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33 CFR Parts 140, 143, and 146

46 CFR Parts 61 and 62

Requirements for MODUs and Other Vessels Conducting Outer Continental Shelf Activities With Dynamic Positioning Systems; Proposed Rule

**DEPARTMENT OF HOMELAND SECURITY****Coast Guard****33 CFR Parts 140, 143, and 146****46 CFR Parts 61 and 62**

[Docket No. USCG–2014–0063]

RIN 1625–AC16

**Requirements for MODUs and Other Vessels Conducting Outer Continental Shelf Activities With Dynamic Positioning Systems**

AGENCY: Coast Guard, DHS.

ACTION: Notice of proposed rulemaking.

**SUMMARY:** The Coast Guard proposes to establish minimum design, operation, training, and manning standards for mobile offshore drilling units (MODUs) and other vessels using dynamic positioning systems to engage in Outer Continental Shelf activities. Establishing these minimum standards is necessary to improve the safety of people and property involved in such operations, and the protection of the environment in which they operate. This notice of proposed rulemaking would decrease the risk of a loss of position by a dynamically-positioned MODU or other vessel that could result in a fire, explosion, or subsea spill, and supports the Coast Guard's strategic goals of maritime safety and protection of natural resources.

**DATES:** Comments and related material must be submitted to the online docket via <http://www.regulations.gov> or reach the Docket Management Facility on or before February 26, 2015. Comments sent to the Office of Management and Budget (OMB) on collection of information must reach OMB on or before February 26, 2015.

**ADDRESSES:** Submit comments using one of the listed methods, and see **SUPPLEMENTARY INFORMATION** for more information on public comments.

- **Online**—<http://www.regulations.gov> following Web site instructions.
- **Fax**—202–493–2251.
- **Mail or hand delivery**—Docket Management Facility (M–30), U.S. Department of Transportation, West Building Ground Floor, Room W12–140, 1200 New Jersey Avenue SE., Washington, DC 20590–0001. Hand delivery hours: 9 a.m. to 5 p.m., Monday through Friday, except Federal holidays (telephone 202–366–9329).

**Collection of Information.** Submit any comments on the collection of information discussed in section VI.D. of this preamble both to the Coast

Guard's docket and to the Office of Information and Regulatory Affairs (OIRA) in the White House Office of Management and Budget. OIRA submissions can use one of the listed methods.

- **Email** (preferred)—[oira\\_submission@omb.eop.gov](mailto:oira_submission@omb.eop.gov) (include the docket number and "Attention: Desk Officer for Coast Guard, DHS" in the subject line of the email).

- **Fax**—202–395–6566.
- **Mail**—Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, ATTN: Desk Officer, U.S. Coast Guard.

**Viewing material proposed for incorporation by reference:** Make arrangements to view this material by calling the Coast Guard's Office of Regulations and Administrative Law at 202–372–3870 or by emailing [HQS-SMB-CoastGuardRegulationsLaw@uscg.mil](mailto:HQS-SMB-CoastGuardRegulationsLaw@uscg.mil).

**FOR FURTHER INFORMATION CONTACT:** For information about this document, call or email Lieutenant Jeff Bybee, Coast Guard; telephone 202–372–1357, email [Jeff.B.Bybee@uscg.mil](mailto:Jeff.B.Bybee@uscg.mil). For information about viewing or submitting material to the docket, call Cheryl Collins, Program Manager, Docket Operations, telephone 202–366–9826.

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**I. Public Participation and Request for Comments**

We encourage you to submit comments (or related material) on this rulemaking. We will consider all submissions and may adjust our final

action based on your comments. Comments should be marked with docket number USCG–2014–0063 and should provide a reason for each suggestion or recommendation. You should provide personal contact information so that we can contact you if we have questions regarding your comments, but please note that all comments will be posted to the online docket without change and that any personal information you include can be searchable online (see the **Federal Register** Privacy Act notice regarding our public dockets, 73 FR 3316, Jan. 17, 2008).

Mailed or hand-delivered comments should be in an unbound 8½ x 11 inch format suitable for reproduction. The Docket Management Facility will acknowledge receipt of mailed comments if you enclose a stamped, self-addressed postcard or envelope with your submission.

Documents mentioned in this notice, and all public comments, are in our online docket at <http://www.regulations.gov> and can be viewed by following the Web site's instructions. You can also view the docket at the Docket Management Facility (see the mailing address under **ADDRESSES**) between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

**D. Public Meeting**

We plan to hold a public meeting and will announce the time and place in a later notice in the **Federal Register**.

**II. Abbreviations**

- ANSI American National Standards Institute  
 ASOC Activity Specific Operating Criteria  
 CAMO Critical Activity Mode of Operation  
 DHS Department of Homeland Security  
 DP Dynamic Positioning  
 DP–1 Equipment class 1  
 DP–2 Equipment class 2  
 DP–3 Equipment class 3  
 DPO Dynamic Positioning Operator  
 DPOQ Dynamic Positioning Operator, Qualified  
 DPSAO Dynamic Positioning System Assurance Organization  
 DPVAD Dynamic Positioning Verification Acceptance Document  
 FMEA Failure Modes and Effects Analysis  
 FR Federal Register  
 GT ITC Gross tonnage as measured under 46 U.S.C. 14302, Convention Measurement System  
 IEC International Electrotechnical Commission  
 IMCA International Marine Contractors Association  
 IMO International Maritime Organization  
 MERPAC Merchant Personnel Advisory Committee  
 MISLE Marine Information for Safety and Law Enforcement  
 MODU Mobile Offshore Drilling Unit

MOU Mobile Offshore Units  
 MSC Marine Safety Center  
 MTS Marine Technology Society  
 NOSAC National Offshore Safety Advisory Committee  
 NPRM Notice of proposed rulemaking  
 OICMI Officer in Charge, Marine Inspection  
 OCS Outer Continental Shelf  
 OCS NCOE Coast Guard Outer Continental Shelf National Center of Expertise  
 OMB Office of Management and Budget  
 OSV Offshore Supply Vessel  
 § Section symbol  
 SMS Safety Management System  
 STCW Standards for Training Certification and Watchkeeping  
 U.S.C. United States Code  
 VSL Value of a statistical life  
 WSOC Well Specific Operating Criteria

### III. Basis and Purpose

#### A. Basis

Several sections of the Outer Continental Shelf Lands Act (OCSLA) (43 U.S.C. 1331–1356a) provide “the Secretary of the Department in which the Coast Guard is operating” with rulemaking authority. The Secretary’s authority under all these sections is delegated to the Coast Guard through Department of Homeland Security Delegation No. 0170.1, paragraph II(90).

43 U.S.C. 1333(d)(1) gives the Secretary “authority to promulgate and enforce such reasonable regulations with respect to lights and other warning devices, safety equipment, and other matters relating to the promotion of safety of life and property on the artificial islands, installations, and other devices referred to in subsection (a) <sup>1</sup> of this section or on the waters adjacent thereto, as [the Secretary] may deem necessary.” The Coast Guard interprets section 1333(d)(1) as conferring authority to regulate any Outer Continental Shelf (OCS) vessel or facility (collectively referred to as “OCS unit”) attached to the OCS seabed or engaged in OCS activity to support such a unit.<sup>2</sup>

Section 1347(c) requires promulgation of “regulations or standards applying to unregulated hazardous working conditions related to activities on the [OCS] when . . . such regulations or standards are [determined to be] necessary” and authorizes the

<sup>1</sup> 43 U.S.C. 1333(a) extends the Constitution, laws and civil and political jurisdiction of the United States to, among other things, all artificial islands, and all installations and other devices permanently or temporarily attached to the seabed, which may be erected thereon for the purpose of exploring for, developing, or producing resources therefrom, or any such installation or other device (other than a ship or vessel) for the purpose of transporting such resources.

<sup>2</sup> OCS activity is defined in 33 CFR 140.10 to mean “any offshore activity associated with exploration for, or development or production of, the minerals of the Outer Continental Shelf.”

modification “from time to time” of “any regulations, interim or final, dealing with hazardous working conditions on the [OCS].” Section 1348(c) requires promulgation of regulations for onsite scheduled or unscheduled inspections of OCS facilities “to assure compliance with . . . environmental or safety regulations.” Additionally, section 1356 calls for regulations requiring, with limited exceptions, all OCS units to be manned by U.S. citizens or resident aliens and to comply with “such minimum standards of design, construction, alteration, and repair” as the Secretary or the Secretary of the Interior establishes.

#### B. Purpose

Dynamic Positioning (DP) systems typically use computers to automate control of vital power and propulsion systems to maintain a vessel’s position using a position referencing system. Mobile offshore drilling units (MODUs) engaged in deepwater drilling and vessels engaged in other operations that require station-keeping adjacent to MODUs or production platforms now routinely use DP systems for cargo, personnel, or fuel transfers where conventional mooring is not practical. Coast Guard regulations have not kept pace with these new technological developments.

A DP incident that results in a loss of position <sup>3</sup> on a MODU or other vessel engaged in Outer Continental Shelf (OCS) activities is a system safety failure that may result in serious consequences for human safety and the environment during certain critical operations. For example, a loss of position on a MODU during well-control operations could result in a subsea spill that is difficult to contain.<sup>4</sup> A logistics vessel could lose position and strike a floating or fixed facility, thereby causing damage to the

<sup>3</sup> As defined in a MODU’s Well Specific Operating Criteria (WSOC) or the Activity Specific Operating Criteria (ASOC) for a vessel other than a MODU. WSOC and ASOC are defined in proposed 46 CFR 62.10–1.

<sup>4</sup> When a MODU performs an emergency disconnect from a well during critical activities involving hydrocarbon pressure, the Blowout Preventer (BOP) is the last line of defense to shut in the well and prevent a subsea spill and/or an uncontrolled fuel source from potentially feeding a fire on the MODU. The potential for failure of the BOP was illustrated during the DEEPWATER HORIZON casualty. The Coast Guard has received multiple voluntary reports of DP system failures that caused a loss of position and an emergency disconnect, including failures during critical activities when the BOP was the only thing preventing a catastrophic spill. Because there is no mandatory reporting requirement, the Coast Guard believes that emergency disconnects during critical activities are much more prevalent than indicated by voluntary reports.

gas export riser, which may result in an explosion, a loss of life, or an environmental event.<sup>5</sup> A project/construction vessel could lose position while conducting diving operations, risking the lives of the divers.<sup>6</sup>

To reduce the likelihood of a DP incident causing loss of position and the resulting consequences, many large offshore lease-holding corporations require MODUs and other vessels using DP systems while performing Critical OCS Activities <sup>7</sup> on their leases to meet a minimum DP system design standard.<sup>8</sup> Additionally, they require these vessels to implement operating guidelines and employ procedures and decision-support tools to ensure the DP system is operated within its design limits. They also require Dynamic Positioning Operators (DPOs) and other essential personnel to be well trained.

We are proposing DP standards for MODUs and other vessels that use DP to engage in OCS activities because of the risks described above; the ongoing trend of more operators moving further offshore for mineral exploration and production; the expanded use of DP, which is driven in part by the trend of moving operations further offshore and resultant mooring challenges; the difficulty of responding to incidents further offshore, as illustrated by the 2010 DEEPWATER HORIZON incident; the need to update outdated or outmoded Coast Guard regulations to align with changes in the technology

<sup>5</sup> In one example from voluntary reporting, a dynamically-positioned MODU on the U.S. OCS suffered a loss of position during critical activities while attached to a well in April 2010, and the subsea gear was damaged when the MODU performed an emergency disconnect. Another example occurred in July 2005, when the dynamically-positioned logistics vessel SAMUDRA SURAKSHA suffered a loss of position while attempting a personnel transfer and collided with the MUMBAI HIGH NORTH (MHN) platform. The collision severed at least one gas riser, causing a massive fire that destroyed the MHN platform within 2 hours and killed 22 people.

<sup>6</sup> For example, in September 2012, the dynamically positioned project/construction vessel BIBBY TOPAZ suffered a loss of position that severed the umbilical of a diver. Similar incidents involving the severing of diver umbilicals have resulted in diver fatalities.

<sup>7</sup> A *Critical OCS Activity* is defined in 33 CFR 140.305 of this NPRM, in part, as “OCS Activities where maintaining station is critical because a loss of position could cause a personal injury, environmental pollution, or catastrophic damage.” Section 140.305 also contains non-exhaustive lists of examples of activities that meet the definitions of Critical OCS Activities on a MODU and Critical OCS Activities on Vessels Other than MODUs. The Coast Guard would provide the DP system industry advance notice and an opportunity to provide input before determining that additional activities meet either of the latter two definitions.

<sup>8</sup> Based on teleconferences with industry that took place in January 2013. The minutes are publicly available at <http://www.uscg.mil/hq/cg5/cg521/>.

and operations that have transpired since these regulations were last updated; and the need to establish appropriate measures that consistently assess DP system capabilities and improve DP system reliability for each OCS activity. These DP standards include operation, design, training, manning, and watchkeeping components.

#### IV. Background

##### A. General

The U.S. Coast Guard, within the U.S. Department of Homeland Security, is responsible for, among other things, protecting the marine environment and promoting the safety of life and property on the OCS. Under OCSLA, Title 46 United States Code, 33 CFR chapter I subchapter N, and 46 CFR chapter I subchapter I–A, the Coast Guard regulates OCS facilities, MODUs, and other vessels engaged in OCS activities, including, but not limited to, tank vessels, offshore supply vessels, and other vessels involved in OCS activities.

The Bureau of Safety and Environmental Enforcement (BSEE), within the U.S. Department of Interior, is responsible for managing the nation's gas, oil, and other mineral resources on the OCS in a safe and environmentally sound manner. Under the OCSLA and Title 30 CFR, BSEE regulates activities such as oil and gas well exploration, drilling, completion, development, production and servicing, as well as pipeline transportation and storage activities under its jurisdiction. BSEE also grants rights-of use and easements to construct and maintain facilities and rights of way for sub-sea pipelines, umbilicals and other equipment. Among other BSEE regulations applicable to oil, gas, and sulfur operations on the OCS, 30 CFR part 250, subpart S, requires covered units to maintain a Safety and Environmental Management System, and 30 CFR part 250, subpart D, sets minimum requirements for blowout preventers to reduce the likelihood and impact of process safety failures.

Under a Memorandum of Agreement<sup>9</sup> between the Coast Guard and BSEE, the

<sup>9</sup> *Memorandum of Agreement Between the Minerals Management Service—U.S. Department of the Interior and the U.S. Coast Guard—U.S. Department of Homeland Security* (MMS/USCG MOA: OCS–04), dated 28 February 2008, Annex I, Items 4. c and 4. d. The Minerals Management Service has since been renamed the Bureau of Safety and Environmental Enforcement. See also, the *Memorandum of Understanding Between the Bureau of Safety and Environmental Enforcement—U.S. Department of the Interior, and the U.S. Coast Guard—U.S. Department of Homeland Security*, dated 27 November 2012. The MOA and MOU are available on the docket by following the instructions under the “Viewing comments and documents” section of this preamble.

Coast Guard is responsible as the lead agency for regulation of DP system design, and all aspects of DP system operation except criteria for well shut-in and disconnect when out of the watch circle.<sup>10</sup>

##### B. Operation and Design Standards

We initially addressed DP systems in the Coast Guard Eighth District policy letter 01–2003, dated January 22, 2003, “Use of Dynamic Positioning by Offshore Supply Vessels for Oil and HAZMAT Transfers” (available in the docket by following the instructions in the “Viewing comments and documents” section above). That policy letter provided guidance for certain Offshore Supply Vessels (OSVs) engaged in certain operations in the Gulf of Mexico, and is consistent with International Maritime Organization (IMO) Maritime Safety Committee Circular 645 (MSC/Circ.645), “Guidelines for Vessels with Dynamic Positioning Systems,” June 6, 1994, which divides DP system equipment into classes based on reliability levels designated as equipment class 1, 2, or 3. Equipment class 1 (DP–1) is the least reliable and equipment class 3 (DP–3) is the most reliable.

These DP system equipment classes are used today, and IMO MSC/Circ.645 is the foundation for the proposed regulations in this notice. DP system technologies and industry experience, however, have advanced since IMO MSC/Circ.645 was published. Consequently, there is a significant performance disparity among DP systems that have the same equipment class rating, because system configuration, operational, and maintenance decisions may effectively degrade DP systems rated as equipment class 2 (DP–2) or DP–3 to the extent that they perform as if they were rated DP–1. For example, degradation can occur when an operator of a vessel with a DP–2 system chooses to operate with closed bus ties and minimize the number of generators online in order to save fuel and avoid wear and tear on equipment. By doing so, the redundancy afforded by DP–2 may be compromised.

To address this performance disparity, we propose to incorporate IMO MSC/Circ.645 into regulations as mandatory provisions. We also propose

<sup>10</sup> Watch circles show critical distances between the wellhead and the MODU, and are used to define when a MODU must take certain actions during a loss of position incident to disconnect and separate from the BOP without damage to the MODU or well, injury to the crew, or an environmental event. Watch circles are also used in a similar way by vessels other than a MODU to avoid the adverse effects of a loss of position.

to adopt in regulations DP guidance issued by the Marine Technology Society (MTS)<sup>11</sup> as mandatory provisions to provide owners or operators of DP MODUs and other vessels essential information on how to meet some of the requirements in this notice of proposed rulemaking (NPRM).<sup>12</sup>

Additionally, in March 2010, we tasked the National Offshore Safety Advisory Committee (NOSAC) with developing recommendations for DP system design, engineering, and operation standards. The NOSAC provided its recommendations in June 2010 (available in the docket by following the instructions in the “Viewing comments and documents” section above), and we have considered them in developing this NPRM. A key feature of the NOSAC recommendations is the risk-based approach of applying higher DP equipment class requirements to higher risk operations. As part of its recommendations, the NOSAC also submitted a draft revision of the DP operations guidance developed by MTS. This draft guidance, which was issued by the Dynamic Positioning Committee of the MTS, also linked DP equipment class to operations.

After receiving the MTS draft guidelines as part of the NOSAC recommendation, we published a draft policy letter, “Dynamically Positioned Mobile Offshore Drilling Unit Critical Systems, Personnel and Training,” in the **Federal Register** on December 29, 2011 (76 FR 81957). The MTS was among those that submitted public comment on the draft letter, and we participated in several DP conferences sponsored by MTS. Also, in a “Notice of Recommended Interim Voluntary Guidance” published in the **Federal Register** on May 4, 2012 (77 FR 26562), we recommended that owners or operators of DP MODUs voluntarily follow the guidance provided in the

<sup>11</sup> MTS is an international organization incorporated in 1963 to give members of academia, government and industry a common forum for the exchange of information and ideas. Its purpose is to promote awareness, understanding, advancement, and application of marine technology. The MTS Dynamic Positioning Committee was established in 1996 to promote a greater international understanding of DP and related issues, and to provide a forum for the exchange of information about technology, training and education, improvement of reliability, development of guidelines, and other pertinent issues to facilitate incident-free DP System operations.

<sup>12</sup> “DP Operations Guidance” (Marine Technology Society, Part 1, Oct. 2010; Part 2, App. 1, March 2012; Part 2, App. 2, July 2012; Part 2, App. 3, July 2012). These documents are available in the docket for this rulemaking by following the instructions in the “Viewing comments and documents” section of this NPRM.)

MTS DP Operations Guidance (MTS DP Operations Guide), Part 2, Appendix 1, on MODUs (March 2012). Subsequently, we published a follow-up “Notice of Recommended Interim Voluntary Guidance” in the **Federal Register** on October 12, 2012 (77 FR 62247), which recommended that owners or operators of DP vessels other than MODUs<sup>13</sup> that conduct OCS activities on the U.S. OCS follow the 2012 MTS DP Operations Guide, Part 2, Appendix 2, on project construction vessels (July 2012), or Appendix 3, on logistics vessels (July 2012), as appropriate.

This NPRM would require new and existing MODUs, and new vessels other than MODUs, that engage in Critical OCS Activities using a DP system, to comply with certain provisions of IMO MSC/Circ.645 and the MTS DP operations guidance documents listed in the preceding paragraph.<sup>14</sup> These documents outline a process for determining the design limits of a DP system and operating within those limits. The MTS DP Operations Guide provides guidance on determining a DP system’s worst-case failure, which is the critical design parameter that drives how the system should be operated. The worst-case failure is used to determine the Critical Activity Mode of Operation (CAMO), which is defined in the MTS DP Operations Guide and in § 140.305 of this NPRM. The DP system’s CAMO is then incorporated into the Activity Specific Operating Criteria (ASOC) or Well Specific Operating Criteria (WSOC)<sup>15</sup> covering Critical OCS Activities; those criteria must clearly state when a specific OCS activity is a Critical OCS Activity. Operating a DP system within an ASOC or WSOC appropriate to the specific OCS activity and in its CAMO during Critical OCS Activities helps ensure that the DP vessel is operated within its design limits and reduces the likelihood of a loss of position.

In this NPRM, we propose design and operational standards for DP systems used on MODUs and other vessels. As

discussed below in Section V of this NPRM and depicted in Chart A on page 33, we structured these proposed requirements using a risk-based approach tied to the type and size of the MODU or other vessel and whether a Critical OCS Activity is conducted. We are proposing the regulations below after considering the NOSAC recommendations, the MTS and IMO guidance, the current and expected use of DP technology, and the risks associated with loss of position while using DP systems to engage in Critical OCS Activities.

### *C. Training, Manning and Watchkeeping Standards*

The increased use of DP provides significant new challenges for the operators and crews of MODUs and other vessels operating on the U.S. OCS. Properly qualified DP system operators and on-watch personnel must have an in-depth knowledge of these positioning systems, be able to constantly and consistently monitor them, and, when appropriate, take manual control to maintain the safety of the vessel, its personnel and the environment. Casualty investigations and anecdotal information regarding near misses due to DP failures have highlighted the need for regulations that address training, manning, and watchkeeping requirements in support of DP systems. The DEEPWATER HORIZON casualty investigation, in particular, highlighted DP operational concerns, including competence, communications, and handling of emergencies, and recommended that we develop operational requirements for vessels fitted with DP.<sup>16</sup>

We do not yet have any operational training standards specifically for DP systems, nor do we have manning or watchkeeping requirements that take into account operations using DP systems. Furthermore, the existing manning and watchkeeping requirements in 46 CFR part 15 apply only to U.S. vessels, including MODUs. To address these gaps, we propose minimum training, watchkeeping, and manning standards for U.S. and foreign MODUs and other vessels using DP systems to engage in OCS activities on the U.S. OCS. We developed these proposed standards after considering internationally accepted standards and input from the industry.

