Log M-196A

# NATIONAL TRANSPORTATION SAFETY BOARD
## WASHINGTON, D.C.

ISSUED: February 28, 1983

Forwarded to:

Admiral James S. Gracey
Commandant
U.S. Coast Guard
Washington, D. C. 20593

SAFETY RECOMMENDATION(S)

M-83-8 through -23

About 0300 on February 15, 1982, the U.S. mobile offshore drilling unit (MODU) OCEAN RANGER capsized and sank during a severe storm about 166 nautical miles east of St. John's, Newfoundland, Canada; 84 persons were aboard. Twenty-two bodies have been recovered, and the remaining 62 persons are missing and presumed dead. The OCEAN RANGER is currently resting on the bottom in an inverted position in about 260 feet of water; its estimated value was $125 million. 1/

In 1978, the U.S. Coast Guard (USCG) published regulations for the inspection and certification of mobile offshore drilling units. However, it has not included personnel qualifications or manning standards for MODU's in the regulations, except to specify the number and qualifications of lifeboatmen required to man primary lifesaving equipment and to require that the owner must designate an individual to be the master or person-in-charge of a MODU. As a result of its investigation of the capsizing and sinking of the self-elevating MODU OCEAN EXPRESS, the Safety Board recommended on April 17, 1979, that the USCG:

> Expedite the promulgation of regulations for personnel qualifications and manning standards for self-elevating mobil offshore drilling units, and require that industrial personnel who perform seafaring duties obtain appropriate training and licenses. (Class II, Priority Action) (M-79-43)

On June 4, 1980, the USCG responded as follows:

> The Coast Guard partially concurs with the recommendation. Manning and crew qualification standards are being applied to MODU's of the "bottom bearing" non-self-propelled type (such as the OCEAN EXPRESS) as these units come under the inspection process under 46 CFR 1-A in the next several years. Manning standards will apply only when such units are in navigation. At this point it is contemplated that the standard manning for marine personnel, while in navigation, will consist of:

1/ For more detailed information, read Marine Accident Report—"Capsizing and Sinking of the U.S. Mobile Offshore Drilling Unit OCEAN RANGER Off the East Coast of Canada, 166 Nautical Miles East of St. John's, Newfoundland, on February 15, 1982" (NTSB-MAR-83-2).

1 - Designated Person in Charge
2 - Able Seaman
1 - Ordinary Seaman
-- Lifeboatman (number appropriate for the installed lifesaving equipment necessary to accommodate the number of persons on board).

Development of requirements for personnel on structures and MODU's not in navigation is being developed under the authority of the OCS Act. The Coast Guard believes that the OCS Act places limitations on the Coast Guard's ability to carry out the intent of this recommendation while the unit is in the bottom bearing mode. The OCS Act is applicable only to those activities on the United States Outer Continental Shelf. Accordingly, the application of a manning scale on units engaged in worldwide operations while in the bottom bearing mode is not possible under the provisions of the OCS Act.

On June 9, 1981, the USCG further replied:

We have attached an IMCO document entitled "Training Qualifications of Crews Serving on Mobile Offshore Units" (STW XIV/WP.4) dated 21 January 1981 (Enclosure (2)). This document deals with a variety of considerations affecting units such as the OCEAN EXPRESS. Various duties/training qualifications of the person-in-charge and other persons are covered. The working group preparing the document did not stipulate whether the person-in-charge should be drawn from seafarer or regularly assigned special personnel with responsibility for others (Appendix II, 3 and 4). This recognizes reality in that a mobile unit such as the OCEAN EXPRESS is a complex mixture of both industrial and marine considerations. The Coast Guard is of a similar opinion and believes a person qualified under either category could function in the position. Although this document is currently a working paper, it is scheduled to be formally reviewed at the 15th session of the Subcommittee on Standards of Training and Watchkeeping scheduled for February 1982. Due to the inherent limitations of the OCS Lands Act and the restrictions of the domestic statutes concerning vessel inspection and manning, the international agreement method appears the most viable initial approach. Although the resulting domestic regulations may be somewhat fragmented (due to the diverse statutory authority) and lacking when considering a bottom bearing unit on a foreign assignment, a foreign country which subscribes to the resolution could fill in this gap.

