON* is recommended for special recognition for his selfless and heroic actions following the casualty. Immediately following the explosion, he made his way through the accommodations spaces assisting injured and trapped crew members as he went. Later, after making it to the Lifeboat Embarkation Station, he was instrumental in helping evacuate injured personnel [REDACTED] safely from the MODU.

Action: I concur with this recommendation. I will forward this recommendation to the Commander, Eighth Coast Guard District, for appropriate action.

Administrative Recommendation 12: It is recommended that Marine Safety Unit Morgan City coordinate with the Republic of the Marshall Islands (RMI) to consider, based on this report, whether and to what extent action should be taken against Captain [REDACTED] mariner license.

Action: I partially concur with this recommendation. Since Captain [REDACTED] was acting under the authority of his RMI-issued credential and not his U.S. merchant mariner's license, I will forward this recommendation to the Republic of the Marshall Islands for their consideration.

Administrative Recommendation 13: It is recommended that Commandant evaluate the impact of this casualty on the Republic of the Marshall Islands' status as a Qualship21 participant.

Action: I concur with the intent of this recommendation. Although there is no provision in the current QUALSHIP 21 (Q21) program for removing a country from eligibility due to a marine casualty, I will consider adding a major casualty criterion for Q21 eligibility. However, if such a criterion is eventually added to Q21 eligibility, there will be no retroactive application of the new criterion and past casualties to current Q21-eligible countries.

[REDACTED]  
Robert J. Papp, Jr.  
Admiral, U.S. Coast Guard