The regulations proposed in this NPRM were developed, in part, based

on the recognition that, under applicable law, any MODU or other vessel operating solely with a DP system is a self-propelled motor vessel and is considered to be underway. 46 CFR 10.107 defines “self propelled” as “propelled by machinery” and “mechanically propelled.” Additionally, 46 U.S.C. 2101, paragraph (16), defines “motor vessel” as “a vessel propelled by machinery other than steam.” Because any vessel operating solely with a DP system is propelled by machinery, such vessels are self-propelled. Similarly, because any vessel operating solely with a DP system is propelled by machinery other than steam, such vessels are motor vessels. Further, such vessels are self-propelled motor vessels regardless of whether the machinery involved is used for the vessel to make way (transiting) or to maintain a fixed position.

Self-propelled motor vessels, which include MODUs operating solely with a DP system, are subject to the Standards for Training Certification and Watchkeeping (STCW) Convention. Under Article III, the STCW Convention applies to seafarers serving on board seagoing ships, including self-propelled MODUs, and existing requirements in 46 CFR 15.1101 specify that a “seagoing vessel means a self-propelled vessel in commercial service that operates beyond the Boundary Line established by 46 CFR part 7. It does not include a vessel that navigates exclusively on inland waters.” Because MODUs and other vessels operating solely with a DP system on the U.S. OCS are self-propelled motor vessels operating beyond the Boundary Line, they are seagoing ships for purposes of the STCW Convention. Consequently, the STCW Convention watchkeeping and hours of rest provisions and the training requirements for personnel standing watches apply to mariners serving on MODUs and other vessels using a DP system to engage in OCS activities on the U.S. OCS.

Additionally, MODUs and other vessels operating solely with a DP system are considered to be underway. “Underway” is defined in 46 CFR 10.107 as—

A vessel . . . not at anchor, made fast to the shore, or aground. When referring to a mobile offshore drilling unit (MODU), underway means that the MODU is not in an on-location or laid-up status and includes that period of time when the MODU is deploying or recovering its mooring system.

A vessel operating with DP is underway when it is not: At anchor, made fast to the shore or ocean bottom, aground, or in a laid-up or on-location

<sup>13</sup> Throughout this NPRM, references to “vessels other than MODUs” that conduct certain activities or possess certain design characteristics are intended to mean vessels that conduct such activities or possess such characteristics and are not MODUs.

<sup>14</sup> See the discussion of “Standard DP Requirements (Critical OCS Activities)” in Section V of this preamble.

<sup>15</sup> ASOC and WSOC are defined in proposed 46 CFR 62.10–1 and are similar to the Activity Specific Operating Guidelines (ASOG) and Well Specific Operating Guidelines (WSOG) in the MTS DP Operations Guide. With Coast Guard concurrence, the content of the ASOC and WSOC may differ from the recommendations in the Operations Guide, and vessels would be required by the proposed regulations to operate within their ASOC or WSOC.

<sup>16</sup> DEEPWATER HORIZON—FINAL REPORT available at <https://homeport.uscg.mil/mycg/portal/ep/contentView.do?contentId=323899&pageType=Id=13489&contentType=EDITORIAL>.

status.<sup>17</sup> Because MODUs and other vessels operating solely with a DP system are considered to be underway, the regulations in 46 CFR subpart B that implement STCW Convention watchkeeping and hours of rest provisions and the training requirements for personnel standing watches also apply to mariners serving on MODUs and other vessels using a DP system to engage in OCS activities on the U.S. OCS.

Further, those regulations are consistent with IMO Resolution A.1079(28), entitled “Recommendations for the Training and Certification of Personnel on Mobile Offshore Units (MOUs),” and dated December 4, 2013, which defines a self-propelled MOU as “a MOU fitted with a mechanical means of propulsion to navigate independently,”<sup>18</sup> and specifies that all maritime crew members on self-propelled MOUs should meet the requirements of the STCW Convention, as amended.<sup>19</sup>

The 2010 amendments to the STCW Convention contain guidance on the training, experience, and professional competence of personnel who operate DP systems. The guidance specifies the content of the training such personnel should receive and the experience they should possess. We considered the STCW Convention guidance in developing the operational training, manning, and watchkeeping standards in this NPRM.

Additionally, in November 2011, we tasked the NOSAC with developing recommendations for safe standards for personnel operating vessels using DP systems on the OCS. The NOSAC provided its recommendations in November 2012 (available in the docket by following the instructions in the “Viewing comments and documents” section above). The NOSAC also submitted reports containing recommended practices for MODUs and other vessels operating DP systems on the U.S. OCS from each of the three main groups of NOSAC stakeholders; specifically, the owners or operators of: (1) OSVs and small vessels; (2) MODUs; and, (3) manned and unmanned barges.

In March 2012, we tasked the Merchant Personnel Advisory Committee (MERPAC) with reviewing the safe operation of dynamically

positioned vessels operating on the U.S. OCS. MERPAC provided its recommendations in September 2012 (available in the docket by following the instructions in the “Viewing comments and documents” section above).

We considered the recommendations from both advisory committees in developing the training, manning, and watchkeeping standards in this NPRM. Both committees supported the three key recommendations summarized as follows:

*Recommendation 1.* DPOs should be credentialed but not necessarily “licensed.” If the DPO is not a licensed officer, a licensed officer of the navigation watch shall be provided, if required.

*Recommendation 2.* Minimum training should meet the standards found in the International Marine Contractors Association’s “The Training and Experience of Key DP Personnel” (International Marine Contractors Association (IMCA) M 117, Rev. 1, February 2006); and IMO Maritime Safety Committee Circular 738, “Guidelines for Dynamic Positioning System (DP) Operator Training” (MSC/Circ.738/Rev. 1, July 2006). In addition to meeting these training standards, further training and/or competency assessments should be required to ensure the proper performance of duties, and should be the responsibility of companies based on the DP system, vessel type, and service/activities.

*Recommendation 3.* Operational measures, including DP system and crew competency requirements, manning, and watch protocols should be based on risk assessments performed under a Safety Management System (SMS).

We agree with the first recommendation that the DPO must be a credentialed mariner, but need not be licensed. The DPO can also be the officer in charge of a navigational watch, provided the DP system and the navigational equipment are collocated, and the person is a qualified DPO who also holds the appropriate mate or officer endorsement.

We fully agree with the second recommendation.

Regarding the third recommendation, we agree with the adoption of operational measures, including the risk-based approach to DP system and crew competency requirements.

Additionally, we partially agree with the recommendation that manning and watch protocols be risk based. Because a vessel operating under DP is considered to be underway, MODUs and other vessels using DP must comply with existing laws, regulations, and

international requirements on manning and watchkeeping. However, the process to determine watchkeeping and manning protocols should account for the capabilities and limitations of each DP system and the nature of the operations of the vessel, including MODUs. Manning and watch protocols incorporating a risk-based approach would improve the safety of navigation on the U.S. OCS.

Regarding the training requirements of personnel who stand watch on MODUs, we are cognizant that the competency requirements in STCW for masters and officers in charge of the navigational watch may exceed what is required for a MODU. The STCW Convention, however, already permits the issuance of limitations based on vessel types after identifying the competencies that are not applicable. In addition, some flag states already issue certificates of competency for masters restricted to MODUs that would be acceptable for the operation of MODUs using a DP system to engage in OCS activities on the U.S. OCS.

The existing training, watchkeeping, and hours of rest provisions in 46 CFR part 15 applicable to U.S. MODUs and other vessels are consistent with STCW requirements. Furthermore, foreign vessels operating on the U.S. OCS are obligated to comply with STCW requirements because they are seagoing vessels under the STCW Convention. As a party to the STCW Convention, we are proposing changes in this proposed rule to address the gap with respect to the application of STCW requirements to non-U.S. MODUs using a DP system to engage in OCS activities on the U.S. OCS by extending the application of the Convention requirements to them.

Application of the STCW provisions to these MODUs is consistent with the guidance in IMO Resolution A.1079(28), “Recommendations for the Training and Certification of Personnel on Mobile Offshore Units,” which specifies that crew members on self-propelled mobile offshore units should meet the requirements of the STCW Convention, as amended.<sup>20</sup> The Dynamic Positioning Operator, Qualified (DPOQ) must have a thorough knowledge of the CAMO and either the ASOC or WSOC, and must be familiar with the vessel’s Failure Modes and Effects Analysis (FMEA) so that he or she understands the vessel’s capabilities and can anticipate the vessel’s movements in the event of DP system failure or other reduced operating capacity. Although we recognize that mariners working on board MODUs and other vessels should

<sup>17</sup> 46 CFR 10.107 defines “on-location” as “a mobile offshore drilling unit [that] is bottom bearing or moored with anchors placed in the drilling configuration.”

<sup>18</sup> IMO Resolution A.1079(28), para. 2.

<sup>19</sup> *Id.* at para. 4. This document is available in the docket for this rulemaking by following the instructions in the “Viewing comments and documents” section of this NPRM.

<sup>20</sup> IMO Resolution A.1079(28), para. 4.

also have additional knowledge and understanding of the industrial mission, as provided in IMO Resolution A.1079(28), such a requirement is outside the scope of this rulemaking.

#### *D. Classification, Plan Review, and Certification*

This NPRM proposes to require any MODU that uses a DP system to engage in Critical OCS Activities, or any other vessel that uses a new DP system to engage in Critical OCS Activities, to obtain a DP notation equivalent to IMO MSC/Circ.645 equipment class DP-2 or higher from a classification society recognized under 46 CFR 8.230. The classification society must possess DP system rules that are aligned with IMO MSC/Circ.645 and meet the requirements of proposed 46 CFR 61.50-3 and the MTS DP Operations Guide provisions applicable to the vessel being classed. The Coast Guard Outer Continental Shelf National Center of Expertise (OCS NCOE) would determine whether the classification society is recognized under 46 CFR 8.230, whether its DP system rules are aligned with IMO MSC/Circ.645 and the MTS DP Operations Guide provisions applicable to the vessel being classed, and whether the notations are equivalent to DP-2 or higher. Under proposed § 61.50-20, actions of the OCS NCOE would be appealable to the U.S. Coast Guard Deputy Commandant for Prevention.

Obtaining a classification society notation of DP-2 or higher mitigates the risk of MODUs and other vessels losing position during DP operations on the U.S. OCS. A DP-2 notation from a classification society serves as a fundamental building block for safe DP operations by ensuring a minimum level of reliability for a DP system, but the notation does not consider the mission of the vessel, nor does it address operations. The MTS DP Operations Guide further enhances safe DP operations by ensuring the MODU or other vessel is operated within the design limits of the DP system for the industrial mission it must carry out.

As we discuss further in section V. of this preamble, different levels of risk are

associated with different vessels and missions. In general, we are proposing a risk-based approach tied to the type of vessel and whether the vessel conducts Critical OCS Activities. In addition, we propose to distinguish between vessels other than MODUs based on vessel size. For the lower risk category of vessels that conduct Critical OCS Activities, meeting IMO MSC/Circ.645, obtaining surveys from a DP system assurance organization (DPSAO), meeting DP personnel and system training requirements, and following the MTS guidance is sufficient to ensure a satisfactory safety level.

Accordingly, we do not propose to require such vessels to obtain plan review from a DPSAO and obtain a DP notation equivalent to IMO MSC/Circ.645 equipment class DP-2 or higher from a classification society for the purpose of determining compliance with Coast Guard DP requirements. Instead, we would rely on the DPSAO to verify compliance with the provisions of this NPRM and be able to provide evidence of this to the Coast Guard upon request.

This NPRM would require more oversight on MODUs and other larger vessels that use a DP system to engage in Critical OCS Activities. These higher-risk vessels would be required to obtain plan review and surveys from a DPSAO<sup>21</sup> in accordance with § 61.50-3 of this NPRM.

To qualify for Coast Guard authorization to conduct surveys and verify compliance with the provisions in this NPRM, a DPSAO must demonstrate competency and effectiveness in vessel plan review and survey. Some of the criteria the Coast Guard currently uses to recognize classification societies under 46 CFR 8.230 are also applicable to DP system assurance organizations, such as having quality systems based on industry standards, and financial independence from MODU and other vessel owners and builders. Additional criteria would include a documented history of

providing FMEA and survey services on a wide variety of MODUs and other vessels with various industrial missions, and a minimum amount of documented history of providing high quality, effective DP assurance, such as recommending enhancements to design or operational measures.

In developing the classification, plan review, and certification provisions of this NPRM, we consulted with organizations that currently conduct DP assurance on MODUs and other vessels on the U.S. OCS, and leaseholders who require MODUs and other vessels with which they contract to follow the MTS DP Operations Guide. Based on this feedback and our experience with classification societies and DPSAOs, we are proposing criteria for DP system assurance organizations that are highly qualified in DP system assurance.

Classification societies and other DPSAOs that are highly qualified in DP system assurance would need to be accepted by the Coast Guard after demonstrating they meet our proposed criteria. After acceptance by the Coast Guard, classification societies and other highly qualified organizations would be eligible to conduct the DP plan review and surveys that would be required on MODUs and other large vessels.

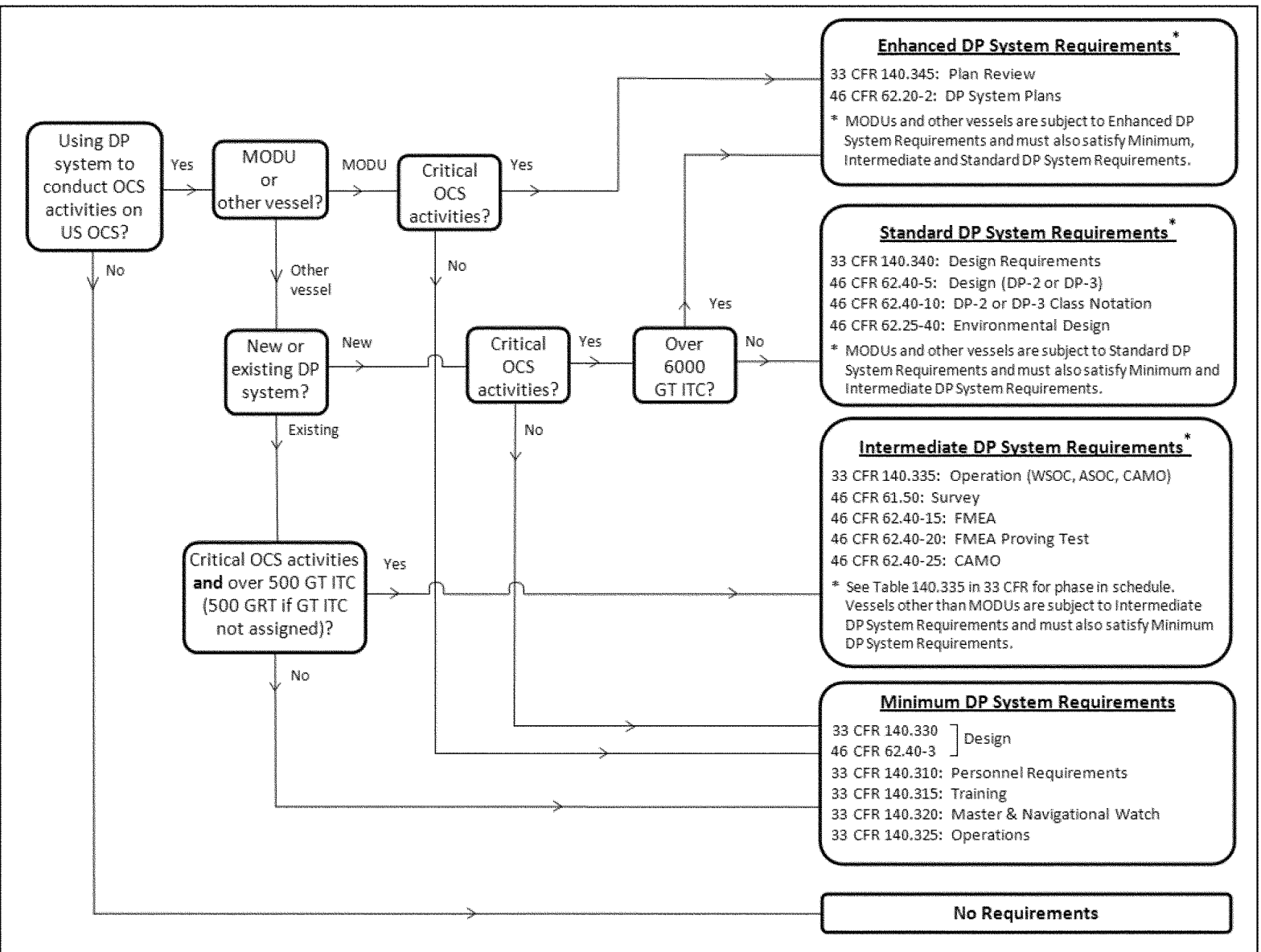
#### **V. Discussion of Proposed Rule**

This NPRM would set standards for MODUs and other vessels that use a DP system for OCS activities, but would not require vessels to be equipped with a DP system. These standards would not prevent owners or operators from choosing to meet a higher standard or seeking approval of equivalent safety measures.

In this NPRM, we took potential economic impact into consideration by phasing in certain vessels, other than MODUs, with existing DP systems. We also propose a risk-based approach tied to the type and size of the MODU or other vessel and the category (critical or non-critical) of OCS activity the DP system is used to conduct. This approach is depicted in Chart A.

**BILLING CODE 9110-04-P**

<sup>21</sup> Dynamic Positioning System Assurance Organizations are described in § 61.50-3 of this NPRM.



**Enhanced DP System Requirements \***  
 33 CFR 140.345: Plan Review  
 46 CFR 62.20-2: DP System Plans  
 \* MODUs and other vessels are subject to Enhanced DP System Requirements and must also satisfy Minimum, Intermediate and Standard DP System Requirements.

**Standard DP System Requirements \***  
 33 CFR 140.340: Design Requirements  
 46 CFR 62.40-5: Design (DP-2 or DP-3)  
 46 CFR 62.40-10: DP-2 or DP-3 Class Notation  
 46 CFR 62.25-40: Environmental Design  
 \* MODUs and other vessels are subject to Standard DP System Requirements and must also satisfy Minimum and Intermediate DP System Requirements.

**Intermediate DP System Requirements \***  
 33 CFR 140.335: Operation (WSOC, ASOC, CAMO)  
 46 CFR 61.50: Survey  
 46 CFR 62.40-15: FMEA  
 46 CFR 62.40-20: FMEA Proving Test  
 46 CFR 62.40-25: CAMO  
 \* See Table 140.335 in 33 CFR for phase in schedule. Vessels other than MODUs are subject to Intermediate DP System Requirements and must also satisfy Minimum DP System Requirements.

**Minimum DP System Requirements**  
 33 CFR 140.330 } Design  
 46 CFR 62.40-3 }  
 33 CFR 140.310: Personnel Requirements  
 33 CFR 140.315: Training  
 33 CFR 140.320: Master & Navigational Watch  
 33 CFR 140.325: Operations

**No Requirements**

**BILLING CODE 9110-04-C**  
 The chart depicts five levels of DP requirements (none, minimum, intermediate, standard, and enhanced) that MODUs and other vessels that use a DP system for OCS activities must satisfy depending on the level of risk. The requirements would be progressive;

a MODU or other vessel that is subject to the enhanced DP system requirements would need to meet the standard, intermediate, and minimum requirements as well. When developing these proposed requirements, we considered the risk-

based approach of the MTS DP Operations Guide. The MTS DP Operations Guide, in Part 1 of section 4.1, recommends various DP equipment classes based on the type of OCS activity the DP system is used to conduct. A similar approach is taken in



section 4.4, which recommends different numbers and types of position reference sensors based on the OCS activity.

The MTS DP Operations Guide also distinguishes between critical and non-critical activities and recommends more stringent operational requirements for critical activities. The proposed regulations reflect the risk-based approach in the guide by adjusting the DP system reliability standard and level of oversight depending on the size of the vessel and the OCS activity the MODU or other vessel is designed to perform. This NPRM would require owners or operators of DP MODUs and other vessels to follow the MTS DP Operations Guide, which provides essential information to support compliance with some of the requirements proposed in this NPRM.

Primarily, this NPRM would distinguish between MODUs and other vessels that use DP systems to engage in Critical OCS Activities and those that do not by requiring higher DP standards and more robust oversight for Critical OCS Activities. For example, because a MODU has a higher risk profile than a logistics vessel under the MTS DP Operations Guide, this NPRM would require a MODU to meet higher DP standards and be subject to more robust oversight than a logistics vessel.

This NPRM would also distinguish between the sizes of vessels other than MODUs that use a DP system for OCS activities. A primary risk from such vessels is a loss of position that results in a collision with another structure. The consequences of such a collision increase with the size of the vessel. For this reason, we propose to require a higher DP standard for the largest vessels other than MODUs with new DP systems, which are those greater than 600 GT ITC.

For the same reason, we also propose a phase-in for existing vessels other than MODUs, where the largest such vessels are required to comply first and the smallest—those of 500 GT ITC or less (500 GRT if GT ITC not assigned)—are required to comply only with the minimum DP requirements of this NPRM. The NPRM would require vessels other than MODUs, greater than 500 tons but less than 900 tons, equipped with existing DP systems, to comply with the intermediate requirements within 9 years after publication of the final rule; vessels of at least 900 tons but less than 1900 tons to comply within 6 years after publication of the final rule; and vessels of 1900 tons or more to comply within 3 years after publication of the final rule. The decisions to phase in vessels

other than MODUs and apply minimum requirements to the smallest of them are also discussed in the regulatory analysis section of this NPRM. Those proposed provisions are intended to reduce economic impact by providing industry time to transition to the new requirements. A detailed discussion of the top four levels of Chart A follows.

#### *Minimum DP Requirements (Non-Critical OCS Activities)*

This NPRM would require vessels, other than MODUs, that use an existing DP system to engage in non-critical OCS activities or are 500 GT ITC or less to meet minimum DP requirements. For example, a vessel 500 GT ITC or less that uses an existing DP system to engage in Critical OCS Activities would be required to meet minimum DP requirements, as would a vessel greater than 500 GT ITC that uses an existing DP system to engage in non-critical OCS activities. Additionally, vessels, other than MODUs, that use a new DP system to engage in non-critical OCS activities, and MODUs that use a new or existing DP system for the same purpose, would be required to meet minimum training and DP system requirements. There are no DP incident reporting requirements for MODUs and vessels other than MODUs subject to only Minimum DP System Requirements.