Insofar as the imposition of additional manning regulations specifically for MODU's, this appears to be generally unwarranted. Presently 46 CFR 157.20-15 addresses the Able Seaman/Ordinary Seaman question. The person-in-charge qualifications would be best delayed pending international action. As the STW working paper is almost a direct copy of a position paper presented at the 14th session of the STW in January 1981 by the International Association of Drilling Contractors (IADC), it can be reasonably assumed the industry will initiate compliance.

> Further, the MODU initial inspection program should be completed during the late summer or early fall of 1981, utilizing the manning scale noted in our letter of 4 June 1980.

The only statement in STW X14/WP.4 concerning personnel qualifications and manning standards, other than emergency procedures and onboard training for group survival states:

> 3. RESPONSIBILITIES OF PERSON IN CHARGE CONCERNING MARITIME SAFETY TRAINING
>
> 3.1 The person in charge should be well acquainted with the characteristics, capabilities and limitations of the unit. This person should be fully cognizant of his responsibilities for emergency organization and action, for conducting emergency drills and training, and for keeping records of such drills.
>
> 3.2 The person in charge, or persons delegated by him, should possess the capability to operate and maintain on board the unit all fire-fighting equipment and life-saving appliances and be able to train others in these activities.

The Safety Board believes that personnel qualifications and manning standards for U.S. MODU's are long overdue and that the USCG should act immediately to set such standards. The person-in-charge or the master of a MODU should be licensed and qualified in mobile offshore drilling operations and should have knowledge of USCG regulations, stability characteristics of MODU's, the operation of semisubmersible ballast systems, and lifesaving equipment. If there is no licensed engineer aboard, the person-in-charge or the master also should have knowledge of the unit's standard shipboard systems, other than the industrial machinery. Since the person-in-charge on the OCEAN RANGER was an unlicensed, undocumented individual, the USCG did not have any method of determining his qualifications. Although the USCG regulations address the responsibilities of the person-in-charge, the USCG cannot enforce the rules without jurisdiction over the individual. A former person-in-charge (toolpusher) on the OCEAN RANGER testified that he could not recall ever reading the applicable USCG regulations and, furthermore, was unaware of his responsibilities and obligations under the regulations. The Safety Board believes that a better method to insure compliance with safety regulations is to require that the person-in-charge (normally, the toolpusher) be licensed by the USCG and be fully qualified in all aspects of MODU operation.

Having an unlimited master's license does not necessarily assure knowledge of MODU's. The prospective person-in-charge or master of a MODU, in addition to being licensed, should be examined by the USCG to determine his qualifications in mobile offshore drilling operations which would include knowledge of stability characteristics of MODU's, the operation of ballast systems on MODU's, and any lifesaving equipment peculiar to MODU's. The license of the person-in-charge or the master then should be suitably endorsed.

Under the provisions of the OCEAN RANGER's Certificate of Inspection, certain members of the crew could have "industrial licenses"; however, the qualifications for "industrial licenses" are not contained in USCG regulations. The Safety Board believes that, before the USCG issues "industrial licenses" merely to qualify persons to satisfy the Certificate of Inspection, the necessary qualifications should be defined. The OCEAN RANGER toolpusher was the designated person-in-charge of the drilling unit and was

assigned command of one of the lifeboats even though he was not a certificated lifeboatman. It is a proper assignment for the toolpusher (person-in-charge) of a drilling rig to be in command of a lifeboat in the event of the need to abandon ship; however, to be effective, lifesaving equipment should be operated by persons trained in the use of such equipment.