Proposed 33 CFR 140.330 and 46 CFR 62.40–3 would require the DP system controls to be designed and operated in a manner that reduces the probability of adverse events such as a drive-off or drift-off after a DP system failure. The DP system would be required to be equipped with audible and visual alarms that notify the DPO of DP system failure and independent controls immediately available to the DPO that function after the failure.

Proposed 33 CFR 140.315 would establish minimum requirements for DPO and DPOQ training that ensure they are appropriately trained in the use and limitations of the DP system. Both DPOs and DPOQs would be required to be familiar with the CAMO, and either the ASOC or WSOC of their MODU or other vessel, and to demonstrate a fundamental understanding of the specific DP system's FMEA.

Under proposed § 140.325, MODUs and other vessels would be required to have a vessel-specific DP system operating manual on board and readily available to the DPO. Additionally, MODUs and vessels conducting vessel-to-vessel transfer operations using DP systems would need to ensure clear communication and appropriate emergency preparedness between the two vessels, which may have differing

DP system capabilities and operating procedures.

#### *Intermediate DP Requirements*

In addition to meeting the minimum DP requirements described above, proposed 33 CFR 140.335 would require vessels, other than MODUs, greater than 500 GT ITC (500 GRT if GT ITC not assigned) that use a DP system installed before [30 DAYS AFTER DATE OF PUBLICATION OF THE FINAL RULE] to engage in Critical OCS Activities, to develop and adhere to their CAMO and ASOC. A Critical OCS Activity is defined in proposed 33 CFR 140.305 as an activity on the OCS in which the accuracy and consistency of the vessel's position is a major factor in the safety of personnel, property, and the environment. For the reasons stated in section III.B. of this preamble, we believe that the risk of an injury, collision, or spill incident is higher when a DP system is used to engage in Critical OCS Activities and should be subject to a higher safety requirement.

Additionally, 33 CFR 140.335 would require MODUs that use a DP system to engage in Critical OCS Activities to develop and adhere to their CAMO and WSOC. The CAMO, ASOC, and WSOC would ensure each DP system is operated within its design limits for the specific operation. Owners or operators would also be required to report DP system incidents involving a reactive change from “green” to “yellow” or “red” as defined by the ASOC or WSOC. The reporting requirement would apply to DP system incidents that occur at any time, not just those that occur during Critical OCS Activities.

Proposed 46 CFR 61.50–2 would require DP system surveys to be completed by a DPSAO. In addition, the MODU or vessel owner or operator would be required to provide the Coast Guard with at least 30 days advance notice of these surveys, which would enable the Coast Guard oversight needed to strike a balance between ensuring that third parties are adequately performing delegated functions on the Coast Guard's behalf, and reducing visits to the vessel by the Coast Guard.

The surveys under proposed 46 CFR 61.50–5 through 61.50–15 are based on those described in IMO MSC/Circ.645 and the MTS DP Operations Guide, and would consist of an initial survey, an annual survey that ensures the DP system remains in good working order, and periodic surveys that fully test all systems at least once every 5 years. The specific tests to be conducted during the surveys and the documentation that

would be required are discussed in detail in proposed part 61 of this NPRM.

Proposed 46 CFR 61.50–3 creates requirements that each DPSAO must meet to receive approval from the OCS NCOE to conduct the surveys described above. These provisions include requirements for DPSAOs to produce documents showing they have a history of providing DP assurance to MODUs and vessels other than MODUs, and have adequate resources and experience that demonstrate they are highly qualified to provide DP system oversight.

Proposed 46 CFR 61.50–4 requires an annual report to be submitted by each DPSAO to the OCS NCOE. The annual report must contain each investigation summary reported to the DPSAO under proposed 33 CFR 140.335(i). The annual report would provide valuable feedback and allow the Coast Guard to verify that the FMEA, WSOC, ASOC and CAMO are being updated with lessons learned that address the cause(s) of each incident, thereby reducing the likelihood that future incidents will occur. Additionally, the OCS NCOE may periodically audit the records of DPSAOs to determine whether they are continuing to provide the DP system oversight necessary to verify that DP system are in compliance with the applicable requirements of this NPRM.

Proposed 46 CFR 62.40–15 through 62.40–25 would require MODUs and other vessels to which § 140.335 applies to conduct testing based on the FMEA to determine the CAMO for the DP system. The purpose of the testing is to uncover failure modes. For example, failure modes that could be transmitted through a bus tie should be included in the CAMO. For this type of failure mode, the CAMO should require electrical isolation during Critical OCS Activities to prevent the failure from resulting in a complete power loss and subsequent drift off.

Compliance with these provisions of this NPRM would be documented on the Dynamic Positioning Verification Acceptance Document (DPVAD) issued by a DPSAO under proposed 33 CFR 140.335.

#### *Standard DP Requirements (Critical OCS Activities)*

In addition to meeting the minimum and intermediate DP requirements described above, proposed 33 CFR 140.340 and 46 CFR 62.25–40 and 62.40–5 would require vessels other than MODUs, of 6000 GT ITC or less, that use a new DP system to engage in Critical OCS Activities, to comply with IMO MSC/Circ.645 and the environmental type testing provisions of

International Electrotechnical Commission Standard 60092–504 “Electrical Installation in Ships”, and would require that such vessels meet the provisions of the applicable MTS DP Operations Guide. Because Critical OCS Activities consist of relatively high-risk activities, including those where loss of position on a vessel could strike the production riser of a floating or fixed facility, which may result in an explosion, a loss of life, and/or an environmental event similar in magnitude to that of the DEEPWATER HORIZON, Critical OCS Activities should be subject to a higher safety requirement.

DP systems on these vessels would, at a minimum, be required to comply with the provisions of IMO MSC/Circ.645 and the MTS DP Operations Guide (incorporated by reference, see § 62.05–1) relevant to equipment class 2 (DP–2) or higher. The applicable provisions of IMO MSC/Circ.645 are the following paragraphs:

- 1.1 Purpose and Responsibility;
- 1.3 Definitions;
- 2 Equipment Classes;
- 3 Functional Requirements; and
- 4 Operational Requirements.

As discussed in the “Background” section above, IMO MSC/Circ.645 and the MTS DP Operations Guide contain recommendations. Circular 645, however, is a mature, performance based document with wide industry acceptance, and we propose to incorporate it into regulations as mandatory provisions. The proposed regulations would also include a survey and certification scheme different from that in the Circular. Specifically, we propose to require the initial survey to include a Failure Modes and Effects Analysis (FMEA) proving test, and require the Critical Activity Mode of Operation (CAMO) to be identified.

Development of a CAMO and ASOC or WSOC would also be required for each vessel and well, which have different characteristics and risks. Because of these differences, the proposed regulations cannot prescribe in detail the content of these documents. Such regulations would be extremely lengthy, in a constant state of change as DP technology evolves, and prone to overbroad misapplication of standards that should be tailored to each vessel and well.

Instead, we propose to require that owners or operators consult the applicable portions of the MTS DP Operations Guide as a method of drafting these documents and complying with the other mandatory provisions of the regulations. The MTS DP Operations Guide contains

principles for the development of these documents that address the risks experienced by today’s modern DP vessels. The Guide also contains highly useful examples that will be applicable to a large majority of vessels and wells.

We anticipate that the examples in the MTS DP Operations Guide will be used by industry largely without change. However, some vessels will employ solutions to obtain DP reliability that vary from the examples in the Guide, and will have the option to request the use of alternative guidance from the Coast Guard Office of Design and Engineering Standards (Commandant (CG–ENG)). Where this occurs, the OCMI, the vessel owner or operator, the classification society, and the DPSAO will apply the relevant principles of the MTS DP Operations Guide to ensure the ASOC or WSOC and CAMO provide a sufficient level of DP reliability to meet the DP–2 performance standard in IMO MSC/Circ.645, paragraph 2.2.2.

Owners or operators would also be required under proposed 46 CFR 62.40–10 to obtain an equivalent class notation from a classification society possessing DP system rules that are aligned with IMO MSC/Circ.645 and meet the requirements of proposed 46 CFR 61.50–3 and the MTS DP Operations Guide provisions applicable to the vessel being classed. These other vessels would also need to meet the environmental design requirements of proposed 46 CFR 62.25–40. That section is modeled after a standard promulgated by the International Electrotechnical Commission (IEC) to ensure critical equipment is appropriately designed to withstand the marine environment.<sup>22</sup>

#### *Enhanced DP Requirements (MODUs and New DP Systems on Large Vessels)*

In addition to meeting the minimum, intermediate, and standard DP requirements described above, proposed 33 CFR 140.345 and 46 CFR 62.20–2 would require vessels other than MODUs, greater than 6000 GT ITC, that use new DP systems to engage in Critical OCS Activities, and MODUs that conduct Critical OCS Activities, to obtain plan review and surveys from a DPSAO, which would be subject to oversight by the Coast Guard.

The enhanced DP requirements are intended to improve DP designs to support the industrial mission of the MODU or large vessel, and are necessary because, as discussed in the Background section of this preamble, a significant performance disparity exists in various

<sup>22</sup> IEC 60092–504, Third Edition 2001–03, Electrical Installations in Ships—Part 504: Special Features—Control and Instrumentation, Clause 5.

DP systems rated DP-2. For example, a DP-2 system on one vessel could consist of a power system with two large generators, two switchboards, and a bus tie; a DP-2 system on another vessel could consist of four smaller generators, four switchboards, and four bus ties. All other things being equal, a bus failure on the first power system would result in a 50 percent reduction in power and thrust, while a bus failure on the second would result in a 25 percent reduction.

For these reasons, and particularly because of the higher risk profile of these vessels when they are engaging in Critical OCS Activities with a DP system, more rigorous safety standards are necessary.

#### *Dynamic Positioning Verification Acceptance Document (DPVAD)*

Proposed 33 CFR 140.335 would create a new document for vessels other than MODUs of at least 500 GT ITC, and MODUs that use a DP system to conduct Critical OCS Activities.

A DPVAD would document compliance with the requirements of this NPRM. This document would need to be renewed every 5 years, and would be issued by a DPSAO after verifying that the vessel has met the applicable DP requirements in this NPRM.

#### *Training*

Operating a DP system requires such familiarity with the system that the industry and international community have developed the term DPO to describe a person qualified to operate a vessel in DP system mode. This NPRM proposes to adopt that term, as well as the related concept of a qualified trainee, called a DPOQ. Both terms are defined in proposed 33 CFR 140.305.

We propose to require that when using a DP system to maintain station, a DPO must either operate the DP system or supervise a DPOQ who is operating the DP system. A DPOQ, if present, may operate the DP system if the DPO and the vessel's master have endorsed the DPOQ in writing. Both the DPO and DPOQ must be mariners holding credentials as a rating forming part of the navigational watch, able seafarer-deck, operational-level deck officer, chief mate, master, a rating forming part of the engineering watch, able seafarer-engine, operational-level engineer officer, second engineer, or chief engineer, and must have completed the applicable DP system training set out in proposed 33 CFR 140.315.

The training requirements for the DPO and DPOQ are based on international standards: Section B-V/e of the STCW Code; IMCA M 117 Rev.1, "The

Training and Experience of Key DP Personnel"; and IMO MSC/Circ. 738, "Guidelines for Dynamic Positioning System (DP) Operator Training". There are several training facilities in the United States that are certified by the Nautical Institute, which has established industry-accepted standards meeting the IMO and IMCA guidance. Mariners who receive the training specified in proposed 33 CFR 140.315, and familiarize themselves with the specific system to be operated on a particular vessel, are qualified to operate that MODU or other vessel in DP mode.

A DPOQ, by contrast, is a trainee qualified to operate a DP system when directly supervised by a DPO. The DPOQ must complete training that provides an introduction to the functions and use of a DP system, as well as 30 days of training on board any DP system-equipped vessel, and must demonstrate understanding of the specific vessel's system he or she would operate such that the DPO and the vessel's master give written endorsements of the DPOQ's qualifications. This training sequence is based on IMCA M 117, and is in keeping with current industry practices.

Because DP systems vary widely, qualifying as a DPOQ is vessel specific; a DPOQ from one vessel would still require familiarization to qualify as another vessel's DPOQ. The DPOQ must be familiar with the specific vessel's DP system, including the generation, distribution, and management of power. The DPOQ also must have a thorough knowledge of the CAMO and either the ASOC or WSOC, and must be familiar with the vessel's FMEA so that he or she understands the vessel's capabilities and can anticipate the vessel's movements in the event of DP system failure or other reduced operating capacity. Although we recognize that mariners working on board MODUs and other vessels should also have additional knowledge and understanding of the industrial mission, as provided in IMO Resolution A.1079(28), "Recommendations for the training and certification of personnel on mobile offshore units (MOUs)," such a requirement is outside the scope of this rulemaking.

All records of training for the DPO and DPOQ must be maintained by that individual and the owner or operator of the vessel. The Coast Guard would accept company letters, course completion certificates from a training institution, letters or course completion certificates from the DP system manufacturer, or certifications from an

industry-accepted organization as proof that the seafarer received training.

#### *Manning and Watchkeeping*

We also propose to include a definition of DP system in 33 CFR 140.305 and 46 CFR 62.10.1 to make clear that a vessel using a DP system is a vessel "underway." As discussed above in the "Background" section of this preamble, a vessel using a DP system is underway when it is not at anchor, made fast to the shore or ocean bottom, aground, or in an on-location or laid-up status. Clarifying that a vessel conducting DP operations is underway would ensure that appropriate manning, training, certification, and hours of rest requirements apply.

To address the application of the STCW Convention to MODUs and other vessels using a DP system to engage in OCS activities on the U.S. OCS, we propose manning requirements in 33 CFR 140.320 that meet the training, certification, and watchkeeping provisions of the STCW Convention. The specifics of these requirements are discussed below.

We propose a risk-based approach using a performance standard in 33 CFR 140.310 to determine the number of DPOs and DPOQs necessary for the safe operation of the DP system. The performance standard includes compliance with STCW hours of rest, conditions for the operation with a DPO and DPOQ, use of the officer of the watch as the DPO, and consideration of the nature of the DP operations and the DP system. This approach provides the flexibility to use different configurations when operations or the DP system may require additional personnel, in order to enhance navigational situational awareness.

To ensure proper navigation and adequate operational oversight of DPOs, we are proposing a requirement in 33 CFR 140.320 that any MODU or other vessel using a DP to engage in OCS activities on the U.S. OCS must be under the command of a master and maintain navigational watches.

These proposed requirements are necessary for the safety of the vessel and its personnel in the event of a loss of position that requires the use of manual control, and when other navigational issues arise that are beyond the duties and responsibilities of the DPO. Even when maintaining a fixed position using a functional DP system, a situation may arise, such as avoiding a collision with a vessel, that would be outside of the scope of a DPO's training, authority, and skill level, and require a qualified master and navigational watch. Additionally, these proposed

requirements are consistent with STCW training, certification, and watchkeeping provisions, as well as the requirements in 46 CFR part 15, that are applicable to U.S. MODUs and other vessels.

To address the concern that the requirements in the STCW tables of competency for masters and officers in charge of the navigational watch exceed what is required in these proposed regulations for a MODU, the STCW Convention permits the issuance of limitations based on vessel types after identifying the competencies that are not applicable. Although the proposed requirements do not refer to specific STCW regulations or identify the appropriate competencies (specifically, knowledge, understanding, and proficiency) applicable to MODUs, the Coast Guard will address any differences through the issuance of exemptions and limitations to the credential in accordance with 46 CFR 11.301(f). We may also consider developing policy to identify any differences based on MODU type, if appropriate.

In addition, we propose to include a requirement in 33 CFR 140.320 that the master and officers meet hours of rest requirements in Regulation VIII/1 of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended, and Section A-VIII/1 of the Seafarers' Training, Certification and Watchkeeping Code. These provisions would ensure that the watchkeeping personnel and the watches on board MODUs and other vessels are arranged to protect personnel from impairment because of fatigue. These proposed

requirements are consistent with the existing regulations in 46 CFR part 15 as applicable to U.S. MODUs and other vessels.

We are also proposing a requirement in 33 CFR 140.310 to ensure that the DPO and the officer of the watch are in direct communications during DP system operation. Nothing in this NPRM, however, is to be interpreted as removing or decreasing the responsibility of the master and watchstanding officers for the safe navigation and operation of the vessel. Changes to the authority of the master and crew on a MODU, including matters relating to a MODU's industrial mission, are outside the scope of this NPRM.

Lastly, we propose to include a requirement in 33 CFR 140.320 that each MODU be issued a manning document identifying the personnel complement necessary to maintain watches and meet the hours of rest requirements. Furthermore, a provision similar to existing 46 CFR 15.520 would permit the flag state to also consider the specialized nature of each MODU, including the limitations and capabilities of the DP system, when determining the minimum manning complement.

**VI. Incorporation by Reference**

Material proposed for incorporation by reference appears in 33 CFR 140.7, 46 CFR 61.03-1, and 46 CFR 62.05-1. See **ADDRESSES** for information on viewing this material. Copies of the material are available from the sources listed in 33 CFR 140.7, 46 CFR 61.03-1, and 46 CFR 62.05-1. Before publishing a binding rule, we will

submit this material to the Director of the Federal Register for approval of the incorporation by reference.

**VII. Regulatory Analyses**

We developed this NPRM after considering numerous statutes and Executive Orders (E.O.s) related to rulemaking. Below, we summarize our analyses based on these statutes or E.O.s.

*A. Regulatory Planning and Review*

Executive Orders 12866 ("Regulatory Planning and Review") and 13563 ("Improving Regulation and Regulatory Review") direct agencies to assess the costs and benefits of available regulatory alternatives and, if regulation is necessary, to select regulatory approaches that maximize net benefits (including potential economic, environmental, public health and safety effects, distributive impacts, and equity). Executive Order 13563 emphasizes the importance of quantifying both costs and benefits, of reducing costs, of harmonizing rules, and of promoting flexibility. This NPRM is not a significant regulatory action under section 3(f) of E.O. 12866.

Accordingly, this NPRM has not been reviewed by the Office of Management and Budget. A preliminary Regulatory Analysis (RA) discussing costs, benefits, and alternatives considered is available in the docket by following the instructions in the "Viewing comments and documents" section of this preamble above.

Table 1 summarizes the impacts of this NPRM.

TABLE 1—SUMMARY OF AFFECTED POPULATION, COSTS, AND BENEFITS

Category	Notice of proposed rulemaking
Applicability .....	U.S.- and foreign-flag vessels that use an existing or new DP system.
Affected population over 10-year period.	583 existing OSVs, 53 existing MODUs, and 43 existing crewboats.
Industry Costs (7% discount rate) ..	322 future OSVs, 57 future MODUs, and 20 future crewboats. \$20.180 million (annualized). \$141.733 million (10-year).
Benefits (7% discount rate) .....	Monetized, avoided property damage and loss of production: \$8.812 million (annualized). \$61.895 million (10-year). Non-quantified: Reducing the risk of injuries, loss of life, and environmental damage due to a loss of position resulting from a DP failure.
Breakeven Analysis .....	One incident of the magnitude of the SAMUDRA SURAKSHA disaster would need to be prevented every 48 years for the benefits to equal the costs.

\* Please refer to the Regulatory Analysis in the docket for details.

A summary of the RA follows. During interactions with industry at National Advisory Committees, DP conferences, and industry training seminars in DP design and operations,

industry expressed the need for a uniform DP standard from the United States as a Coastal State. In response, we have developed this NPRM, which would provide MODUs and other

vessels that engage in OCS Activities while using a DP system on the U.S. OCS a uniform standard that addresses design, construction, and operation of DP systems. This standard would aid

owners or operators in safely meeting energy market demands and pursuing offshore energy ventures that are farther offshore and in deeper waters.

To minimize the costs to industry, we have based our proposed standards and requirements on established guidelines used by today’s DP industry, specifically IMO MSC/Circ.645 and the MTS “DP Operations Guide.” We have

also limited the application of the DP system design standards to existing and new MODUs, and to new vessels other than MODUs (e.g., OSVs and crewboats) that engage in Critical OCS Activities while using a DP system. Vessels other than MODUs, with existing DP systems that conduct Critical OCS Activities, would be “grandfathered” from complying with the DP systems design

standards, which are the most costly requirements of this NPRM, and would be permitted to phase-in operating standards, such as developing and maintaining an FMEA, CAMO, and ASOCs, reporting and investigating DP incidents, and conducting DP Surveys, according to the applicable date listed in Table 2.

TABLE 2—PHASE-IN SCHEDULE FOR VESSELS (EXCEPT MODUS) WITH EXISTING DP SYSTEMS

Tonnage of vessel other than MODU	Date requirements effective	Number of OSVs and crewboats affected
At least 1,900 GT ITC .....	Date of Final Rule + 3 years .....	224 OSVs and 0 Crewboats.
At least 900 GT ITC .....	Date of Final Rule + 6 years .....	183 OSVs and 0 Crewboats.
Greater than 500 GT ITC .....	Date of Final Rule + 9 years .....	85 OSVs and 1 Crewboat.

This flexibility in the phase-in schedule is expected to minimize costs for the population of vessels most likely to not be in compliance with the provisions of this NPRM by date of publication of a final rule. Further, by extending the phase-in timeline, we have reduced the possibility that DP testing providers would be overwhelmed by any sudden increase in demand for their services. Therefore, although a less lengthy phase-in schedule would lead to an earlier accrual of benefits, it may not lead to lower costs overall, if indirect costs (such as a lower quality of service, longer delays between testings, and higher prices in the short-term) are also taken into account.

When properly designed and operated within design limits, DP systems provide industry with an ability to safely maintain position, using these rapidly evolving, computerized systems to stay within meters of their desired location even in the face of wind, wave, and current forces. However, these systems are not immune from failures and, because MODUs and other vessels in this industry perform high-hazard industrial missions, including drilling for oil and gas, conducting personnel transfers, and handling large quantities of oil and hazardous materials, a loss of position could result in an incident with significant loss of life or large spill of oil or hazardous materials. Establishing minimum standards for DP systems used to conduct OCS activities would promote the safety of people and property engaged in such operations.

While this NPRM would impose no carriage requirements nor require use of DP, it would require that minimum design, operation, manning, personnel, and training requirements be met if the vessel is using DP.

This NPRM would also require vessels engaged in certain critical situations (e.g., transfer of personnel and/or hazardous materials) to meet DP–2 design standards to ensure that a single failure of a primary component does not lead to catastrophic consequences.

Additionally, the provisions required of MODUs and other vessels engaged in Critical OCS Activities enhance the capability of a DP system beyond what it would achieve by obtaining a DP equipment class 2 or 3 notation from a classification society with DP rules aligned with IMO MSC/Circ.645. The enhanced capability enables a MODU or other vessel to more safely perform its industrial mission because the DP system is more fault-tolerant and fault-resistant, and has greater capability to maintain position after a worst-case failure than a vessel operating with DP equipment class 1. Further, these additional provisions would require owners or operators to develop and implement operational measures and decision-support tools (ASOC or WSOC, and CAMO) to operate a DP system within its design limits, mitigating the severity of a DP system failure in the event that one occurred.

Reason for Coast Guard Action

MODUs and other vessels that use DP to engage in OCS activities that operate

with lower safety standards may cause harm or increased risk of harm to human safety and the environment. The costs of these lower safety standards (increased risk) are not completely borne by the OSV or MODU owners or operators, so they are external to the business decisions of these owners or operators. The crew, which may face increased risk from lower safety standards, may not have any say in safety-related decisions. Since the crew may be adversely affected by business decisions which it may not be able to mitigate through increasing its price (labor cost), it absorbs the cost of the externality (increased risk from lower safety standards), which is a market failure. Oil spills that result from OSV or MODU accidents also impose an externality in the forms of environmental damage and clean-up costs that are not borne directly by the OSV and MODU owners.

Affected Population

Based on the Coast Guard’s Marine Information for Safety and Law Enforcement (MISLE) data, we estimate that 583 existing OSVs (460 U.S.-flag), 53 existing MODUs (2 U.S.-flag), and 43 existing crewboats (42 U.S.-flag) would be affected by this NPRM. Using historical population data from MISLE, we forecast that over the 10-year period of this analysis, 322 future OSVs (which include OSVs less than 6,000 GT ITC and OSVs of at least 6,000 GT ITC), 579 future MODUs, and 20 future crewboats would be affected by this NPRM.<sup>23</sup>

<sup>23</sup> Of this, 255 future OSVs, 2 future MODUs, and 16 future crewboats are expected to be U.S.-flag.

TABLE 3—SUMMARY OF AFFECTED POPULATION

Year	Future OSVs less than 6,000 GT ITC	Existing OSVs less than 6,000 GT ITC	Phased-in OSVs less than 6,000 GT ITC	Future OSVs of at least 6,000 GT ITC	Existing OSVs of at least 6,000 GT ITC	Phased-in OSVs of at least 6,000 GT ITC	Future MODUs	Existing MODUs	Future crewboats	Existing crewboats	Phased-in crewboats
Base ..	.....	563	.....	.....	20	.....	.....	53	.....	43	.....
1 .....	22	.....	0	5	.....	0	6	.....	3	.....	0
2 .....	46	.....	0	10	.....	0	14	.....	6	.....	0
3 .....	54	.....	0	15	.....	0	20	.....	10	.....	0
4 .....	77	.....	224	20	.....	20	27	.....	12	.....	0
5 .....	102	.....	0	25	.....	0	33	.....	14	.....	0
6 .....	128	.....	0	30	.....	0	38	.....	15	.....	0
7 .....	159	.....	183	35	.....	0	43	.....	16	.....	0
8 .....	195	.....	0	40	.....	0	48	.....	17	.....	0
9 .....	233	.....	0	45	.....	0	53	.....	18	.....	0
10 .....	272	.....	85	50	.....	0	57	.....	20	.....	1

This NPRM would create design, operating, manning, and safety standards by adding or amending regulations in the following categories:

#### Minimum DP System Requirements

*DPO and DPOQ Personnel and Training*<sup>24</sup> (33 CFR 140.310 and 140.315)—would establish the minimum number of DPOs and DPOQs necessary for the safe operation of the DP system, as well as minimum training and experience requirements that a DPO or DPOQ must meet prior to operating a DP system on the U.S. OCS. A DPO or DPOQ must demonstrate thorough knowledge of the vessel's DP system components, operational manuals, and the CAMO and ASOC or WSOC. We expect no additional cost to be incurred by industry as a result of these manning requirements and training procedures, because industry contracts currently require these standards.<sup>25</sup> In addition to incorporating these standards into this NPRM, we would also require company letters, course completion certificates from a training institution, letters or course completion certificates from the DP system manufacturer, or certification from an industry-accepted organization as proof of completion of training requirements. We estimate that it would cost industry \$14.30 per DPO or DPOQ to have this documentation made available for review by a Coast Guard official during an inspection (6 minutes × \$143.00 per hour). This cost would be incurred by an owner or operator each time a new DPO/DPOQ is hired.

*DP Manning Requirements* (33 CFR 140.320)—would require all applicable

<sup>24</sup> In year 1, we expect that 585 OSVs less than 6,000 GT ITC, 25 OSVs of at least 6,000 GT ITC, 59 MODUs, and 46 crewboats would incur costs as a result of this provision. Over the 10-year study, 1,078 vessels would incur costs.

<sup>25</sup> Based on teleconferences with industry that took place in January 2013. The minutes are publicly available at <http://www.uscg.mil/hq/cg5/cg521/>.

MODUs and other vessels using a DP system to engage in OCS activities on the U.S. OCS to be under the command of a master and have an adequate number of mates or navigational watches to meet the hours of rest requirements in Regulation VIII/1 of the STCW and Section A—VIII/1 of the “Seafarers’ Training, Certification and Watchkeeping Code.” By providing some flexibility in the minimum number of required masters and navigational watches, we expect that all but six vessels would comply with this requirement prior to the issuance of a final rule in order to compete in international markets that already require this standard.<sup>26</sup> We estimate that if a vessel would not have complied with this requirement in the absence of a final rule, then at most it would incur an annual cost of \$1,193,920. This maximum cost would be incurred if a vessel did not meet the minimum number of mates and navigational watches as required in this proposed provision. We estimate that each of the six non-compliant MODUs would need to hire two new masters and six new navigational watches in order to comply with the hours of rest requirements in STCW.<sup>27</sup>

<sup>26</sup> After examining all applicable vessels’ Minimum Safe Manning Certificates, we found only six existing U.S. OCS MODUs that would not comply with this requirement. All six of these MODUs are owned by a single entity and are flagged by Liberia, which considers these MODUs non-self-propelled.

<sup>27</sup> The Coast Guard assumes that these positions would operate under current industry practices: A master and navigational watch would work a 28-day on/off schedule, with each work day consisting of an 8-hour shift; the master would then be on call for the remainder of the day, while three navigational watches would rotate 8-hour shifts throughout the day. We also expect that two masters and six navigational watches would alternate 28-day on/off rotations throughout the year in order to keep that MODU operational year round. As a result, one crew, which consists of three navigational watches and one master, would

#### Intermediate DP System Requirements

*FMEA and FMEA Proving Test Document*<sup>28</sup> (33 CFR 140.335, 46 CFR 62.40–15 and 62.40–20)—would require all applicable vessels that use a DP system while engaging in Critical OCS Activities to complete and maintain an FMEA and an FMEA proving test document. An FMEA would test a vessel’s DP system to establish design and operational limits, which could then be used to develop a CAMO and ASOC or WSOC. With these support tools, operators would have criteria for deciding when to cease operations to prevent a worst-case failure from occurring.

Based on roundtable discussions that included a majority of the owners and operators of MODUs operating on the U.S. OCS,<sup>29</sup> we expect that all existing and future MODUs would comply with this requirement even in the absence of this NPRM in order to compete in international markets. However, similar roundtable discussions with OSV and crewboat owners and operators indicated that roughly 50 percent of current vessels would not be in compliance with this proposed requirement. Owners and operators of OSVs and crewboats further indicated that it is likely that a similar percentage of future vessels would also not be compliant with these proposed requirements in the absence of a rule. Through statements given by FMEA testing providers, we estimate that it

work seven rotations per year, while the other group would work six rotations per year.

<sup>28</sup> In year 1, we expect that 12 OSVs under 6,000 GT ITC, and 2 crewboats would incur costs as a result of this provision. Over the 10-year study, 390 OSVs under 6,000 GT ITC and 14 crewboats would incur costs.

<sup>29</sup> During the development of this NPRM, the Coast Guard held three roundtable discussions with representatives from various industry segments. Participants and summaries from these discussions are available at <http://www.uscg.mil/hq/cg5/cg521/>.

would cost an owner or operator of a OSV or crewboat a one-time payment of \$275,000 per vessel to comply with this proposed requirement.

*CAMO and ASOC or WSOC*<sup>30</sup> (33 CFR 140.335)—would require all applicable vessels to include in the vessel's DP Operations Manual a defined CAMO and, depending on whether the vessel is a MODU or vessel other than a MODU, a ASOC or WSOC. A vessel's CAMO is developed after conducting an FMEA to determine a DP system's worst-case failure. The CAMO will tabulate how to configure the vessel's DP system, including power generation and distribution, propulsion, and position reference systems, so that the DP system, as a whole is fault tolerant and fault resistant. The vessel's CAMO is then used to develop an ASOC or WSOC that will provide criteria on the operational, environmental, and equipment performance limits considered necessary for safe DP system operations while operating on a well. These tools are supplements to a DP-2 or higher class system, which would further decrease the probability that a worst-case failure could occur.

Based on roundtable discussions with MODU owners and operators, all existing and future MODUs are expected to comply with the requirement that a MODU must have a WSOC, although only 70 percent of existing and future MODUs have—or are expected to have—developed a CAMO in the absence of this proposed rule.<sup>31</sup> Similar conversations with owners and operators of OSVs and crewboats indicated that approximately 50 percent of current vessels would not be compliant with either of these requirements. Owners and operators of OSVs and crewboats further indicated that it is likely that a similar percentage of future vessels would also not be compliant with these requirements in the absence of a rule. Through statements provided by industry, we estimate that it would cost an owner or operator a one-time payment of \$9,120 per vessel to develop a CAMO and ASOC or WSOC simultaneously (160 hours × \$59.00 per hour), or \$4,560 to develop a CAMO or ASOC or WSOC separately (80 hours × \$59.00 per hour).

<sup>30</sup>In year 1, we expect that 15 OSVs, and 2 crewboats would incur costs as a result of this provision. Over the 10-year study, 390 OSVs under 6,000 GT ITC, 40 OSVs of at least 6,000 GT ITC, 35 MODUs (only the cost of a CAMO), and 14 crewboats would incur costs.

<sup>31</sup>Based on teleconferences with industry that took place in January 2013. The minutes are publicly available at <http://www.uscg.mil/hq/cg5/cg521/>.

*Report Reactive Change of DP Status*<sup>32</sup> (33 CFR 140.335)—would require all applicable vessels to report to an authorized DPSAO any incident in which the vessel experiences a reactive change of the DP system's status from green to yellow and/or red. Neither the Coast Guard nor the IMO or MTS currently require vessels that use DP systems to report changes in status. The Coast Guard reviewed documents compiled by the International Marine Contractors Association (IMCA), which is an international trade association that represents offshore, marine, and underwater engineering companies. The IMCA documents compile Dynamic Positioning station-keeping incidents voluntarily reported by IMCA members. Although the documents do not specifically note whether an incident results in a change in status (*i.e.*, green to red or yellow), IMCA notes that an activated red DP alert status would classify as an incident. We use the IMCA incident rate per vessel as the best available data on the change in status from green to red.

Based on a review of IMCA station keeping incident reports from 2004 through 2010 (which is the last year the report was available publicly), we estimated that a vessel would experience a reactive change of the DP system's status from green to red an average of 1.45 times per year.<sup>33</sup> Based on subject matter expert input from Coast Guard personnel in the Office of Design and Engineering Standards, we assume that vessels would incur a similar number of reactive changes of the DP system's status from green to yellow, and therefore estimate that an owner or operator would need to report an average of 2.90 incidents per year per vessel. The rate of DP incidents per vessel may decrease over time as a result of other requirements in this proposal. We assess the impact of the decreased incident rate in the Benefits section of this document.

Because this proposed requirement would be new, we anticipate creating new burdens for industry. We estimate that it would cost an owner or operator \$47.67 per change in DP status to comply with this proposed requirement (20 minutes × \$143 per hour). Further, we estimate that it would cost the authorized DPSAO \$13.67 per change in

<sup>32</sup>In year 1, we expect that 22 OSVs under 6,000 GT ITC, 5 OSVs of at least 6,000 GT ITC, 59 MODUs, and 3 crewboats would incur costs as a result of this provision. Over the 10-year study, 764 OSVs under 6,000 GT ITC, 70 OSVs of at least 6,000 GT ITC, 110 MODUs, and 21 crewboats would need to report DP incidents.

<sup>33</sup>These reports can be purchased through the IMCA Web site at: <http://www.imca-int.com/>.

DP status to review and record the information, which we assume would be passed on to the owner or operator through the form of the DPSAO charging higher prices for its services (20 minutes × \$41.00 per hour).<sup>34</sup>

*DP Incident Investigations*<sup>35</sup> (33 CFR 140.335)—would require all applicable MODUs and other vessels to conduct a DP incident investigation for every reported DP status change from green to red or yellow, and then to submit a summary report of the investigation's findings to the authorized DPSAO. As every DP incident would require a DP investigation, we estimate that an average of 2.90 DP incident investigations would need to be conducted per year per vessel.

After conducting roundtable discussions with owners and operators of MODUs and other vessels, we determined that all existing MODUs and 50 percent of existing OSVs are currently conducting DP investigations following a DP incident, despite not being required to do so.<sup>36</sup> Through these same roundtable discussions, we determined that no owners or operators of crewboats currently conduct an investigation following a DP incident. For owners or operators that do not, or would not, conduct a DP incident investigation in the absence of a rule, we estimate that it would cost \$570 per DP incident to conduct the investigation (10 hours × \$57.00 per hour).<sup>37</sup>

In addition to the costs that would be incurred to conduct DP incident investigations, all owners or operators using DP while conducting Critical OCS Activities would experience new costs to submit the summary report of the DP investigation to the authorized DPSAO.

<sup>34</sup>According to a Coast Guard Subject Matter Expert, it would take an owner or operator 20 minutes to report a DP status change to a DPSAO—which is expected to be done via email, and that it would take an employee from the DPSAO an additional 20 minutes to read and respond to this report.

<sup>35</sup>In year 1, we expect that 12 OSVs under 6,000 GT ITC, 3 OSVs of at least 6,000 GT ITC, and 3 crewboats would incur costs to conduct DP investigations. Additionally, 22 OSVs under 6,000 GT ITC, 5 OSVs of at least 6,000 GT ITC, 59 MODUs, and 3 crewboats would incur costs to submit DP investigation reports to the DPSAO during the first year. Over the 10-year study, 383 OSVs under 6,000 GT ITC, 35 OSVs of at least 6,000 GT ITC, and 21 crewboats would incur costs to conduct DP investigations, and 895 OSVs under 6,000 GT ITC, 70 OSVs of at least 6,000 GT ITC, 110 MODUs, and 21 crewboats would need to submit DP investigation reports.

<sup>36</sup>Based on teleconferences with industry that took place in January 2013. The minutes are publicly available at <http://www.uscg.mil/hq/cg5/cg521/>.

<sup>37</sup>According to a Coast Guard Subject Matter Expert, it would take 10 hours on average for a ship engineer employed by the owner or operator to conduct a DP incident investigation.

As this is a new reporting requirement, it is not expected that any of the affected population would be compliant with this part of the provision in the absence of this NPRM. Consequently, we estimate that it would cost an owner or operator \$119.10 per DP incident investigation to write the summary report and then submit it to the authorized DPSAO (2 hours × \$57.00 per hour) + \$5.10 shipping fee).<sup>38</sup> Further, we estimate that it would cost an authorized DPSAO \$82.00 per report to review and record the information, which we assume would then be passed on to the owner or operator through the form of the DPSAO charging higher prices for its services (2 hours × \$41.00 per hour).<sup>39</sup>

*Annual DP Incident Investigation Report*<sup>40</sup> (46 CFR 61.50–4)—would require a DPSAO to submit an annual report containing a summary of each DP incident investigation conducted throughout the year for all vessels using its services. Because this would be a new requirement, we anticipate new burdens for industry and estimate that it would cost an owner or operator \$169.10 per year to have the DPSAO file the annual report ((4 hours × \$41.00 per hour) + \$5.10 shipping fee).<sup>41</sup> Further, we estimate that it would cost the Government \$150.00 per report to review the information provided and respond if necessary (2 hours × \$75.00 per hour).

*Emergency Disconnects and Serious Marine Incidents Resulting from a DP Status Change from Green to Red* (33 CFR 140.335)—would require all applicable vessels to report to the cognizant OCMI any incident in which the vessel initiates an emergency disconnect or experiences a serious marine incident (as defined by 46 CFR 4.03–2) after experiencing a reactive change of the DP system's status from green to red. Based on a review of IMCA

<sup>38</sup> According to a Coast Guard Subject Matter Expert, it would take a ship engineer 2 additional hours to write a DP investigation summary and then submit it to the DPSAO. Also included in this estimate is the time it would take on average to make changes to the vessel's CAMO and ASOCs/WSOCs.

<sup>39</sup> According to a Coast Guard Subject Matter Expert, it would take a DPSAO employee 2 hours on average to read through the report and respond if necessary.

<sup>40</sup> In year 1, we expect that 22 OSVs under 6,000 GT ITC, 5 OSVs of at least 6,000 GT ITC, 59 MODUs, and 3 crewboats would incur costs as a result of this provision. Over the 10-year study, 764 OSVs under 6,000 GT ITC, 70 OSVs of at least 6,000 GT ITC, 110 MODUs, and 21 crewboats would need to submit annual DP investigation reports.

<sup>41</sup> According to a Coast Guard Subject Matter Expert, it would take a DPSAO employee 4 hours on average to prepare the Annual DP Incident Investigation Report on behalf of the owner or operator.

documents from 2004 through 2010, we estimated that a vessel would need to initiate an emergency disconnect 19 percent of the time it experiences a DP change in status. Further, based on the same industry documents, a serious marine incident (as defined by 46 CFR 4.03–2) would occur 5 percent of the time a vessel experiences a reactive change of the DP system's status from green to red. Because this is a new requirement, we anticipate creating new burdens for industry. We estimate that it would cost an owner or operator \$47.67 per status change resulting in either an emergency disconnect or serious marine incident to comply with this requirement (20 minutes × \$143.00 per hour). Further, we estimate that it would cost the government \$25.00 per report to review and record the information (20 minutes × \$75.00 per hour).

*Dynamic Positioning Verification and Acceptance Document (DPVAD)*<sup>42</sup> (33 CFR 140.335)—would create a new document for MODUs and applicable vessels, other than MODUs, that use a DP system to conduct Critical OCS Activities. This document would be issued by the authorized DPSAO that performed the vessel's DP surveys, and would need to be renewed once every 5 years.

According to a Coast Guard Subject Matter Expert, it is expected that it would take an additional 15 minutes for a DPSAO surveyor to complete the DPVAD, as the DPVAD would be issued by the same DPSAO that conducted the vessel's DP surveys. As a result, we estimate that it would cost an owner or operator \$10.25 once every 5 years to comply with this provision (15 minutes × \$41.00 per hour).

*DP Surveys*<sup>43</sup> (46 CFR 61.50–2, 61.50–5, 61.50–10, and 61.50–15)—would require all applicable vessels to have a DPSAO conduct DP system surveys on an initial, periodic, and annual basis. The organization could be the classification society that issues the DP notation under 62.40–5, because the NPRM would require that the classification society issuing the DP notation be highly qualified in DP

<sup>42</sup> In year 1, we expect that 22 OSVs under 6,000 GT ITC, 5 OSVs of at least 6,000 GT ITC, 59 MODUs, and 3 crewboats would incur costs as a result of this provision. Over the 10-year study, 764 OSVs under 6,000 GT ITC, 70 OSVs of at least 6,000 GT ITC, 110 MODUs, and 21 crewboats would need to receive a DPVAD.

<sup>43</sup> In year 1, we expect that 22 OSVs under 6,000 GT ITC, 5 OSVs of at least 6,000 GT ITC, 59 MODUs, and 3 crewboats would incur costs as a result of this provision. Over the 10-year study, 764 OSVs under 6,000 GT ITC, 70 OSVs of at least 6,000 GT ITC, 110 MODUs, and 21 crewboats would need to report the time and location of the DP Survey.

system assurance. During the initial survey, and again during the periodic survey 5 years later, a full FMEA test must be performed. Based on roundtable discussions with owners and operators of MODUs and other vessels, of at least 6,000 GT ITC, we have determined that all existing vessels are currently in compliance with this requirement and that all future vessels would also be in compliance with this requirement.<sup>44</sup> However, this provision would also require a DPSAO to notify the cognizant OCMI at least 30 days in advance of the time and location of these DP surveys. Because this is a new requirement, we anticipate new burdens for industry. We estimate that it would cost an owner or operator \$4.10 per year to comply with this requirement (6 minutes × \$41.00 per hour).<sup>45</sup> Further, we anticipate that the OCMI would be present during most DP surveys. However, as we anticipate that these surveys would occur in conjunction with another Coast Guard inspection, the cost incurred by the Coast Guard to attend DP surveys would be minimized. We estimate that it would cost the Government an additional \$607.50 per survey as a result of this NPRM ((6 minutes to record the time and location of survey + 8 hours to attend the survey) × \$75.00 per hour).<sup>46</sup>

#### Standard DP System Requirements

*DP System Equipment and Notation Requirements*<sup>47</sup> (46 CFR 62.40–5)—would require all applicable vessels that use a DP system while engaging in Critical OCS Activities to use, at a minimum, a DP–2 class system and to obtain, at a minimum, a DP–2 class notation.

Based on vessel specification sheets made publicly available by MODU owners and operators, all existing MODUs comply with this proposed requirement, even in the absence of this NPRM, in order to compete in international markets.<sup>48</sup> The same cannot be said about vessels other than MODUs that use DP, however. After

<sup>44</sup> Based on teleconferences with industry that took place in January 2013. The minutes are publicly available at <http://www.uscg.mil/hq/cg5/cg521/>.

<sup>45</sup> According to a Coast Guard Subject Matter Expert, it would take a DPSAO employee 6 minutes on average to notify the OCMI on the time and location of the DP Survey.

<sup>46</sup> According to a Coast Guard Subject Matter Expert, a DP Survey would take approximately 8 hours to conduct.

<sup>47</sup> In year 1, we expect that 12 OSVs under 6,000 GT ITC, and 3 crewboats would incur costs to obtain DP–2 class notation. Over the 10-year study, 143 OSVs under 6,000 GT ITC, and 20 crewboats would incur costs as a result of this requirement.

<sup>48</sup> We assume that owners and operators of MODUs will continue to follow this practice in the future.



examining existing OSV's and crewboat's vessel specification sheets, we have determined that only 60 percent of existing OSVs and 70 percent of existing crewboats that use DP would comply with the DP-2 equipment requirement. Because of the mechanical and structural demands associated with DP-2 systems or higher that are not feasible to satisfy in older vessels, the Coast Guard proposes to make the existing population of OSVs and crewboats exempt from the DP-2 equipment requirements of this NPRM.