The Safety Board could not determine whether three of the four certificated lifeboatmen, other than the master, who were required by the OCEAN RANGER's Certificate of Inspection, were aboard at the time of the accident because documented crewmembers were not identified on the station bill. The licensed master was a lifeboatman by virtue of his license. The two ordinary seamen that were determined to be aboard by USCG records normally were not qualified to have been certificated lifeboatmen. It could not be determined from ODECO's personnel records if the required able seamen, who would have qualified as lifeboatmen; were aboard; the partial crew rotation twice weekly resulted in a constant change in individuals. To ascertain if the requirements of the Certificate of Inspection are fulfilled, those documented crew members should be so identified. The Safety Board believes that the station bill on MODU's should identify the certificated lifeboatmen assigned to each lifeboat by name. With the large number of non-marine persons on board MODU's when drilling, the importance of the certificated lifeboatmen becomes even greater than on other types of ocean-going vessels where most of the crewmembers are experienced mariners. The Safety Board believes that, just because the OCEAN RANGER was moored at the drilling site, there was no less of a need for certificated lifeboatmen for the liferafts. As shown by this accident and the ALEXANDER L. KIELLAND accident, the need for properly operated survival equipment is just as great when the MODU is moored as when it is underway. Therefore, the Safety Board believes that the number of certificated lifeboatmen required by a Certificate of Inspection should be based on the number of persons aboard a MODU, rather than the mode of operation.

Ballast control room operators on self-propelled MODU's, such as the OCEAN RANGER, and nonself-propelled MODU's monitor the weight changes of such consumable items as fuel, drill water, cement, barite, drill pipe, casing, and other material, and daily calculate and compare the MODU's vertical center of gravity to the required value. To satisfy drilling requirements, they also maintain the MODU as near as possible to even keel, except for small amounts of list in any given direction, and maintain a 24-hour watch in the ballast control room. Because these functions are vital to the safety of the MODU as a vessel, they should be performed by trained persons who are either licensed or certificated by the USCG. Furthermore, since the control room ballast operators are the only persons directly supervised by the master, the Safety Board believes that ballast control room operators on MODU's should be documented and certificated by the USCG so that there is some assurance that in the event of an emergency they can perform marine type functions, such as lifeboatman.

USCG and ABS stability standards applicable to the OCEAN RANGER require that a MODU be able to withstand the flooding of compartments extending within 5 feet of its operating draft. The 1979 IMCO MODU Code has similar requirements. These standards required that the OCEAN RANGER withstand the flooding of compartments within one of its columns near its 80-foot waterline. The OCEAN RANGER was designed with horizontal watertight bulkheads within each column to limit the amount of flooding in case of damage to a column. The USCG, the ABS, and the IMO do not have any standards for flooding of lower hull tanks or compartments on semisubmersible MODU's. Calculations performed after the accident indicated that the flooding of empty or partially empty forward ballast tanks on the OCEAN RANGER at its operating draft of

80 feet could have produced angles of list exceeding its downflooding angle. 2/ The lower hull compartments on MODU's, such as the OCEAN RANGER, can flood in several ways: (1) a piping failure could flood the pumproom; (2) a small structural failure could flood any tank or compartment; or (3) operational errors or electrical malfunctions could result in the flooding of empty tanks. Because the evidence indicated that the lower hull tanks can flood quickly and cause a significant list, the Safety Board believes that the USCG, the ABS, and the IMO should revise their stability standards for MODU's similiar to the OCEAN RANGER to require that MODU's be capable of surviving the flooding of lower hull compartments at their normal operating draft. The revised standard also should include a requirement that there be a capability to dewater lower hull compartments at all angles of list after the assumed flooding.

In recognizing the need for a higher level of protection against flooding than required by USCG and ABS standards, ODECO designed the OCEAN RANGER to withstand the flooding of one chain locker or certain individual compartments in the lower hull at the 80-foot operating draft. In addition, the OCEAN RANGER's operating manual suggests that the master maintain the lower hull forward and after tanks full and the center tanks empty. This ballast configuration would, in effect, limit the list angle in case of accidental flooding. However, it was the practice of the masters and control room operators aboard the OCEAN RANGER to maintain the lower hull center ballast tanks full and to have some lower hull forward ballast tanks empty to minimize the amount of water pumped to alter trim. The Safety Board determined that on February 14, center tanks PT-8, ST-8, PT-9, ST-9, PT-10, ST-10, PT-11, and ST-11 were full while forward tanks PT-4, PT-7, and ST-7 were empty, and ST-4 was 55 percent full. The OCEAN RANGER's design and its operating manual did not consider the accidental flooding of empty lower hull forward ballast tanks. The operating manual does not address any maximum trim angle beyond which the ballast pumps could not be used to deballast the forward tanks or any precautions to be taken to prevent flooding of a chain locker by wave action through the chain pipe and wire rope trunk openings. The 25-square-foot wire rope trunk openings are not shown on the damage control drawing in the operating manual.