Our research indicates, however, that offshore oil and gas entities are starting to require that all new, contracted OSVs be equipped with DP-2 systems or higher.<sup>49</sup> This same request is not yet being made for all new, contracted crewboats though. As a result, we estimate that in the years 1 through 3 following the passage of a final rule, one, newly constructed crewboat per year would incur costs in order to comply with the DP-2 equipment requirement. In later years though, all crewboats are expected to be equipped with a DP-2 classed system even in the absence of this proposed rule.

In addition to determining the percentage of existing OSVs and crewboats that would comply with the equipment standard in this proposed rule, we also determined through looking at vessel specification sheets that only 50 percent of existing OSVs and 0 percent of existing crewboats would comply with the class notation requirement. We have found that although this NPRM would grandfather certain vessels (other than MODUs) that use a DP system installed prior to issuance of any rule from this provision, owners or operators of OSVs and crewboats have pointed out during roundtable discussions that it is likely that a similar percentage of future vessels would also not be compliant with this requirement in the absence of a proposed rule.

We estimate that it would cost an owner or operator \$876,237 per vessel to

comply with the requirement that a vessel using DP to engage in Critical OCS Activities must use a DP-2 class system or higher, and an additional one-time payment of \$64,250 per vessel to obtain a DP-2 class notation.

Enhanced DP System Requirements

*DP System Plans*<sup>50</sup> (46 CFR 62.20-2)—would require all MODUs and other vessels, of at least 6,000 GT ITC, that use a DP system installed on or after the effective date of a final rule to submit their DP system plans to a DPSAO for approval. The organization could be the classification society that issues the DP notation under 62.40-5, because the NPRM would require that the classification society issuing the DP notation be highly qualified in DP system assurance. As proposed, these plans must include a system description, specifications of position reference and environmental monitoring sensors or systems, the location of thrusters and control system components, details of the DP system monitoring and alarm system, FMEA proving test documents and annual survey documents, the vessel's CAMO, and the DP system designer's or manufacturer's self-certification of the DP system control equipment to the environmental design standards.

Based on roundtable discussions with owners and operators of MODUs and other vessels, of at least 6,000 GT ITC, we have determined that all vessels currently would be in compliance with this requirement in the absence of a rule.<sup>51</sup> However, this provision would also require the DPSAO to submit the plans to the Coast Guard Outer Continental Shelf National Center of Expertise (OCS NCOE). Because this is a new requirement, we anticipate new burdens for industry. We estimate that it would cost a DPSAO \$25.60 ((30 minutes × \$41.00 per hour) + \$5.10 shipping fee) to submit a vessel's DP system plan.<sup>52</sup> Further, we estimate that it would cost the Government \$2,700.00

(36 hours × \$75.00 per hour) to review a DP system plan.

Other

*Dynamic Positioning System Assurance Organization Application Process* (46 CFR 61.50-3 and 62.40-5)—would require a DPSAO (for the purposes of conducting DP surveys under 61.50) to apply to the Coast Guard for acceptance to provide these services. This provision provides guidelines as to who should apply, as well as what information the applicant should provide in the application. We estimate that it would cost a DPSAO \$1,235.10 to prepare and submit each application ((30 hours × \$41.00 per hour) + \$5.10 shipping fee). Further, we estimate that it would cost the Government \$600.00 per application to review each document and reach a decision (8 hours × \$75.00 per hour).

Request for Comment

We would appreciate additional comments on our cost assumptions, including rates of current compliance. Information is specifically requested on the following:

- (1) Fraction of current MODUs, OSVs and crewboats using DP-1, DP-2, or DP-3.
  - (2) Fraction of newly built MODUs, OSVs and crewboats being equipped with DP-1, DP-2, or DP-3.
  - (3) Frequency of changes in DP status from green to red and green to yellow.
  - (4) Costs to develop an FMEA and WSOC/ASOC.
  - (5) Additional cost to equip a newly built vessel with DP-2 instead of DP-1.
- Please submit all comments and related material according to the instructions given in the **DATES, ADDRESSES, and Public Participation and Request for Comments** sections of this preamble above.

Costs

We estimate the total average costs of this NPRM to industry for a 10-year period as summarized in Table 4.<sup>53</sup>

TABLE 4—TOTAL INDUSTRY COST OF NPRM [Per year]

Year	Undiscounted costs	Discounted costs	
		7%	3%
1	\$13,295,128	\$11,612,479	\$12,531,933

<sup>49</sup>Tollefsen, Sveinung. "DP systems in the OSV Industry," May 2010. <http://dSPACE.mit.edu/bitstream/handle/1721.1/64580/727052552.pdf?sequence=1>.

<sup>50</sup>In year 1, we expect that 5 OSVs of at least 6,000 GT ITC, and 59 MODUS would incur costs to submit their DP system plans to the DPSAO.

Over the 10-year study, 50 OSVs of at least 6,000 GT ITC, and 110 MODUs would incur costs as a result of this proposed requirement.

<sup>51</sup>Based on teleconferences with industry that took place in January 2013. The minutes are publicly available at <http://www.uscg.mil/hq/cg5/cg521/>.

<sup>52</sup>According to a Coast Guard Subject Matter Expert, it would take 30 minutes for a DPSAO to prepare and submit a vessel's DP system plan to the Coast Guard.

<sup>53</sup>We document the costs at a 7- and 3-percent discount rate as set forth by guidance in the Office of Management and Budget's (OMB) Circular A-4.

TABLE 4—TOTAL INDUSTRY COST OF NPRM—Continued  
[Per year]

Year	Undiscounted costs	Discounted costs	
		7%	3%
2 .....	13,583,758	11,864,581	12,803,995
3 .....	10,900,925	8,898,402	9,975,891
4 .....	44,460,494	33,918,698	39,502,573
5 .....	12,960,131	9,240,394	11,179,523
6 .....	12,958,982	8,635,117	10,852,943
7 .....	40,540,725	25,246,726	32,963,320
8 .....	15,177,650	8,833,530	11,981,377
9 .....	15,965,539	8,684,195	12,236,256
10 .....	29,112,460	14,799,299	21,662,405
Total .....	208,955,792	141,733,422	175,690,215
Annualized .....	.....	\$20,179,651	\$20,596,253

The 10-year discounted present value cost to industry of this NPRM is approximately \$141.733 million (\$73.239 million to domestic owners or operators), based on a 7-percent discount rate, and \$175.690 million (\$91.389 million to domestic owners or

operators), based on a 3-percent discount rate. The annualized cost to industry is \$20.180 million (\$10.428 million to domestic owners or operators), based on a 7-percent discount rate, and \$20.596 million (\$10.714 million to domestic owners or

operators), based on a 3-percent discount rate.

Table 5 summarizes the total 10-year present value cost to industry of this NPRM by risk profile and requirement.

TABLE 5—TOTAL MARGINAL AND ANNUALIZED INDUSTRY COSTS FOR NPRM BY RISK PROFILE

Requirement	10-year cost			Annualized	
	Undiscounted	7%	3%	7%	3%
<b>Minimum DP Manning Requirements</b>					
Cost to Provide Proof of Training .....	\$467,996	\$332,365	\$400,855	\$47,321	\$46,992
Cost to Comply with DP Manning Requirements .....	71,635,200	50,313,567	61,106,279	7,163,520	7,163,520
Total .....	72,103,196	50,645,932	61,507,133	7,210,841	7,210,512
<b>Intermediate DP System Requirements</b>					
Cost to Complete FMEA and FMEA Proving Test Document .....	111,100,000	74,383,054	92,903,263	10,590,474	10,891,097
Cost to Develop CAMO and ASOC or WSOC .....	4,208,880	2,858,478	3,540,664	406,983	415,074
Cost to Report DP Status Changes from Green to Red or Yellow .....	905,587	565,296	734,721	80,485	86,132
Cost to Conduct DP Incident Investigations .....	6,591,592	4,081,179	5,329,997	581,068	624,838
Cost to Submit Annual DP Incident Investigation Report ...	860,550	537,146	698,162	76,478	81,846
Cost to Report Emergency Disconnect and Serious Marine Incidents .....	28,791	18,548	23,667	2,641	2,774
Cost to Obtain a DPVAD .....	14,719	9,594	12,159	1,366	1,425
Cost to Report DP Surveys .....	20,865	13,024	16,928	1,854	1,984
Total .....	123,730,983	82,466,319	103,259,560	11,741,349	12,105,171
<b>Standard DP System Requirements</b>					
Cost to Obtain DP-2 System Equipment .....	2,628,711	2,299,523	2,478,534	327,400	290,560
Cost to Obtain DP-2 Class Notation .....	10,472,750	7,119,161	8,803,142	1,013,608	1,031,997
Total .....	13,101,461	9,418,684	11,281,676	1,341,009	1,322,557
<b>Enhanced DP System Requirements</b>					
Cost to Submit DP System Plans .....	4,096	3,222	3,670	459	430
Total .....	4,096	3,222	3,670	459	430

We also expect that the Government would incur labor costs to review DPO/DPOQ training certificates, annual DP investigation reports, notices of

Emergency Disconnects or Serious Marine Incidents that resulted from a DP failure, DPSAO applications, and DP system plans, as well as to attend DP

surveys. Table 6 summarizes the 10-year costs of this NPRM to the Government.

TABLE 6—TOTAL GOVERNMENT COST OF NPRM  
[Per year]

Year	Undiscounted costs	Discounted costs	
		7%	3%
1	\$286,068	\$267,353	\$277,735
2	153,180	133,793	144,387
3	165,220	134,869	151,200
4	382,700	291,960	340,024
5	409,808	292,187	353,504
6	436,068	290,570	365,200
7	608,143	378,721	494,476
8	645,120	375,466	509,264
9	683,585	371,825	523,911
10	785,380	399,247	584,396
Total	4,555,270	2,935,991	3,744,096
Annualized	418,019	438,922	

The 10-year discounted present value cost to the Government of this NPRM is approximately \$2.936 million based on a 7-percent discount rate, and \$3.744 million based on a 3-percent discount

rate. The annualized cost to industry is approximately \$0.418 million, based on a 7-percent discount rate, and \$0.439 million, based on a 3-percent discount rate.

Table 7 summarizes, by requirement, the total 10-year present value cost of this NPRM to the Government.

TABLE 7—TOTAL MARGINAL AND ANNUALIZED GOVERNMENT COSTS FOR NPRM BY RISK PROFILE

Requirement	10-Year cost			Annualized	
	Undiscounted	7%	3%	7%	3%
<b>Minimum DP Manning Requirements</b>					
Cost to Review Proof of Training	\$245,453	\$174,317	\$210,238	\$24,819	\$24,646
Total	245,453	174,317	210,238	24,819	24,646
<b>Intermediate DP System Requirements</b>					
Cost to Review Annual DP Incident Investigation Report ...	763,350	476,475	619,304	67,839	72,601
Cost to Review Emergency Disconnect and Serious Marine Incidents	15,100	9,728	12,413	1,385	1,455
Cost to Record and Attend DP Surveys	3,091,568	1,929,724	2,508,182	274,749	294,035
Total	3,870,018	2,415,928	3,139,899	343,974	368,092
<b>Standard DP System Requirements</b>					
No Cost to Government					
Total	0	0	0	0	0
<b>Enhanced DP System Requirements</b>					
Cost to Review DP System Plans	432,000	339,849	387,093	48,387	45,379
Total	432,000	339,849	387,093	48,387	45,379
<b>Other Requirements</b>					
Cost to Review DPSAO Applications	7,800	5,523	6,866	786	805
Total	7,800	5,523	6,866	786	805

We estimate that the combined total 10-year present value cost of this NPRM to industry and Government is \$144.669 million (\$74.991 million for domestic owners or operators), discounted at 7 percent, and \$179.434 million (\$93.665 million for domestic owners or

operators), discounted at 3 percent. We estimate that the combined annualized cost to industry and government is \$20.598 million (\$10.677 million for domestic owners or operators), based on a 7-percent discount rate, and \$21.035 million (\$10.980 million for domestic

owners or operators), based on a 3-percent discount rate.

Table 8 summarizes the combined 10-year cost of this NPRM to industry and the Government.

TABLE 8—TOTAL COST OF NPRM  
[Per year]

Year	Undiscounted costs	Discounted costs	
		7%	3%
1 .....	13,581,195	11,879,832	12,809,668
2 .....	13,736,938	11,998,374	12,948,382
3 .....	11,066,145	9,033,271	10,127,091
4 .....	44,843,194	34,210,658	39,842,597
5 .....	13,369,939	9,532,582	11,533,027
6 .....	13,395,049	8,925,687	11,218,143
7 .....	41,148,868	25,625,447	33,457,795
8 .....	15,822,770	9,208,996	12,490,640
9 .....	16,649,124	9,056,020	12,760,167
10 .....	29,897,840	15,198,546	22,246,801
Total .....	213,511,062	144,669,412	179,434,311
Annualized .....	20,597,670	21,035,175	

Benefits

As offshore drilling industry operations move farther offshore, maintaining vessel position and height becomes an increasingly more difficult task, especially as water depth precludes mooring. The vessel's position and height depend on an understanding of many variables, such as the speed and direction of waves and

the wind, both of which can be very irregular at distances farther offshore. DP systems not only remove this uncertainty, they can also predict future changes in wave speed and direction based on current conditions.

However, despite this advanced technology (and in some cases, because of this technology) a loss of position can still occur while operating under DP. Due to the high-risk environment that

OSVs and MODUs work in, such a loss of position could result in catastrophic consequences. Property damage, environmental damages, and human casualties could occur in the event of a loss of position or propulsion.

Table 9 presents the range of potential consequences at risk in the event of a DP loss of position or propulsion on a MODU, OSV, or crewboat.

TABLE 9—POTENTIAL MONETARY CONSEQUENCES AT RISK THAT COULD RESULT FROM A DP SYSTEM LOSS OF POSITION

Consequence category	Range of potential consequences
Property Damage from Collision .....	\$5 million to \$1 billion.
Environmental Pollution .....	\$5 million to \$500 million.
Riser Lost on Seabed .....	\$7 million to \$70 million.
Pipe Bent or Buckled .....	\$3 million to \$30 million.
Downtime from Production .....	Up to \$500 thousand per day.
Loss of Life .....	\$9.1 million per statistical life.

At this time, the Coast Guard does not have a comprehensive source of information on changes in DP status and the resulting loss of position incidents, as vessels of all types currently do not have to report DP failures to the Coast Guard. A provision of this NPRM seeks to gather this data.

The following incidents illustrate the potential consequences at risk if a position is lost during DP operations. In April 2010, the MODU DISCOVERER CLEAR LEADER experienced a DP system failure that resulted in a loss of position while conducting well control operations on the U.S. OCS. During the

incident, the DPO was able to initiate a cease operations response, however, an emergency disconnect was required. Although the MODU's blow-out preventer was able to prevent a spill that could potentially have been on the magnitude of the DEEPWATER HORIZON incident, the subsea gear of the MODU suffered damages as a result of the MODU's loss of position. The Coast Guard's MISLE database lists property damages of \$760,000 as a result of this incident. Further, the vessel experienced a loss of revenue during the time when its operations were suspended.

In September 2012, a DP incident involving the construction OSV BIBBY TOPAZ occurred off the coast of Scotland. During dive support activities, the BIBBY TOPAZ suffered a DP system failure that resulted in a loss of position. At the time of the incident, three divers were in the water, and when the vessel experienced a loss of position, the umbilical cord of one of the divers was severed. The diver was unable to return to the diving bell and had to instead rely on his standby air tank for almost 40 minutes. When the rescue team found the diver, he was unconscious, although the team was able to revive him. While

this incident did not result in any fatalities, the vessel's loss of position put the lives of three divers at risk. The VSL of the lives that could have been lost as a result of this incident is \$27,300,000. Although this incident did not take place in U.S. waters, dive support activities while operating under DP are regularly conducted on the U.S. OCS, with similar consequences at risk.

Neither of these incidents capture fully the potential worst-case consequences of a loss of position that results from a collision under power of a MODU, OSV, or crewboat. The allision of the logistics OSV SAMUDRA SURAKSHA with a drilling platform illustrates the types and potential magnitude of worst-case consequences that could result from an OSV loss of position. In July 2005, the SAMUDRA SURAKSHA was transferring personnel off the coast of India when the vessel experienced a loss of position<sup>54</sup> and collided with a platform, severing a gas riser in the process. Although an emergency shut-off of the gas riser was initiated, gas was released, resulting in an explosion and massive fire. Twenty-two crewmen lost their lives or went missing as a result of the explosion, which, when monetized at \$9,100,000,

amounts to \$200,200,000. We use the fatalities as a reasonable worst-case scenario of the potential consequences at risk from a loss of position and resulting collision between vessels or platforms. The incident also had environmental damage, property damage and loss of production impacts.

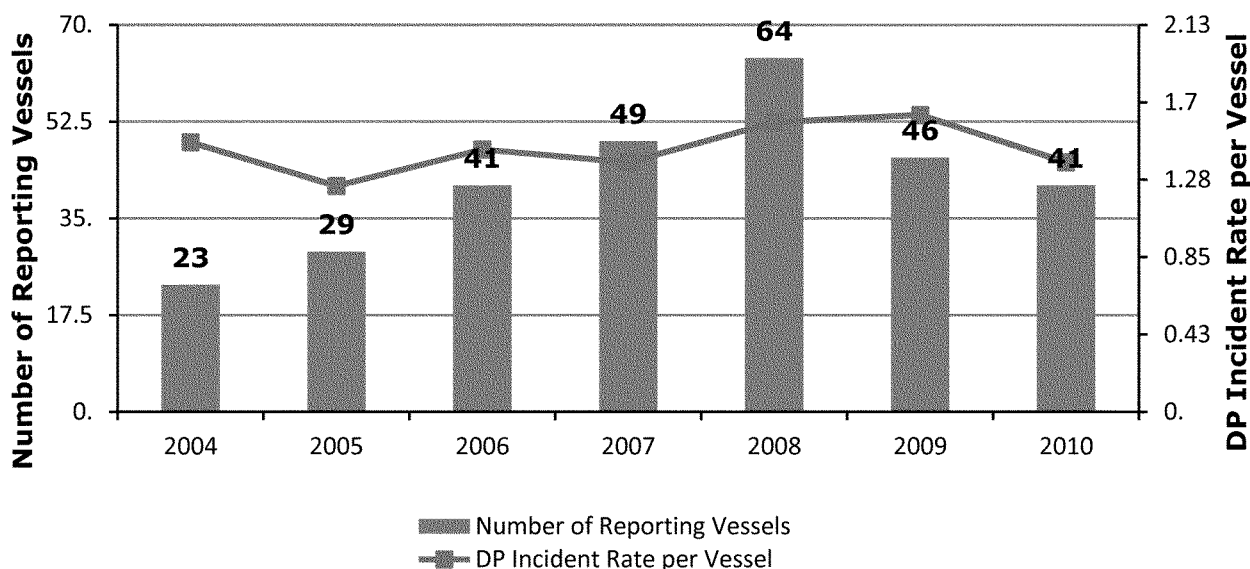
This NPRM mitigates the risk of a DP loss of position in several ways. This NPRM provides other guidance on design and operation standards for all DP vessels. The development of decision support tools such as CAMOs and ASOC or WSOC would provide DPOs and DPOQs with a summarized and easy to understand guide on the limits to safe operating conditions, which would help DPOs and DPOQs react quicker to prevent or mitigate a loss of position while operating DP systems.

Furthermore, requiring owners or operators of vessels using DP systems to examine DP failures and submit documents describing the time, location, and reason for why a system failure occurred will enable industry and the Coast Guard to better understand the causes of these failures and, in time, develop programs to prevent these same failures from

occurring in the future. Additionally, this information can provide assistance to manufacturers and operators of DP systems in order to contribute to more efficient and safer DP systems and practices in the future.

To better understand how many DP system incidents occur per year, we reviewed reports from the International Marine Contractors Association (IMCA), which collects and reports incidents of DP station-keeping incidents provided on a voluntary basis by its members. From 2004 through 2010, the IMCA lists 429 reported DP system incidents. However, this figure likely underestimates the number of DP system incidents that occurred because during that time period, members of the IMCA were not required to report station-keeping incidents. As a result of this under-reporting, we use the average rate per year at which DP system incidents occurred per vessel during that same time period, instead of the average number of DP incidents reported per year, since the rate is less likely to be influenced by the number of vessels reporting. Figure 1 displays the trend in the number of DP incidents reported to the IMCA from 2004 through 2010.

Figure 1: Rate of DP Incidents per Vessel



Although reporting to the IMCA is voluntary, and therefore may not represent the true population mean of the entire affected population's DP

incident rate, the IMCA data show that the rate of DP system incidents has remained relatively stable throughout the 7-year period studied, even as the

number of vessels reporting has increased.<sup>55</sup> This suggests that DP system incidents occur on a relatively

<sup>54</sup> The vessel was equipped with DP but was not operating under DP at the time of the loss of position.

<sup>55</sup> Because this information was voluntarily provided to the IMCA, the reporting population may not be representative of the population as a

whole. However, as the IMCA is the only organization that currently collects this data, it is the best data available at this time.

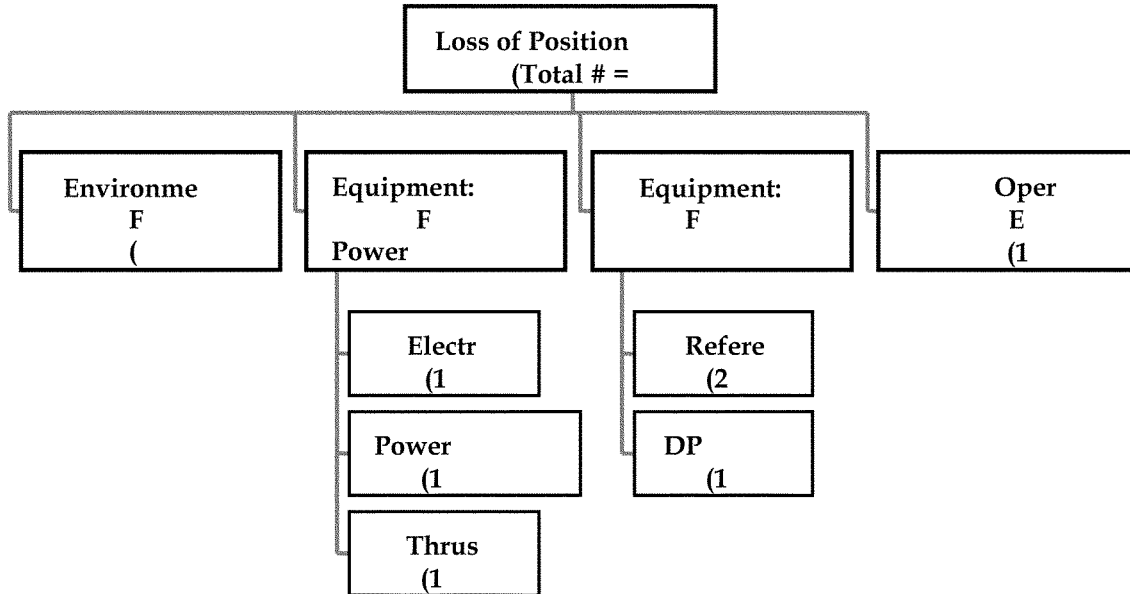
consistent basis (one to two times per vessel per year).

The IMCA's report then categorizes the cause of each DP system incident

that was reported as the fault of either: Environmental force, power/thrust equipment, DP equipment, or operator error. Figure 2 summarizes the

categories as a percentage of the total number of DP system incidents that occurred from 2004 through 2010 (429 total).

Figure 2: Causes of DP System Incidents



Although Figure 2 shows that only 13 percent of all DP system incidents are directly linked to operator error, nearly 94 percent could have been mitigated by attention to human factors—environmental faults could have been reduced through the development of a well defined ASOC or WSOC, power/thrust faults could have been mitigated through the development of a properly defined CAMO, DP system faults could have been reduced through the development of a well defined ASOC or WSOC, and operator faults could have been diminished through DPOs and DPOQs becoming more familiar and experienced with a vessel's ASOC or WSOC.<sup>56</sup>

With regard to the nonhuman, factor-related elements of this NPRM, DP system incidents resulting from power generation or thrust faults could have been mitigated through the redundancy provided by DP-2, and by developing and maintaining a vessel's CAMO. A CAMO would "identify the equipment configuration and methods of operation that ensure the vessel meets its

maximum level of redundancy, functionality and operation and that no single fault will exceed the identified worst case failure."<sup>57</sup> Additionally, a CAMO would define the most robust configuration for the vessel's power plant set-up, thrusters, power management, etc., thereby diminishing the likelihood that an incident could occur as a result of human negligence in designing the vessel's operating systems.

Furthermore, the development and maintenance of an ASOC or WSOC could reduce the probability that a DP system incident occurs as a result of a DP reference or DP computer fault. The ASOC or WSOC would define, among other things, "maximum environmental operating conditions, maximum offsets permissible from the set point position, position reference systems, and auxiliary systems performance limits and failures."<sup>58</sup> These guidelines would program the DP computer to signal to the DPO or DPOQ to cease operations whenever the vessel diverged from the

maximum limits set in the ASOC or WSOC.

While the majority of DP system incidents are correctly identified and resolved through the DPO or DPOQ manually taking control of the system, inaction or delayed action can have immense consequences. If left unchecked, a DP incident could result in a loss of position or propulsion, a short circuit of the electrical equipment, and/or an emergency disconnect. These events could result in major property damage to the vessel and/or any surrounding vessels and facilities, lost revenue as a result of any downtime caused by damages, injury or loss of life, and/or environmental damage as a result of released oil or other chemicals.

Table 10 provides greater detail on how each NPRM provision supports one of the four below categories:

- Design Standards and Classification;
- Operations;
- Manning and Training; and
- Reporting.

<sup>56</sup>International Marine Contractors Association. "Dynamic Positioning Station Keeping Incidents: Incidents reported for 2008 (DP system 19)". Pg. 2.

<sup>57</sup>International Marine Contractors Association. "Guidance on Operational Activity Planning". November 2012. Pg. 9.

<sup>58</sup>IMCA. "Guidance on Operational Activity Planning". November 2012. Pg. 11.

TABLE 10—DESCRIPTION OF BENEFITS OF THE NPRM

Key provision	Design standards & classification	Operations	Manning & training	Reporting	Description	How provision reduces risk
<b>33 CFR Part 140—Navigation and Navigable Waters</b>						
140.310 DP system personnel requirements.	.....	.....	.....	.....	Requires all vessels that use a DP system to conduct OCS activities to have a DPO or DPOQ who is properly trained and has no other responsibilities outside of DP.	Codifies industry standards that each DPO and DPOQ must follow while performing duties, which reduces the likelihood of casualties occurring from operator fatigue, inattention or inexperience.
140.315 Minimum DP system training requirements.	.....	.....	.....	.....	Defines the minimum training requirements that each DPO and DPOQ must have before operating a DP system. Requires owners or operators to make available their DPO's or DPOQ's course completion certificates for DP training.	Codifies industry standards that each DPO and DPOQ must follow while performing duties, which reduces the likelihood of casualties occurring from inexperience. Enables compliance verification for this critical area to ensure that each DPO and DPOQ has received the proper training and has the necessary experience required to correctly operate a DP system in routine and emergency operations.
140.320 DP system Manning requirements.	.....	.....	.....	.....	Defines the minimum manning requirements to which all MODUs must adhere while using DP to conduct OCS activities.	Codifies industry standards that each DPO and DPOQ must follow while performing duties. Ensures that each DPO and DPOQ is sufficiently rested and prepared to handle the challenges of operating a DP system. Ensures that each DPO or DPOQ is in direct communication with a licensed master and navigational watch at all times while a MODU is using dynamic positioning to conduct OCS activities, enabling correct actions for routine and emergency situations and thus reduce the likelihood of casualties occurring from personnel miscommunication.
140.325 Operations.	.....	.....	.....	.....	Requires all vessels that use a DP system to conduct OCS activities to meet the DP Operation Standards in paragraph 4.4 IMO MSC/Circ. 645.	Provides a uniform operating standard to which all flag DP vessels must adhere. This would reduce the probability of operator faults occurring as a result of a lack of familiarity or experience with a DP operating system.
140.330 Minimum design standards and testing.	.....	.....	.....	.....	Requires all vessels that use a DP system to conduct OCS activities to meet the DP Design Standards in paragraph 3.4.1 of IMO MSC/Circ. 645.	Provides design standards to ensure a fault tolerant, fault resistant DP vessel that minimizes risk of loss of position if one component fails.
140.335 Intermediate DP system requirements.	.....	.....	.....	.....	Requires all applicable vessels to conduct vessel surveys and maintain an FMEA, FMEA proving test document, and a CAMO.	Ensures that specifics of system design, construction and operation are developed and tested to ensure that redundancy is actually achieved and systems function as intended.

TABLE 10—DESCRIPTION OF BENEFITS OF THE NPRM—Continued

Key provision	Design standards & classification	Operations	Manning & training	Reporting	Description	How provision reduces risk
					<p>In addition to meeting the minimum DP Operating Requirements, all MODUs and applicable non-drilling vessels must also maintain a CAMO and ASOC or WSOC, respectively, as described in the MTS DP Operation Guidelines.</p> <p>All applicable vessels must report a DP system status change from green to red or yellow to a DPSAO.</p> <p>All applicable vessels must conduct a DP investigation whenever the DP status changes from green to yellow or red and submit a summary from the investigation to the DPSAO indicating whether the cause of the DP incident was addressed in the vessel's FMEA, CAMO, and ASOC or WSOC.</p> <p>All applicable vessels must have the DPSAO complete an annual DP incident investigation report. This report would be reviewed annually by the OCS NCOE.</p> <p>All applicable vessels must report a DP incident that resulted in an emergency disconnect and/or serious marine incident to the cognizant OCMI.</p> <p>Creates a new document, a DPVAD, which would be issued by DPSAO to MODUs and applicable vessels other than MODUs that use a DP system while conducting Critical OCS Activities. This document would be issued after the vessel has completed its DP surveys.</p>	<p>Ensures that all vessels and MODUs have well documented course-of-action and DP incident emergency response plans for all OCS activities. Reduces the probability that significant casualties or property damage could occur, since the DP system would be programmed, following rigorous testing during the FMEA, to recognize maximum environmental conditions, maximum offsets permissible from the set position, position reference systems, and auxiliary systems.</p> <p>Provides Coast Guard officials with information on how often DP station-keeping incidents occur and why, and enables the Coast Guard to ensure that operations can be resumed safely.</p> <p>Ensures that FMEAs, CAMOs, and ASOC or WSOC are updated based on casualties to prevent similar DP incidents from occurring in the future. This would reduce the probability that significant casualties or property damage could occur in the future.</p> <p>Provides Coast Guard officials with information on how and why DP failures occur. This information provides valuable feedback to ensure that future such incidents do not occur, which would reduce the probability of significant casualties or property damage from occurring in the future.</p> <p>Ensures that the Coast Guard is notified immediately of DP incidents that result in catastrophic damages and/or injuries and fatalities. This would allow the Coast Guard to take immediate action if a serious event occurred, and to ensure that operations are not resumed until the cause of the incident has been addressed.</p> <p>Ensures safe design and operation for all vessels that use a DP system while conducting Critical OCS Activities. Ensures that FMEA and CAMO are developed and maintained, which would reduce the likelihood of significant casualties or property damage from occurring in the future.</p>



TABLE 10—DESCRIPTION OF BENEFITS OF THE NPRM—Continued

Key provision	Design standards & classification	Operations	Manning & training	Reporting	Description	How provision reduces risk
140.340 Standard DP system requirements.	.....	.....	.....	.....	Requires all applicable vessels to obtain DP notation equivalent to Equipment class 2 or higher from an authorized classification society.	Reduces probability of a DP system failure occurring by adding second component that would be required to fail before system failure.
140.345 Enhanced DP system requirements.	.....	.....	.....	.....	In addition to meeting the design and operating requirements found in 140.335 and 140.340, all MODUs and new vessels other than MODUs of at least 6,000 GT ITC must also submit, and have approved, the vessel's design and operating plans by the DPSAO that conducted the vessel's initial survey.	Provides increased assuredness of safe design and operation for all vessels that use a DP system to conduct Critical OCS Activities by requiring independent third party verification of design and planned operations. Ensures that FMEA and CAMO are developed and maintained, which would reduce the likelihood of significant casualties or property damage from occurring in the future.
140.350 Operational control.	.....	.....	.....	.....	Permits the cognizant OCMI to suspend an applicable vessel from using DP, if the vessel is found to be not in compliance with the requirements in this part.	Ensures safe design and operation for all vessels that use a DP system while conducting Critical OCS Activities. This will reduce the likelihood of significant casualties or property damage from occurring in the future.

46 CFR Part 61—Periodic Tests and Inspections

61.50–2 Surveys	.....	.....	.....	.....	Requires all MODUs and applicable vessels other than MODUs that use a DP system while conducting Critical OCS Activities, to complete DP surveys conducted by a DPSAO.  Requires the DPSAO conducting the vessel's DP survey to notify the OMCI at least 30 days prior to the survey.	Ensures safe design and operation for all vessels that use a DP system to conduct Critical OCS Activities by requiring independent evaluation of systems. Periodic surveys ensure that FMEA and CAMO are maintained, which would reduce the likelihood of significant casualties or property damage from occurring in the future.  Allows Coast Guard officials the opportunity to participate in DP system surveys providing government oversight and quality control for third parties. The Coast Guards presence will verify and complement the findings of a third-party surveyor, thereby ensuring that DP system equipment is operational and properly maintained, which would reduce the likelihood of a loss of position occurring in the future.
61.50–3 Acceptance of dynamic positioning system assurance organizations.	.....	.....	.....	.....	Creates specifications that DPSAO must meet in order to receive approval from the Coast Guard Outer Continental Shelf National Center of Expertise (OCS NCOE) to conduct DP surveys, FMEA testing, and plan reviews.	Ensures that DPSAOs are highly qualified at conducting an FMEA, testing a vessel's CAMO and ASOC or WSOC, and conducting DP failure investigations. This would reduce the likelihood that significant casualties or property damage occur because of a poorly created CAMO or ASOC or WSOC.

TABLE 10—DESCRIPTION OF BENEFITS OF THE NPRM—Continued

Key provision	Design standards & classification	Operations	Manning & training	Reporting	Description	How provision reduces risk
61.50–4 Oversight of dynamic positioning system assurance organizations.	.....	.....	.....	.....	All applicable vessels must have the DPSAO complete an annual DP failure investigation report. This report would be reviewed annually by the OCS NCOE.	Provides Coast Guard officials with information on how and why DP failures occur. This information provides valuable feedback to ensure that future such incidents do not occur, which would reduce the probability of significant casualties or property damage from occurring in the future. Further, this information would allow the Coast Guard to determine whether the DPSAO is still under compliance with the requirements necessary of an authorized DPSAO specified in 61.50–3.
61.50–5, 61.50–10, 61.50–15 Initial, periodic, and annual surveys of DP systems.	.....	.....	.....	.....	Requires all vessels that use a DP system to conduct Critical OCS Activities to have surveys to ensure compliance with DP system requirements. Additionally, these sections require that the authorized DP assurance organization conducting the survey notify the Coast Guard on the location and time of the survey.	Ensures safe design and operation for all vessels that use a DP system to conduct Critical OCS Activities. Tests a vessel's FMEA and CAMO to ensure that they are developed and maintained, which would reduce the likelihood of significant casualties or property damage from occurring in the future. Allows Coast Guard officials the opportunity to participate in DP system surveys. The Coast Guards presence will verify and complement the findings of a third-party surveyor, thereby ensuring that DP system equipment is operational and properly maintained, which would reduce the likelihood of a loss of position occurring in the future.

## 46 CFR Part 62—Vital System Automation

62.20–2 Required plans for DP systems.	.....	.....	.....	.....	Requires all MODUs that conduct Critical OCS Activities and all other vessels of at least 6,000 GT ITC that have installed a DP system on or after the effective date of this final rule to submit a DP system plan to assurance DPSAO.  Requires the DPSAO to submit a copy of the approved DP system plan, as well as the Annual Survey Document in subsequent years, to the commanding officer of the Marine Safety Center.	Ensures safe design for all vessels that use a DP system to conduct Critical OCS Activities by requiring that systems be verified by independent third party, which would reduce the probability of significant casualties or property damage. Classification, plan review and certification requirements serves as a fundamental building block for safe DP operations by ensuring a minimum level of reliability for a DP system verified by a qualified third party, particularly for higher risk vessels.  The Coast Guard's oversight would verify and complement the findings of a third-party surveyor, thereby ensuring that DP system equipment is operational and properly maintained, which would reduce the likelihood of a loss of position occurring in the future. It would further provide for government oversight.
62.25–40 Environmental design standards on OCS units.	.....	.....	.....	.....	Incorporates IEC environmental standards into Title 46.	Reduces the risk of pollution or a subsea spill by ensuring that design of DP system equipment meets environmental standards.

TABLE 10—DESCRIPTION OF BENEFITS OF THE NPRM—Continued

Key provision	Design standards & classification	Operations	Manning & training	Reporting	Description	How provision reduces risk
62.40–3, and 62.40–5, 62.40–10 Design standards and classification for DP systems on OCS.	.....	.....	.....	.....	Requires all vessels that use a DP system to conduct Critical OCS Activities to meet the DP Operation Standards in IMO MSC/Circ. 645 and recommend following the MTS DP Operation Guidelines. Requires all applicable vessels to obtain DP notation equivalent to Equipment class 2 or higher from an authorized classification society. All applicable vessels must maintain an FMEA that demonstrates compliance with the applicable provisions of IMO MSC/Circ.645 for DP equipment class 2 or higher.	Reduces probability of a DP system failure occurring, because a DP–2 system must maintain position at all times, excluding incidents involving the loss of a compartment.  Ensures that all vessels and MODUs meet their maximum level of redundancy, functionality, and operation, and that no single fault would exceed the identified worst-case failure. This would reduce the likelihood of significant casualties or property damage, since the DP system would alert the DPO or DPOQ before a worst-case failure occurs.
62.40–15, 62.40–20 FMEA and FMEA proving test documents.	.....	.....	.....	.....	Requires vessel owners or operators to create and maintain a vessel's FMEA and FMEA test proving document.	Ensures that each vessels' and MODUs' DP system failure modes are assessed and tested to ensure that limits are understood and in compliance with regulations.
62.40–25 Critical Activity Mode of Operation (CAMO).	.....	.....	.....	.....	Requires owners or operators to develop and maintain a CAMO.	Ensures that all vessels and MODUs meet their maximum level of redundancy, functionality, and operation and that no single fault would exceed the identified worst-case failure. This would reduce the likelihood of significant casualties or property damage, since the DP system would alert the DPO or DPOQ before a worst-case failure occurs.

Because DP is an emerging technology and there are no existing requirements for reporting DP incidents, we have casualty reports of uncertain quality, constraining our ability to conduct a casualty review. However, we attempt to quantify the potential benefits that are expected to result from the requirements in this NPRM using the best available information that we have gathered from various segments of industry. These benefits focus on damages only, and not on fatalities, injuries or environmental damage given the limitations in data noted.

In publicly available documents (2004 through 2010), the IMCA estimates that an average of 1.45 DP incidents occur per vessel every year.<sup>59</sup> Next, we estimate the number of DP incidents

<sup>59</sup> Although reporting to the IMCA is voluntary, we accept this average rate, as it is the best available data currently available.

that are expected to occur given the forecasted population figures and the average DP incident rate per vessel per year.

Next, we calculate the number of DP incidents that resulted in a loss of position and damages using IMCA station keeping incident reports provided from 2004 through 2010. The average percentage of incidents that resulted in vessel damages from 2004 through 2010 was 6 percent for non-drilling vessels and 4 percent for drilling vessels.

Using the average percentage of incidents that result in vessel damage and the total number of incidents forecasted to occur during the 10-year period of our study, we then calculate the total cost that would occur to industry as a result of DP incidents. According to the MTS “Reliability and Risk Analysis,” for DP incidents that

result in damages, “the average incident cost for drilling is estimated to be \$2 million, which includes rig downtime, possible damage, the possibility of a fishing job, and even the remote possibility of lost well control.”<sup>60</sup> We note that this cost does not take into account the possibility of injuries or loss of life that could result from DP incidents, and, therefore, is likely an underestimate. We then adjust this estimate to \$2,902,891 to account for inflation that occurred between 1997 and 2013.<sup>61</sup> For non-drilling vessels, we estimate that the cost per DP incident

<sup>60</sup> Marine Technology Society. “Reliability and Risk Analysis,” Dynamic Positioning Conference, October 21–22, 1997. Page 29.

<sup>61</sup> Inflation Adjustment Calculation = > 2013 value =. The average annual CPI-U data was obtained from the BLS at <http://stats.bls.gov/cpi/cpifiles/cpiat.txt>.

that results in damages is \$132,991.<sup>62</sup> We calculated this figure by estimating the percentage difference between day rates for non-drilling vessels and drilling vessels, and then multiplying that percentage by the inflation adjusted total damages provided in the MTS “Reliability and Risk Analysis.”<sup>63</sup>

For DP incidents that do not result in damages, we calculate the cost to investigate the incident, as well as the lost revenue that would occur while the investigation was taking place. According to a Coast Guard Subject Matter Expert, it was determined that it would take an engineer 10 hours on average to investigate a DP incident, at an hourly loaded wage of \$57.<sup>64</sup> Further, the Coast Guard estimates that a non-drilling vessel would lose \$10,070 of revenue per DP incident that does not result in any damages, and a drilling vessel would lose \$219,794 of revenue per DP incident that does not result in any damages.<sup>65</sup> This lost revenue would occur as a result of operations having to be stopped while the engineer conducts the DP incident investigation.

Following this calculation (our baseline), we then calculate the cost of DP incidents following the effective date of our final rule. First, we needed to calculate the rate of DP incidents that are expected to occur after publication of a final rule. Based on roundtable conversations with owners and operators of DP vessels that operate on the U.S. OCS, we estimate that DP

incidents would be reduced by 95 percent after adopting the MTS DP Operations guidance.<sup>66</sup> If we assume that the vessels were experiencing the industry average number of incidents per year, 1.45, prior to adopting the MTS guidance, then a 95-percent reduction in DP incidents would equate to vessels experiencing only 0.0725 DP incidents per year following adoption of the MTS guidance.<sup>67</sup> Using this new figure, we recalculated the number of DP incidents that are expected to occur given the forecasted population figures. However, we continue to use the original DP incident rate (1.45 incidents per vessel per year) for vessels that would not benefit from this proposed rule, or would not benefit from the proposed rule until the applicable phase-in date.

After implementation of the NPRM, we estimate that 2,926 DP incidents for vessels other than MODUs (OSVs and crewboats) and 361 DP incidents for drilling vessels (MODUs) would be prevented over the 10-year period of our analysis.

Using the same methodology that we used to calculate the cost of DP incidents that would occur without this proposed rule, we then estimate the total cost of DP incidents after implementation of this proposed rule. We assume that the average percentage of DP incidents that result in damages remains the same.

We estimate that the reduction in the occurrence of DP failures would result in avoided damages of \$115.849 million (\$28.375 million to owners or operators of domestic vessels), discounted at a 7-percent rate, and \$146.289 million (\$37.050 million to owners or operators of domestic vessels), discounted at a 3-percent rate, over the 10-year period of our analysis. The annualized benefits are estimated to be \$16.494 million (\$4.040 million to owners or operators of domestic vessels), discounted at a 7-percent rate, and \$17.150 (\$4.343 million to owners or operators of domestic vessels), discounted at a 3-percent rate.

Table 11 summarizes the total damages avoided that would accrue to industry from issuing this NPRM. These avoided damages would accrue from a reduction in the frequency of DP failures, which would reduce vessel downtime, possible damage, and the possibility of lost well control. These benefits do not reflect the potential reduction in the risk of injuries or fatalities that would likely occur after implementation of this NPRM. Figure 3 supplements Table 11 by providing a graphical representation of the difference between the cumulative total costs incurred by noncompliant vessels prior to the issuance of a final rule, and the cumulative total costs incurred by noncompliant vessels after issuance of a final rule.