If the ballast distribution on February 14 and 15 had been closer to that recommended in the OCEAN RANGER's operating manual (i.e., center ballast tanks empty, forward ballast tanks full), the amount of trim resulting from flooding would have been greatly reduced, thus, preventing flooding of the chain lockers and keeping the trim within the range of the ballast pumps which may have prevented the loss of the OCEAN RANGER. However, the OCEAN RANGER was not required by USCG or ABS to survive the flooding of empty or partially empty lower hull tanks at the 80-foot operating draft.

Most of the primary lifesaving equipment on the OCEAN RANGER was not USCG approved. The No. 1 and No. 2 Harding lifeboats were similar in design to USCG-approved lifeboats but the offload type releasing gear required the No. 1 and No. 2 lifeboats to be fully waterborne before they could be released. USCG-approved designs require an onload type releasing gear which permits the boat to be released from the falls while still under load. Under the severe sea conditions that existed on February 15, the No. 2 (Harding) lifeboat could have smashed against the OCEAN RANGER's columns or braces while the boat was being lowered or before it could be released from the falls which would account for the hole reported in the bow of the lifeboat. In the

2/ Downflooding angle is the static list angle at which flooding of internal compartments within a vessel will first begin. It is assumed that once internal compartments begin to flood, other compartments will progressively flood and the vessel will eventually capsize and sink.

ALEXANDER L. KIELLAND accident, three of its seven lifeboats were smashed against the rig's columns because the lifeboats were equipped with offload type releasing gear requiring them to be fully waterborne before they could be released.

The hole in the bow of the No. 2 lifeboat allowed sea water to enter, which contributed to the hypothermia that the persons aboard the boat must have suffered because of prolonged exposure to the cold air, and also reduced the lifeboat's stability. The lifeboat was designed to be stable and selfrighting only if the hull remained intact and the occupants remained seated with their seatbelts fastened. With the free surface effect of the water in the boat and four to six persons standing on the portside outside the canopy, the lifeboat probably did not have sufficient stability to remain upright or to right itself after capsizing. With hatches open and a hole in the hull, the capsized boat would have quickly filled with water, drowning those persons strapped in the seats and immersing the rest in the frigid water. Proposals by the USCG both here in the U.S. and at IMO to improve the selfrighting capabilities of enclosed lifeboats by increasing the amount of foam flotation to expose the hatches on one side would not correct the problem of open hatches.

USCG regulations required davit-launched liferafts on the OCEAN RANGER. The liferafts on the OCEAN RANGER, although USCG approved were not davit-launched nor serviced by a USCG approved facility. Although USCG regulations permit the substitution of lifeboats for davit-launched liferafts, no such approval had been granted to the OCEAN RANGER by the USCG.

Of the 21 Billy Pugh Model 200 life preservers recovered, 10 were from lot 1A which did not meet USCG standards but had been approved without authorization by a local USCG Marine Safety Office before the Commandant of the USCG had approved the design. Tests indicated that lot 1A life preservers had a tendency to slip off over the wearer's head while jumping into the water. The Safety Board could not determine if this deficiency contributed to the loss of life, but it believes that the USCG should examine and modify its approval procedures so that lifesaving equipment is not marked to indicate USCG approval when, in fact, the design had not been approved.

Launching a lifeboat in a normal sea condition even from relatively small heights can be difficult. Launching a lifeboat from a height of about 70 feet above the water from the upper deck of a semisubmersible, such as the OCEAN RANGER, into 30-foot seas with 70-knot winds involves great hazards. Both the OCEAN RANGER and the ALEXANDER L. KIELLAND accidents are examples of the difficulty involved in abandoning semisubmersible drilling units and similar structures under severe sea conditions, using existing lifesaving equipment. The Norwegian Maritime Directorate and several other Nordic authorities have long recognized this problem and, as a result of their studies, have developed the free fall launching system which effectively eliminates on-load versus off-load limitations used in conventional systems. The USCG and the U.S. offshore oil industry should thoroughly examine current lifesaving systems and improve the design of such systems. The USCG also should evaluate the use of free fall launching systems on U.S. vessels.

Canadian government regulations require a standby vessel to be assigned to each drilling rig at all times as a vital part of the survival system of MODU's. Norway and the United Kingdom also have similar requirements. Standby boats are unable to remain close to their rigs in heavy weather because of the danger of drifting into the anchor cables or anchor buoys, which in the case of the OCEAN RANGER, were about 1 mile in scope. Due to the severe weather conditions during the night of February 14 and 15, the

SEAFORTH HIGHLANDER, the BOLTENTOR, and the NORDERTOR ran upwind for several miles, turned, and then proceeded slowly downwind of their respective rigs for several miles before turning upwind again. At the time of the distress call, both the BOLTENTOR and the NORDERTOR were within 2 miles of their rigs. The SEAFORTH HIGHLANDER was 7 miles away from the OCEAN RANGER but was on scene within 1 hour after the first distress message was sent. The first Canadian Forces rescue helicopter, which was located about 125 miles from St. John's, did not arrive in the area until over 8 hours later, after refueling in St. John's. The SEAFORTH HIGHLANDER, the BOLTENTOR, the NORDERTOR, the Mobil contracted helicopters, and the Canadian Forces Search and Rescue aircraft, in spite of severe wind and sea conditions, made every effort to save the crew of the OCEAN RANGER. Wind speeds were above 45 knots, the normal maximum takeoff velocity, when the MOBIL helicopters took off from St. John's about 0330 on February 15. Throughout the day on February 15 and the next day, rough sea conditions continued as vessels and aircraft searched for survivors.

MODU's, such as the OCEAN RANGER, require frequent replenishment of fuel, stores, and drilling materials while drilling. Supply boats provide this support in addition to periodically serving as standby vessels. Although the SEAFORTH HIGHLANDER was rigged for towing and setting anchors, it was not adequately equipped to recover persons from the sea in the storm conditions that existed during the night of February 14 and 15, 1982. Use of equipment, such as liferings, nets, and liferafts, that was aboard the SEAFORTH HIGHLANDER required the crewmembers of the standby boat to expose themselves to extremely hazardous conditions on open decks to effect any rescue and required participation by those being rescued if any attempt was to be successful. The testimony of the crewmembers of the SEAFORTH HIGHLANDER, in describing the events following the capsizing of the OCEAN RANGER's lifeboat, clearly showed that the effects of hypothermia quickly rendered the OCEAN RANGER's crewmembers helpless in the cold water. Several European marine equipment suppliers have developed rescue baskets that do not require the survivors to touch the hull of the rescue vessel and involves little or no participation by those being rescued. If the SEAFORTH HIGHLANDER had been equipped with such a device when its crewmembers attempted to recover the survivors from the OCEAN RANGER, some lives possibly could have been saved.

Standby vessels also provide an emergency platform that can evacuate a large number of persons quickly in the event of a fire, a well blowout, or similar situation in addition to their primary role in the recovery of persons that accidentally fall overboard. Since standby boats are already an integral part of the drilling operations of a MODU, the Safety Board believes that the USCG should require that a suitable vessel, properly equipped for ocean rescue, be assigned to all U.S. flag MODU's when moored over a drill site. Both the OCEAN RANGER and the ALEXANDER L. KIELLAND accidents point out the need for quick response capability, especially in areas of cold weather. When engaged in such rescue operations, the crews of standby boats also should have adequate thermal protection against the cold. The crews of standby vessels should be provided with thermal protection designed for rescue operations so that they can perform their rescue functions in cold water more effectively.

Biennial inspections of U.S. mobile offshore drilling units operating off the coast of foreign countries present a logistical problem to the USCG. At times, MODU's operate in remote areas many miles offshore; therefore, it is necessary that owners of MODU's notify the USCG in advance when a MODU is ready for its biennial inspection. Title 46 CFR 107.215(b) states that the request may be made at least 60 days before the expiration date appearing on the unit's last Certificate of Inspection.