TABLE 11—TOTAL 10-YEAR AVOIDED DAMAGES FROM NPRM

Time period	Undiscounted benefits			Discounted benefits		Annualized benefits	
	Vessels other than MODUs	Drilling vessels	Total	7%	3%	7%	3%
Total Damages from DP Incidents prior to DP System Rule .....	\$105,234,662	\$126,218,084	\$231,452,746	\$157,200,830	\$194,581,898	\$22,381,862	\$22,810,935
Total Damages from DP Incidents after DP System Rule .....	51,101,224	3,746,191	54,847,415	41,351,452	48,293,037	5,887,517	5,661,417
Estimated Benefits from Following MTS Guidance .....	54,133,438	122,471,893	176,605,331	115,849,378	146,288,861	16,494,345	17,149,517

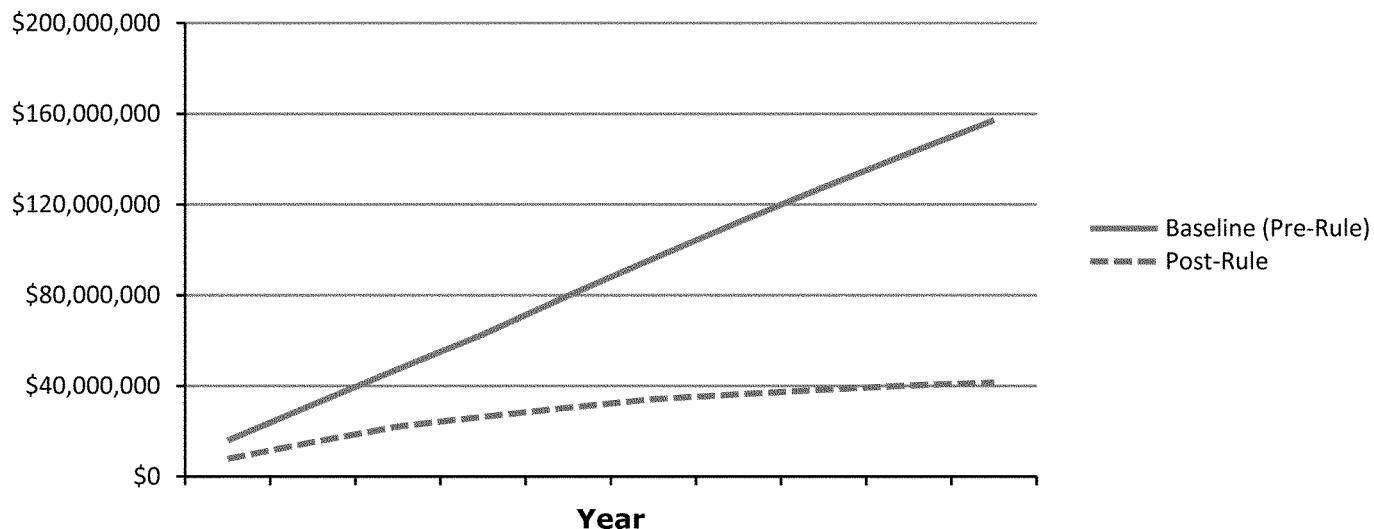
\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

<sup>62</sup> Calculation used =  $\times \times \$2,902,891$ .  
<sup>63</sup> Day rate for non-drilling vessel = \$23,818. “Dynamic Positioning System Research Task Order,” by Rolling Bay, LLC August 2012. The average day rate for drilling vessels = \$527,506.

<sup>66</sup> This reduction is based on a decrease in the frequency of DP position-loss incidents, from a frequency of six DP position-loss incidents in 6 months prior to adoption of the MTS DP Operations

guidance, to five position-loss incidents in 8 years following the adoption of the guidance.  
<sup>67</sup> New DP incident rate per vessel per year = 1.45  $\times$  0.05.

Figure 3: Comparison of Cumulative Total Costs of DP Incidents (Before and After Final Rule)



Request for Comment

We request additional comments on our benefit model assumptions. Information is specifically requested on the following:

- (1) Frequency of changes in DP status from green to red, and green to yellow;
- (2) The rate of DP incidents that result in damages and the type and amount of these damages;
- (3) The effectiveness of the proposed rule in reducing DP incidents, loss of position, and resulting consequences; and
- (4) Case studies on DP incidents that resulted in a loss of position.

**DATES:** Comments and related material must be submitted to the online docket via <http://www.regulations.gov> or reach the Docket Management Facility on or

before February 26, 2015. Comments sent to the Office of Management and Budget (OMB) on collection of information must reach OMB on or before February 26, 2015.

**ADDRESSES:** Submit comments using any one of the listed methods, and see **SUPPLEMENTARY INFORMATION** for more information on public comments.

- *Online*—<http://www.regulations.gov> following Web site instructions.
- *Fax*—202-493-2251.
- *Mail*—Docket Management Facility (M-30), U.S. Department of Transportation, West Building Ground Floor, Room W12-140, 1200 New Jersey Avenue SE., Washington, DC 20590-0001.
- *Hand delivery*—mail address, 9 a.m. and 5 p.m., Monday through

Friday, except Federal holidays (telephone 202-366-9329).

Comparison of Costs vs. Benefits

We estimate that the total annualized net cost of this NPRM is \$4.219 million (\$6.680 million to domestic owners or operators), discounted at a 7-percent rate, and \$3.930 million (\$6.653 million to domestic owners or operators), discounted at a 3-percent rate. Tables 12 and 13 summarize the net costs that would be incurred as a result of the publication of this NPRM. Figure 4 then compares the cumulative net present value, using a 7-percent discount rate, as a result of publication of this NPRM to the net present value of not requiring the provisions in this NPRM (*i.e.*, the baseline).

TABLE 12—TOTAL CUMULATIVE NET PRESENT VALUE FROM NPRM

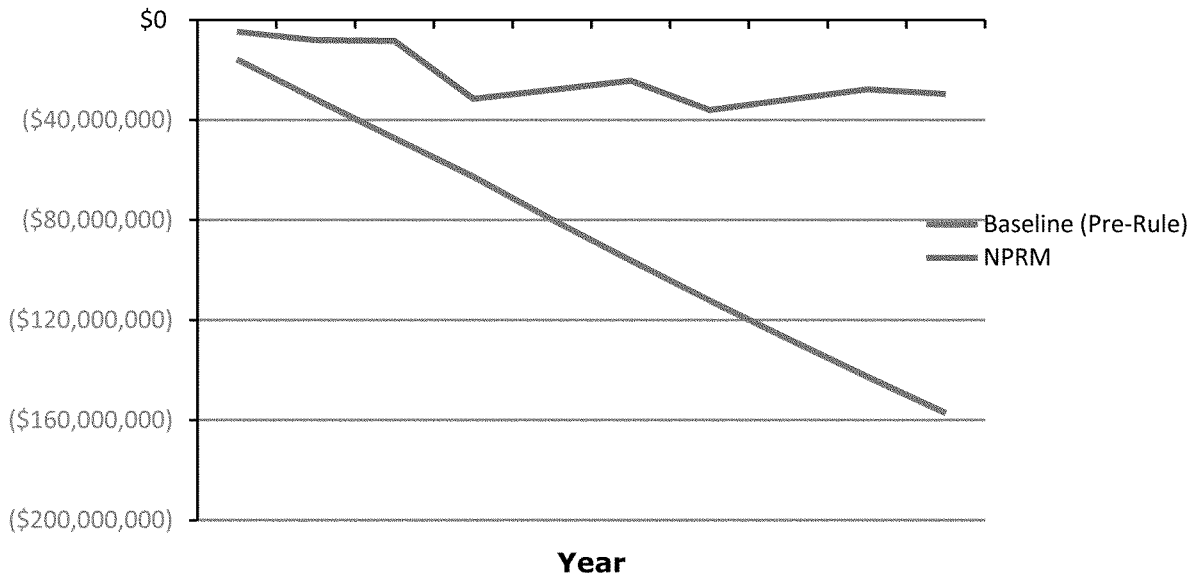
Year	Discounted costs		Discounted benefits		Net present value	
	7%	3%	7%	3%	7%	3%
1 .....	\$11,879,832	\$12,809,668	\$8,008,721	\$8,319,739	(\$4,683,985)	(\$4,865,887)
2 .....	23,878,206	25,758,050	16,568,099	17,556,832	(8,122,981)	(8,577,177)
3 .....	32,911,477	35,885,141	25,319,946	27,368,422	(8,404,405)	(8,892,677)
4 .....	67,122,135	75,727,738	36,404,432	40,277,695	(31,530,576)	(35,826,001)
5 .....	76,654,716	87,260,764	49,473,907	56,089,844	(27,993,683)	(31,546,879)
6 .....	85,580,403	98,478,907	62,079,796	71,933,404	(24,313,481)	(26,921,461)
7 .....	111,205,850	131,936,702	75,965,563	90,063,319	(36,053,161)	(42,249,341)
8 .....	120,414,846	144,427,343	89,321,957	108,179,291	(31,905,763)	(36,624,010)
9 .....	129,470,866	157,187,510	102,476,664	126,714,614	(27,807,076)	(30,848,853)
10 .....	144,669,412	179,434,311	115,849,378	146,288,861	(29,632,908)	(33,521,407)
Total .....	144,669,412	179,434,311	115,849,378	146,288,861	(29,632,908)	(33,521,407)
Annualized .....	20,597,670	21,035,175	16,494,345	17,149,517	4,219,059	3,929,732

TABLE 13—COMPARISON OF ANNUALIZED BENEFITS AND COSTS TO INDUSTRY AND GOVERNMENT  
[7-Percent discount rate]

Rule	Cost to industry	Total benefits	Net benefits
DP System NPRM .....	\$20,597,670	\$16,494,345	(\$4,219,059)

\* Numbers may not add due to rounding.  
\* Dollar figures are in 2013 terms.

Figure 4: Comparison of the Cumulative Net Present Cost  
(Baseline vs. NPRM)



These net benefits do not include the potential reduction in the number of injuries or fatalities that would likely occur after publication of this NPRM. As a result, these net benefits are likely to be underestimated.

**Breakeven Analysis**

Based on monetized benefits from reduction in property damage and lost productivity, the NPRM would not result in positive net benefits. However, our monetized estimates do not include benefits that would accrue to society

from reducing the risk of fatalities or environmental damage from an oil spill that could result from a catastrophic DP event, such as a collision with a MODU during drilling operations caused by a DP-related loss of position. It is likely then, that we have underestimated the total benefits that would result from this proposed rule. Unfortunately, because of data limitations, we are unable to calculate the risk of a catastrophic event causing fatalities or oil spills that would be prevented as a result of requiring the provisions in this proposed rule.

Instead, we estimate the number of fatalities that would need to be prevented per year in order for this proposed rule to be cost neutral, by using the value of a statistical life (VSL).<sup>68</sup> Using the VSL to monetize the value of fatalities and fatalities prevented, the NPRM would need to prevent 0.5 fatalities per year from occurring during the 10-year period for net benefits to equal the net cost of this NPRM.

Table 14 summarizes this breakeven analysis.

TABLE 14—EXPAND DP SYSTEMS IN OCS NPRM, BREAKEVEN ANALYSIS  
[7 percent, annualized]

NPRM requirement	Annualized net cost	Fatalities prevented to breakeven
Total for NPRM requirements .....	(\$4,219,059)	0.46

The consequences of a loss of position while using DP can be high. In order to put this breakeven analysis in perspective, we consider and compare

the impacts of two events to illustrate potential worst case scenarios that could result from a DP-related loss of position. First, as an example of the fatalities that

could result from a loss of position and subsequent collision, we use the SAMUDRA SURAKSHA incident as a reasonable worst case scenario. In order

<sup>68</sup> Value of a statistical life is currently measured at \$9.1 million. "Guidance on Treatment of the

Economic Value of a Statistical Life," prepared for the U.S. Department of Transportation, April 2013.

<http://www.dot.gov/sites/dot.dev/files/docs/VSL%20Guidance%202013.pdf>.

for this proposed rule's benefits to equal its costs, one worst case event on the magnitude of the SAMUDRA SURAKSHA which resulted in 22 fatalities, would need to be prevented approximately every 48 years to breakeven.<sup>69</sup>

A loss of position and collision could result in a catastrophic oil spill if a MODU is involved and the blowout preventer does not engage or fails (as was the case during the DEEPWATER HORIZON). The DEEPWATER HORIZON oil spill illustrates the potential environmental damage that could result from an oil spill from an uncontrolled well. The DEEPWATER HORIZON incident resulted in an estimated 4.9 million barrels of oil spilled. To date, the responsible party has spent \$14 billion on cleanup costs alone. This estimate of cleanup costs does not include additional restoration costs under the Natural Resource Damage Assessment process or other liabilities or settlements.<sup>70</sup> Assuming a \$14 billion cleanup cost for a reasonable worst case catastrophic oil spill, the proposed rule would have to prevent one such event every 1,000 years to breakeven.

#### Alternatives

We examined several alternatives with varying degrees of vessel applicability and required provisions. Of the alternatives examined, we selected the alternative that provided industry with the largest amount of flexibility without sacrificing maritime safety. The Coast Guard considered the following alternatives:

- Proposed Alternative (NPRM);
- Alternative 2: Grandfathering all existing non-drilling DP vessels;
- Alternative 3: No Grandfathering and No Phase-in Period;
- Alternative 4: Proposed Alternative Plus Additional DP Manning Requirements for non-drilling vessels with new or upgraded DP systems; and
- Alternative 5: Alternative 3 Plus Additional DP Manning Requirements.

Because of the frequency of DP-related incidents, as well as the potential for severe consequences that could occur as the result of an incident, the Coast Guard decided that the benefits that would be gained through requiring compliance from existing OSVs and crewboats would outweigh any additional costs that would be incurred by industry.

In order to minimize the impact on existing OSVs and crewboats, the Coast

Guard developed the proposed alternative, which uses a phase-in schedule to provide existing non-drilling vessels with some flexibility in meeting the provisions of this proposed alternative. Further, the Coast Guard decided to grandfather existing non-drilling vessels from being required to comply with the most costly provisions in this proposed rule—the provisions that would require a vessel using DP to use a DP-2 system or higher and obtain a DP-2 or high class notation.

Through providing flexibility to existing OSVs and crewboats, the proposed alternative minimizes costs, without sacrificing benefits that could accrue from a larger population of vessels.

Table 15 summarizes the alternatives considered. The costs and benefits displayed are for both total 10-year costs and benefits and the annualized cost and benefits discounted at a 7 percent annual rate. Because the net benefits do not include the potential reduction in the number of injuries or fatalities that are likely to occur after issuance of a final rule, Table 15 also includes the number of fatalities that would need to be prevented for the costs of this proposed rule to equal the benefits.

TABLE 15—COMPARISON OF ALTERNATIVES

Proposal	Annualized cost (7% discount rate)	Annualized benefits (7% discount rate)	Annualized net cost (7% discount rate)	Number of fatalities needed to be prevented per year to breakeven	Impact of alternative
Proposed Alternative.	\$20,597,670	\$16,494,345	(\$4,219,059)	1 fatality per year	<ul style="list-style-type: none"> <li>• Offers protection for 91% of crew from risk of DP failure.</li> <li>• Mitigates risk for 462 vessels.</li> <li>• Reduces costs by allowing continued use of existing DP-1 systems as long as they meet good operational practices.</li> <li>• Minimizes burden by allowing phase-in of operational requirements based on risk.</li> </ul>
Alternative 2 .....	13,307,230	13,688,325	(265,983)	0 fatalities per year	<ul style="list-style-type: none"> <li>• Offers protection for 51% of crew from risk of DP failure.</li> <li>• Mitigates risk for 205 vessels.</li> <li>• Minimizes burden by grandfathering non-drilling vessels that have installed a DP system prior to the effective date of a final rule.</li> </ul>
Alternative 3 .....	25,718,386	21,699,818	(4,896,965)	1 fatality per year	<ul style="list-style-type: none"> <li>• Offers protection for 100% of crew from risk of DP failure.</li> <li>• Mitigates risk for 528 vessels.</li> <li>• Requires non-drilling vessels that have installed a DP system prior to the effective date of a final rule to comply with all operational requirements before issuance of final rule.</li> </ul>
Alternative 4 .....	137,508,218	16,494,345	(121,332,655)	14 fatalities per year.	<ul style="list-style-type: none"> <li>• Offers protection for 91% of crew from risk of DP failure.</li> </ul>

<sup>69</sup> We acknowledge that the SAMUDRA SURAKSHA incident would not be avoided or its consequences mitigated as a result of this proposed

rule since it involved a foreign flag vessel operating in foreign waters.

<sup>70</sup> "Active Shoreline Cleanup Operations from Deepwater Horizon Accident End", press release

from BP, 15 April 2014, available at: <http://www.bp.com/en/global/corporate/press/press-releases/active-shoreline-cleanup-operations-dwh-accident-end.html>.

TABLE 15—COMPARISON OF ALTERNATIVES—Continued

Proposal	Annualized cost (7% discount rate)	Annualized benefits (7% discount rate)	Annualized net cost (7% discount rate)	Number of fatalities needed to be prevented per year to breakeven	Impact of alternative
Alternative 5 .....	625,109,533	21,699,818	(608,728,065)	67 fatalities per year.	<ul style="list-style-type: none"> <li>• Mitigates risk for 462 vessels.</li> <li>• Minimizes burden by allowing phase-in of operational requirements based on risk.</li> <li>• Requires additional manning requirements for new builds that industry is unlikely to meet on its own.</li> <li>• Offers protection for 100% of crew from risk of DP failure.</li> <li>• Mitigates risk for 528 vessels.</li> <li>• Requires non-drilling vessels that have installed a DP system prior to the effective date of a final rule to comply with all operational requirements before issuance of final rule.</li> <li>• Requires additional manning requirements for all vessels using DP that industry is unlikely to meet on its own.</li> </ul>

\* Net Cost does not include avoided fatalities or other benefits of this proposed rule.  
 \* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

Although Table 15 shows that Alternative 2, which would grandfather all existing non-drilling vessels from having to comply with this proposed rule, minimizes net costs, Alternative 2 would reduce the risk of a fatality the least out of all of the alternatives. This

is because fewer vessels would benefit from the proposed requirements, and thus the probability of a DP incident, which could result in a fatality, would remain at its current rate for a majority of existing vessels using DP on the U.S. OCS. Furthermore, given the

catastrophic damage potential of DP-related incidents from non-drilling vessels, the additional costs are relatively small. In Table 16, we summarize the risk of fatality addressed and the cost to address that risk in each of the alternatives.

TABLE 16—COMPARISON OF THE RISK OF FATALITY ADDRESSED BY ALTERNATIVE

Proposal	Total crew subject to risk of fatality—baseline	Crew with risk of fatality addressed	Percentage of potential fatality risk addressed	Annualized cost	Cost per fatality risk addressed
Alternative 1 .....	5,119	4,675	91	\$20,179,651	\$4,316.50
Alternative 2 .....	5,119	2,623	51	13,072,297	4,983.72
Alternative 3 .....	5,119	5,119	100	24,990,468	4,881.90
Alternative 4 .....	5,119	4,675	91	137,090,199	29,324.11
Alternative 5 .....	5,119	5,119	100	624,381,615	121,973.36

Table 16 shows that the cost to reduce the risk of a fatality occurring while a vessel is using DP is minimized under the proposed alternative.<sup>71</sup>

<sup>71</sup> To estimate this cost, we first derive the total number of crew members working onboard vessels which currently do not comply with this proposed rule in its entirety. Next, we calculate the number of crew members working on board vessels which would benefit from the provisions in each of the alternatives listed above. The cost to address this risk is then estimated by dividing the annualized cost of each alternative by the number of crew members expected to be on board vessels which would benefit from the provisions in each of the alternatives.

Alternative 1: Proposed Alternative

The analysis for this alternative is discussed in detail previously in this RA.

Alternative 2: Grandfathering All Vessels Other Than MODUs With Existing DP Systems

For this alternative, the Coast Guard would grandfather all vessels other than MODUs with existing DP systems, and OSVs and crewboats with an existing DP system would not be required to comply with any of the DP requirements in this NPRM. As a result, this would provide industry with the greatest amount of flexibility in meeting the

requirements in the proposed alternative, because it would only require future OSVs and crewboats to comply with the provisions in this proposed rule, in addition to still requiring MODUs with existing and future DP systems to comply immediately with the provisions in the proposed alternative. This approach was created after taking into account the increased risk profile of MODUs, as well as current industry practices. By examining the existing population of MODU's vessel specification sheets, we determined that all existing MODUs operating on the U.S. OCS that utilize DP would comply with the most costly



provisions in this NPRM. Because of this, as well as the higher risk profile of MODUs, we elected not to grandfather in MODUs with existing DP systems as outlined in this alternative.

We considered Alternative 2 because of the large proportion of OSVs and crewboats with existing DP systems that would not be compliant with the most costly DP provisions in this NPRM. However, because of the high risk potential of DP-related incidents, we decided that the benefits that would be gained through requiring compliance from existing OSVs and crewboats would outweigh the additional costs that would be incurred by industry.

#### Alternative 3: No Grandfathering and No Phase-in Period

For this alternative, the Coast Guard would require all vessels other than MODUs with existing DP Systems to comply with the requirements in this proposed rule immediately following issuance of a final rule. This alternative would affect the same number of existing OSVs and crewboats as in proposed alternative, but would not permit existing vessels to phase-in DP requirements.

We considered this Alternative 3 because of the high probability that significant consequences could occur as a result of a DP failure. However, this alternative places a larger burden on industry that cannot be justified by either the added benefits that would be incurred by requiring the existing population of non-drilling vessels using DP to comply with the requirements in the NPRM immediately following publication of a final rule (the net cost of this alternative is greater than the proposed alternative), or the reducing the risk of death for a greater number of crew members. As a result, we rejected Alternative 3.

#### Alternative 4: Additional DP Manning Requirements

Under Alternative 4, all vessels, with the exception of MODUs, that have a new DP system would be required to have a DPO or DPOQ whose only responsibility is operating the DP system.

We rejected this alternative because industry is unlikely to comply with the additional DP manning requirements in the absence of this NPRM. As such, industry would incur large costs that would not be justified by the benefits.

#### Alternative 5: Additional DP Manning Requirements With No Grandfathering

Alternative 5 would also require additional DP manning requirements, but would not grandfather vessels other

than MODUs that have an existing DP system. Because industry is not currently complying with this requirement and is not expected to comply with it in the future, we expect that this provision would burden industry with large costs that would likely force a large number of vessels out of the market. We, consequently, rejected this alternative.

#### B. Small Entities

In accordance with the Regulatory Flexibility Act (5 U.S.C. 601–612), the Coast Guard prepared this Initial Regulatory Flexibility Analysis (IRFA) that examines the impacts of the NPRM on small entities (5 U.S.C. 601 *et seq.*). Due to the anticipated impacts on small businesses, Coast Guard is including an analysis of the NPRM requirements for informational purposes.

A small entity may be—

- A small independent business, defined as any independently owned and operated business not dominant in its field that qualifies as a small business per the Small Business Act (5 U.S.C. 632);
- A small not-for-profit organization; and
- A small governmental jurisdiction (locality with fewer than 50,000 people).