The OCEAN RANGER had been initially inspected by the USCG in December 1979 and was required to have a biennial inspection before December 27, 1981. The USCG was scheduled to reinspect the drilling unit between October 1980 and February 1981. The biennial inspection was required by law and regulation while the reinspection was a self-imposed USCG requirement. Even though ODECO was responsible for requesting the USCG to conduct a biennial inspection of the OCEAN RANGER, the USCG also had some responsibility, especially since the USCG normally did not reinspect MODU's in international service. Title 46 USC 391 requires that the USCG biennially inspect a certificated vessel to determine that the vessel can be operated safely. The Safety Board believes the USCG should have the capability within its Marine Safety Information System to determine which vessels are due for their biennial inspection and to notify their owners accordingly. Since most vessel owners comply with the biennial inspection requirements, notification should not be a burden to the USCG. If the USCG had notified ODECO early in December that the Certificate of Inspection for the OCEAN RANGER was due to expire and that it had no record that the outstanding requirements had been satisfied, ODECO may have had the USCG-approved lifeboats installed and inspected before the February 15, 1982, accident.

The USCG's policy on the reinspection of MODU's has not been consistent, although regulations which became effective on December 4, 1978, stated that the USCG would regularly reinspect MODU's. The OCEAN RANGER was not reinspected between October 1980 and February 1981 as required by USCG policy because of budgetary constraints. On January 7, 1982, the USCG suspended reinspections of MODU's worldwide. On April 6, 1982, the USCG resumed reinspecting MODU's on the U.S. outer continental shelf, but it has not resumed reinspecting MODU's in international service, such as the OCEAN RANGER. The Safety Board believes that the USCG's failure to reinspect the OCEAN RANGER did not contribute to this accident since the informal inspection by a USCG marine inspector during October 1981 found the MODU in satisfactory condition. However, the Safety Board considers reinspections of U.S. MODU's in international service just as important as reinspections of MODU's on the U.S. outer continental shelf. Therefore, reinspection of all U.S. MODU's should be reinstituted by the USCG, regardless of their location.

The underwater video tapes taken in March 1982 and the July 1982 diving survey both show two broken portlights. One portlight was behind the tank gauges (portlight D, figure 3) and the other one was the after portlight on the portside near the front of the ballast control console (portlight C, figure 3). With the OCEAN RANGER on a heading of 311°, the forward broken portlight would have been facing in the direction of about 245°, and the after portlight would have been facing in the direction of about 175°. The weather observer aboard the OCEAN RANGER reported that the wind and waves shifted from 220° to 270° between 1730 and 2330 on February 14. From the radio communications and the intercepted transmissions, it was not possible to determine whether both portlights or only one portlight broke around 1900, nor was it possible to determine from the intercepted transmissions whether the second portlight broke between 2100 and 2200. However, the intercepted transmissions indicated that the crew of the OCEAN RANGER was experiencing some problems with the control panel. If portlight C had broken between 1900 and 2200, water may have splashed on the ballast control panel and caused an electrical malfunction. Any water entering through portlight D would be partially deflected by the gauge panel and should not have immediately affected the control console. The cause of the breaking of the portlights could not be determined specifically; it may have been caused by hydrostatic pressure, debris or ice in the water, or hoses or lines swinging in the wind. The Safety Board believes that the USCG should evaluate the adequacy of existing standards for portlight installations in those ballast control rooms located in columns of semisubmersible MODU's.

As the result of its investigation, the National Transportation Safety Board recommends that the U.S. Coast Guard:

Expedite the promulgation of regulations regarding personnel qualifications and manning standards for mobile offshore drilling units. (Class II, Priority Action) (M-83-8)

Require that the master and the person-in-charge of a mobile offshore drilling unit be licensed and that their licenses be endorsed as qualified in mobile offshore drilling operations, including knowledge of U.S. Coast Guard regulations, stability characteristics of mobile offshore drilling units, the operation of ballast systems on mobile offshore drilling units, and the use of lifesaving equipment peculiar to mobile offshore drilling units. (Class II, Priority Action) (M-83-9)

Require that the person-in-charge of a mobile offshore drilling unit also be a certificated lifeboatman. (Class II, Priority Action) (M-83-10)

Require that the station bill on mobile offshore drilling units identify by name the certificated lifeboatmen required by the U.S. Coast Guard Certificate of Inspection. (Class II, Priority Action) (M-83-11)

Provide guidance to officers-in-charge of marine inspection which relates the manning requirement for certificated lifeboatmen on a MODU to the size of the lifeboats and the number of nonmarine crew aboard a mobile offshore drilling unit and not to the mode of operation of the unit. (Class II, Priority Action) (M-83-12)

Require that a control room operator on self-propelled and nonself-propelled semisubmersible mobile offshore drilling units be certificated or licensed and be qualified in the stability characteristics and ballasting procedures of mobile offshore drilling units and also as certificated lifeboatmen. (Class II, Priority Action) (M-83-13)

Require that the operating manual for a self-propelled or nonself-propelled semisubmersible mobile offshore drilling unit include guidance regarding: (1) accidental flooding of empty or partially empty lower hull compartments or tanks and the appropriate countermeasures; (2) any limitations in the functioning of the ballast pumps due to trim or heel; and (3) precautions for preventing downflooding into chain lockers from wave action. (Class II, Priority Action) (M-83-14)

Revise the stability standard for semisubmersible mobile offshore drilling units to include the capability of the drilling units to survive the flooding of any two adjacent lower hull compartments or tanks and to pump out any of the lower hull tanks after the assumed flooding. (Class II, Priority Action) (M-83-15)

Urge that the International Maritime Organization review and amend as necessary the following particulars of its 1979 Code for the Construction and Equipment of Mobile Offshore Drilling Units (MODU): (1) the stability standard for column stabilized units to include the capability of surviving flooding of any two adjacent lower hull compartments or tanks and to pump out any lower hull tanks after the assumed flooding; (2)

requirements for lifeboat launching systems on MODU's; (3) inclusion in the lifesaving requirements for MODU's assignment at all times of a suitable vessel capable of retrieving persons from the water under severe weather conditions; and (4) inclusion in operating manuals guidance on the accidental flooding of empty or partially empty lower hull compartments or tanks on column stabilized units and the appropriate countermeasures. (Class II, Priority Action) (M-83-16)

Evaluate the suitability of currently approved lifeboat, liferaft, and other launching systems, such as free fall lifeboats, under severe weather conditions on mobile offshore drilling units and require modifications if currently approved systems are found inadequate. (Class II, Priority Action) (M-83-17)

Determine what caused the buoyancy chambers on the OCEAN RANGER liferafts to separate and upgrade U.S. Coast Guard liferaft specifications, as necessary. (Class II, Priority Action) (M-83-18)

Review current Coast Guard instructions regarding approval of lifesaving equipment to determine if adequate safeguards exist to prevent equipment from being approved before the prototype has been approved and make appropriate modifications, if necessary. (Class II, Priority Action) (M-83-19)

Require that a suitable vessel, capable of retrieving persons from the water under adverse weather conditions, be assigned to all U.S. mobile offshore drilling units at all times for the purpose of evacuating personnel from the unit in an emergency. (Class II, Priority Action) (M-83-20)

Establish a system to determine when Certificates of Inspection of U.S. vessels are about to expire and to notify owners accordingly. (Class II, Priority Action) (M-83-21)

Cancel the proposal to amend 46 CFR 107.269 which would discontinue reinspections of mobile offshore drilling units in international service and withdraw the policy guidance that suspended reinspections of mobile offshore drillings units in international service as of January 7, 1982. (Class II, Priority Action) (M-83-22)

Evaluate the adequacy of existing standards for portlight installations in ballast control rooms and other critical locations in columns of semisubmersible mobile offshore drilling units and require that modifications be made, if necessary. (Class II, Priority Action) (M-83-23)

BURNETT, Chairman, GOLDMAN, Vice Chairman, and McADAMS, BURSLEY, and ENGEN, Members, concurred in these recommendations.

Jim Burnett

By: Jim Burnett
Chairman