An IRFA addresses the following:

- A description of the reasons why action by the agency is being considered;
- A succinct statement of the objectives of, and legal basis for, the proposed rule;
- A description of and, where feasible, an estimate of the number of small entities to which the proposed rule will apply;
- A description of the projected reporting, recordkeeping and other compliance requirements of the proposed rule, including an estimate of the classes of small entities which will be subject to the requirement and the type of professional skills necessary for preparation of the report or record;
- An identification, to the extent practicable, of all relevant Federal rules which may duplicate, overlap or conflict with the proposed rule; and
- A description of any significant alternatives to the proposed rule which accomplish the stated objectives of applicable statutes and which minimize any significant economic impact of the proposed rule on small entities.

#### 1. Description of the Reasons Why Action by the Agency Is Being Considered

Agencies take regulatory action for various reasons, one of which is the

failure of markets to reach socially optimal outcomes. The market failures prompting this proposed rule result from the absence of economic incentives that promote an optimal outcome.

The absence of economic incentives that promote an optimal outcome results in a negative externality. A negative externality is an adverse byproduct of a transaction not accounted for within the transaction. In this case, MODUs and other vessels that use DP to engage in OCS activities that operate with lower safety standards may cause harm or increased risk of harm to human safety and the environment. The cost of these lower safety standards (increased risk) is not completely borne by the OSV or MODU owners, so they are external to the business decisions of these owners. The crew, which may face increased risk from lower safety standards, may not have any say in safety-related decisions. Since the crew may be adversely affected by business decisions which it may not be able to mitigate through increasing its price (labor cost), it absorbs the cost of the externality (increased risk from lower safety standards) which is a market failure. Oil spills that result from OSV or MODU accidents also impose an externality in the form of environmental damage and clean-up costs that are not borne directly by the OSV and MODU owners.

#### 2. Succinct Statement of the Objectives of, and Legal Basis for, the Proposed Rule

Establishing these minimum standards is necessary to improve the safety of people and property involved in such operations, and the protection of the environment in which they operate. This proposed rule would decrease the risk of a loss of position by a dynamically-positioned MODU or other vessel that could result in a fire, explosion, or subsea spill, and supports the Coast Guard's strategic goals of maritime safety and protection of natural resources.

Several sections of the Outer Continental Shelf Lands Act (43 U.S.C. 1331–1356a,) provide “the Secretary of the Department in which the Coast Guard is operating” with rulemaking authority. The Secretary's authority under all these sections is delegated to the Coast Guard through Department of Homeland Security Delegation No. 0170.1, paragraph II(90).

43 U.S.C. 1333(d)(1) gives the Secretary “authority to promulgate and enforce such reasonable regulations with respect to lights and other warning devices, safety equipment, and other matters relating to the promotion of safety of life and property on the

artificial islands, installations, and other devices referred to in subsection (a) of this section or on the waters adjacent thereto, as [the Secretary] may deem necessary.” The Coast Guard interprets section 1333(d)(1) as conferring authority to regulate any OCS vessel or facility (collectively referred to as “OCS unit”) attached to the OCS seabed or engaged in OCS activity to support such a unit.<sup>72</sup>

Section 1347(c) requires promulgation of “regulations or standards applying to unregulated hazardous working conditions related to activities on the outer Continental Shelf when . . . such regulations or standards are [determined to be] necessary” and authorizes the modification “from time to time” of “any regulations, interim or final, dealing with hazardous working

conditions on the Outer Continental Shelf.” Section 1348(c) requires promulgation of regulations for onsite scheduled or unscheduled inspections of OCS facilities “to assure compliance with . . . environmental or safety regulations.” Additionally, section 1356 calls for regulations requiring, with limited exceptions, all OCS units to be manned by U.S. citizens or resident aliens and to comply with “such minimum standards of design, construction, alteration, and repair” as the Secretary or the Secretary of the Interior establishes.

3. Description of and, Where Feasible, an Estimate of the Number of Small Entities To Which the Proposed Rule Will Apply

Through review of the Coast Guard’s MISLE database, as well as comparing owners’ annual revenues to the small business threshold as defined by the Small Business Administration, we determined the number of small entities within drilling and non-drilling owners that would be affected by this proposed rule. We did not find any drilling or non-drilling vessels owned by governments or non-profits.

Table 17 provides the SBA’s revenue thresholds for the entities that are affected by this proposed rule. We used these standards in our analysis to determine which entities should be defined as small.

TABLE 17—STANDARD SIZE OF REVENUE OF ENTITIES AFFECTED BY NPRM

NAICS code	Description of NAICS group	Standard size of revenue
213112	Support Activities for Oil and Gas Operations	\$7,000,000
487210	Water Transportation Excursion	7,000,000
488330	Navigation Services to Shipping	35,000,000
488390	Other Support Activities for Water Transportation	35,000,000
522220	Sales Financing	7,000,000
532411	Commercial Air, Rail, and Water Transportation Equipment Rentals and Leasing	7,000,000
541990	All Other Professional Scientific and Technical Services	14,000,000

Through this analysis, we determined that all existing MODUs, 60 percent of all existing OSVs of at least 500 GT ITC, 58 percent of all existing OSVs less than 500 GT ITC, and 63 percent of all existing crewboats exceed these small business standards.<sup>73</sup>

The following tables summarize our findings.

TABLE 18—SIZE OF MODUS AFFECTED BY NPRM

	Number of owners	Number of vessels
Entities with Data— Above Threshold	2	4
Entities with Data— Below Threshold	0	0
Total Small Entities	0	0
Total	2	4
Percentage of Small Entities	0.0%	0.0%

The annual revenue for MODU owners that would be affected by this proposed rule is within a range of

<sup>72</sup> OCS activity is defined in 33 CFR 140.10 to mean “any offshore activity associated with exploration for, or development or production of, the minerals of the Outer Continental Shelf.”

\$875,000,000 to \$3,000,000,000. Our results indicate that all drilling vessels using DP and currently operating on the U.S. OCS exceed the small business standards presented in Table 17.

Next, we examined publicly available revenue data for owners and operators of OSVs of at least 500 GT ITC that use DP while operating on the U.S. OCS. These vessels would be required to comply with a majority of the provisions of this proposed rule by the date specified in Table 2 of this Regulatory Analysis section. Table 19 summarizes our analysis on owners or operators of OSVs of at least 500 GT ITC.

TABLE 19—SIZE OF OSVs OF AT LEAST 500 GT ITC AFFECTED BY NPRM

	Number of owners	Number of vessels
Entities with Data— Above Threshold	21	401

<sup>73</sup> We have separated our analysis of OSVs into OSVs of at least 500 GT ITC and OSVs under 500 GT ITC in order to account for the phase-in schedule which would only require OSVs of at least

TABLE 19—SIZE OF OSVs OF AT LEAST 500 GT ITC AFFECTED BY NPRM—Continued

	Number of owners	Number of vessels
Entities with Data— Below Threshold	14	56
Total Small Entities	14	56
Total	35	457
Percentage of Entities	40%	12%

Through our analysis, we estimate that approximately 40 percent of owners or operators of existing OSVs of at least 500 GT ITC that use DP are defined as small by the SBA threshold. The annual revenue stream of the entities affected by this proposed rule that are defined as small is within a range of \$630,000 to \$51,834,000.

We then examined revenue data for owners or operators of OSVs less than 500 GT ITC. Although these owners or operators would incur some cost as a result of this proposed rule, existing vessels in this group would be

500 GT ITC to meet more stringent DP requirements.

grandfathered from the most costly provisions.

Table 20 describes the results of our analysis on the revenue streams of owners or operators of OSVs less than 500 GT ITC.

**TABLE 20—SIZE OF OSVs LESS THAN 500 GT ITC AFFECTED BY NPRM**

	Number of owners	Number of vessels
Entities with Data—Above Threshold .....	14	48
Entities with Data—Below Threshold .....	10	23
Total Small Entities .....	10	23
Total .....	28	71
Percentage of Small Entities .....	42%	32%

Using annual revenue data from public databases, we estimate that approximately 42 percent of the owners of vessels less than 500 GT ITC are small entities. The annual revenues for owners or operators defined as small entities range from \$565,000 to \$3,750,000. The median revenue per small entity owner is \$3,109,500, while the mean revenue is \$2,556,965.

Lastly, we examined the revenue streams of owners or operators of crewboats that use DP on the U.S. OCS. Table 21 summarizes our findings.

**TABLE 21—SIZE OF CREWBOATS AFFECTED BY NPRM**

	Number of owners	Number of vessels
Entities with Data—Above Threshold .....	8	36
Entities with Data—Below Threshold .....	3	7
Total Small Entities .....	3	7
Total Entities .....	11	43
Percentage of Small Entities .....	27%	16%

Using annual revenue data from public databases, we estimate that approximately 27 percent of the owners or operators of crewboats are small entities. The annual revenues for crewboat owners or operators defined as small entities range from \$162,000 to \$2,200,000. The median revenue per small entity owner or operator is \$1,081,000, while the mean revenue is \$1,147,667. As with OSVs less than 500 GT ITC, however, these vessels would be grandfathered from having to comply with the most costly provisions in this proposed rule.

**4. A Description of the Projected Reporting, Recordkeeping and Other Compliance Requirements of the Proposed Rule, Including an Estimate of the Classes of Small Entities That Would Be Subject to the Requirement and the Type of Professional Skills Necessary for Preparation of the Report or Record**

In general, this proposed rule would require owners or operators of vessels that use DP on the U.S. OCS to—

- Make available to the OCMI upon request a copy of a DPO/DPOQ's certificate of completion of DP training courses;
- Use DP-2 or higher systems if conducting Critical OCS Activities;<sup>74</sup>
- Receive a DP-2 class notation;
- Conduct an FMEA;
- Develop and maintain a CAMO and ASOC or WSOC;
- Report DP system incidents to an authorized DP assurance organization;
- Conduct DP incidents investigations whenever the DP system status changes from green to yellow or red;
- Report Serious Marine Incidents that result from a DP incident to the OCMI;
- Submit a copy of a DP incident investigation report to the OCMI annually;
- Report the time and location of a DP survey to the OCMI at least 30 days prior to the survey; and

- Submit a copy of the vessel's DP system plan if the vessel is a MODU or of at least 6,000 GT ITC.

Our research indicates that all MODUs and OSVs that plan on using DP on the U.S. OCS will be built with a DP-2 system even in the absence of this proposed rule. Further, all existing MODUs that use DP on the U.S. OCS already are operating with DP-2 or higher systems. Lastly, because existing OSVs and crewboats would be grandfathered from having to comply with this requirement, we anticipate that only one future crewboat owner per year could potentially incur this cost. Therefore, this provision is expected to have a minimal impact on industry as a whole.

To determine the impact of this proposed rule on an individual owner or operator, we calculated the expected cost for the vessel categories examined above to comply with all applicable provisions.

**Expected Cost to MODUs**

Because all drilling (MODU) owners or operators exceed the small business threshold and the expected cost to these owners or operators is estimated to be well below their annual revenue streams, we instead begin our analysis with the expected cost to owners or operators of OSVs of at least 500 GT ITC.

**Expected Cost to OSVs of at Least 500 GT ITC**

We estimate that the total first-year cost of this NPRM to noncompliant owners or operators of existing OSVs of at least 500 GT ITC would be \$286,835 per vessel. Table 22 summarizes the cost per provision to these noncompliant vessels.

**TABLE 22—FIRST-YEAR COSTS TO AN EXISTING NON-COMPLIANT OSV OF AT LEAST 500 GT ITC**

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$114.40
Replace DP-1 Crewboats .....	0.00
Cost to receive DP-2 Class Notation .....	0.00
Conduct an FMEA .....	275,000.00
Develop a CAMO and ASOC .....	9,120.00
Report DP System Incidents .....	177.87
Conduct DP Incident Investigation And Write Report .....	2,236.19
Report Serious Marine Incidents Resulting from DP Incident .....	3.46
Submit Annual DP Incident Investigation Report .....	169.10
Obtain DPVAD .....	10.25
Report DP Surveys .....	4.10

<sup>74</sup> Or choose to not operate with DP.

TABLE 22—FIRST-YEAR COSTS TO AN EXISTING NON-COMPLIANT OSV OF AT LEAST 500 GT ITC—Continued

Requirement	First year cost
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>285,835.36</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

After a review of the Coast Guard’s MISLE database, as well as vessel profiles that are publicly available on company Web sites, we estimate that roughly 50 percent of existing OSVs that would be phased-in to the DP requirements of this proposed rule would incur this entire cost. We estimate that the remaining owners or operators of existing OSVs affected by this proposed rule would incur a cost of \$1,062.36 per vessel.<sup>75</sup>

Additionally, through conversations with members of industry, we expect that 50 percent of future OSVs of at least 500 GT ITC would also incur the full cost displayed in Table 22. Like the existing population, the rest are expected to incur a cost of \$1,062.

We then use the population estimates in Table 3 of this Regulatory Analysis section to calculate the expected first-year cost to an owner or operator of an OSV of at least 500 GT ITC.

Using the expected value formula,  
*Expected First-Year Cost* =  
 ((247 existing DP vessels no compliance × \$286,835)

+ (265 existing DP vessels partial compliance × \$1,062)  
 + (418 existing vessels without DP × \$0)  
 + (12 future DP vessels no compliance × \$286,835)  
 + (17 future DP vessels partial compliance × \$1,062))/(959 Total Vessels Affected)

we estimate that the expected average first-year cost as a result of this proposed rule to owners or operators of OSVs of at least 500 GT ITC would be \$77,778.88.

Using this expected average first-year cost, we then estimate the first-year revenue impact to the small entities that we identified in Table 19. During the first-year of implementation, we estimate that 71 percent of these 14 owners or operators would incur a cost less than 5 percent of their annual revenue stream. The remaining 28 percent would incur costs less than 13 percent of their annual revenue stream.

TABLE 23—FIRST-YEAR REVENUE IMPACT TO SMALL ENTITIES THAT OWN OSVs OF AT LEAST 500 GT ITC

Revenue impact range	Impact from first year costs
Expected cost per vessel .....	\$77,779
0% < Impact < 1% .....	21%
1% < Impact < 3% .....	21%
3% < Impact < 5% .....	29%
5% < Impact < 10% .....	7%
Above 10% .....	21%

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

This proposed rule is also expected to have reoccurring costs. We estimate that the annual cost to owners or operators of OSVs of at least 500 GT ITC that meet none of the applicable provisions would be \$2,573.

Table 24 summarizes the reoccurring costs incurred by an owner or operator of a vessel that would not comply with any of the applicable provisions of this proposed rule.

TABLE 24—ANNUAL COST TO AN EXISTING NON-COMPLIANT OSV OF AT LEAST 500 GT ITC

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$42.90
Replace DP-1 Crewboats .....	0.00
Cost to receive DP-2 Class Notation .....	0.00
Conduct an FMEA .....	0.00
Develop a CAMO and ASOC .....	0.00
Report DP System Incidents .....	170.87
Conduct DP Incident Investigation And Write Report .....	2,236.19
Report Serious Marine Incidents Resulting from DP Incident .....	3.46
Submit Annual DP Incident Investigation Report .....	169.10
Obtain DPVAD .....	0.00
Report DP Surveys .....	4.10
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>2,633.61</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

We estimate that all owners or operators of OSVs of at least 500 GT ITC would incur this cost following the first year.

Using these total costs, we then estimate the expected annual cost to an owner or operator of an OSV of at least 500 GT ITC.

The estimated expected annual cost incurred by owners or operators of OSVs of at least 500 GT ITC is \$1,485.70. This expected cost is estimated to be less than 0.1% of the

<sup>75</sup> These vessels are expected to already comply with the FMEA, CAMO and ASOC, and DP Investigation requirements.

annual revenue of the two entities identified as small.  
 Expected Cost to an OSV Less Than 500 GT ITC  
 During development of the phase-in schedule summarized in Table 2 of this Regulatory Analysis section, we realized that the risk profile of OSVs less than 500 GT ITC that use DP on the U.S. OCS

was much smaller than the risk profile of larger-sized vessels that use DP. As a result, we decided to grandfather these smaller existing vessels, not only from being required to use DP-2 or higher systems, but also from being required to comply with the FMEA, CAMO, ASOC, and DP failure and incident reporting requirements.

We estimate that because of these less stringent requirements, the total first-year cost of this NPRM to noncompliant owners or operators of existing OSVs less than 500 GT ITC is \$126.00 per vessel. Table 25 summarizes the cost per proposed provision to these noncompliant vessels.

TABLE 25—FIRST-YEAR COSTS TO AN EXISTING NON-COMPLIANT OSV LESS THAN 500 GT ITC

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$114.40
Replace DP-1 Crewboats .....	0.00
Cost to receive DP-2 Class Notation .....	0.00
Conduct an FMEA .....	0.00
Develop a CAMO and ASOC .....	0.00
Report DP System Incidents .....	0.00
Conduct DP Incident Investigation And Write Report .....	0.00
Report Serious Marine Incidents Resulting from DP Incident .....	0.00
Submit Annual DP Incident Investigation Report .....	0.00
Obtain DPVAD .....	0.00
Report DP Surveys .....	0.00
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>114.40</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

We expect that none of the existing population of OSVs less than 500 GT ITC that use DP would be in compliance with the proposed requirement that all DPOs and DPOQs make available to the Coast Guard upon request the

certificates of completion from their DP training course. As such, the entire population of OSVs less than 500 GT ITC that use DP would incur a cost of \$114.40 in the first year.

Using the same methodology as before, we estimate the expected average cost to these owners or operators per vessel using the following formula:

$$\frac{(71 \text{ existing DP vessels} \times \$114) + (77 \text{ existing vessels}_{\text{without DP}} \times \$0)}{478 \text{ Total Vessels}}$$

We estimate that the expected average first-year cost to owners or operators is \$54.88 per vessel. Using this expected cost, we then analyze the expected impact on owners or operators identified as small entities in Table 20. During the first year of implementation, we estimate that all OSVs less than 500 GT ITC would incur a cost of less than 0.1 percent of their annual revenue stream.  
 Table 26 summarizes the revenue impact that this NPRM would have on the existing population of small entities owning or operating OSVs less than 500 GT ITC.

TABLE 26—FIRST-YEAR REVENUE IMPACT TO SMALL ENTITIES THAT OWN OSVs LESS THAN 500 GT ITC

Revenue impact range	Impact from first year costs
Expected Cost per Vessel .....	\$54.88
0% < Impact < 1% .....	100%
1% < Impact < 3% .....	0%
3% < Impact < 5% .....	0%
5% < Impact < 10% .....	0%
Above 10% .....	0%

\* Numbers may not add due to rounding.

\* Dollar figures are in 2013 terms.

In subsequent years, vessel owners or operators of OSVs less than 500 GT ITC are expected to have costs slightly less than those estimated in Table 25 as a result of this proposed rule. We estimate that in later years, owners or operators of OSVs less than 500 GT ITC that use DP would incur a cost of \$21.35 annually.

Table 27 summarizes the reoccurring costs that these owners or operators can expect if this proposed rule is implemented.

TABLE 27—FIRST-YEAR COSTS TO AN EXISTING NON-COMPLIANT OSV LESS THAN 500 GT ITC

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$44.50
Replace DP-1 Crewboats .....	0.00

TABLE 27—FIRST-YEAR COSTS TO AN EXISTING NON-COMPLIANT OSV LESS THAN 500 GT ITC—Continued

Requirement	First year cost
Cost to receive DP-2 Class Notation .....	0.00
Conduct an FMEA .....	0.00
Develop a CAMO and ASOC .....	0.00
Report DP System Incidents .....	0.00
Conduct DP Incident Investigation And Write Report .....	0.00
Report Serious Marine Incidents Resulting from DP Incidents .....	0.00
Submit Annual DP Incident Investigation Report .....	0.00
Obtain DPVAD .....	0.00
Report DP Surveys .....	0.00
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>44.50</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

Again, we expect that all owners or operators of existing OSVs less than 500 GT ITC that use DP would incur the full annual cost listed in Table 27.

Using these estimated annual costs, we then calculate the expected annual cost to an owner or operator of an OSV less than 500 GT ITC.

The estimated expected annual cost incurred by owners or operators of OSVs of at least 500 GT ITC is \$21.35. We estimate the distribution of the revenue impact to small entities as a result of this expected annual cost to be the same as the distribution of the revenue impact as a result of expected first-year costs. Therefore, we estimate the impact for all owners or operators of OSVs less than 500 GT ITC to be less than 0.1 percent of their annual revenue streams.

**Expected Cost to a Crewboat**

Although existing crewboats that use DP while conducting critical OSC operations on the U.S. OCS would be grandfathered from having to comply with the most costly requirements in this proposed rule (replacing a DP-1 system with a DP-2 or higher system, conducting an FMEA, and developing and maintaining a CAMO and ASOC), future crewboats would not be granted this luxury.

In order to comply with the proposed DP equipment provision, it is likely that an owner or operator who had planned to build a crewboat with a DP-1 system to conduct Critical OCS Activities would instead need to purchase a larger vessel in order to meet the greater mechanical and structural demands of a DP-2 system.<sup>76</sup> We estimate, then, that

this proposed requirement would cost an owner or operator \$876,237 in order to comply.<sup>77</sup> It is unlikely, however, that a small entity would choose to pay this cost up-front. Instead, we assume that an owner or operator would finance the cost of this purchase over 10 years. We estimate that the annual mortgage payment would be \$124,756 to finance this cost over 10 years at a 7-percent interest rate. We considered that less favorable financing terms, such as shorter loan durations or higher mortgage rates, would be possible. In those cases, the annual cost would be higher.

Table 28 summarizes, by proposed requirement, the first-year cost to owners or operators of future crewboats that did not meet any of the applicable provisions in this proposed rule.

TABLE 28—FIRST-YEAR COSTS TO A FUTURE NON-COMPLIANT CREWBOAT

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$114.10
Replace DP-1 Crewboats .....	124,756.44
Cost to receive DP-2 Class Notation .....	64,250.00
Conduct an FMEA .....	275,000.00
Develop a CAMO and ASOC .....	9,120.00
Report DP System Incidents .....	177.87
Conduct DP Incident Investigation And Write Report .....	2,236.19
Report Serious Marine Incidents Resulting from DP Incident .....	3.46
Submit Annual DP Incident Investigation Report .....	169.10
Obtain DPVAD .....	10.25
Report DP Surveys .....	4.10
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>475,841.80</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

Table 28 shows that the estimated first-year cost to owners or operators of

future crewboats that would not meet any of the requirements in this proposed

rule is, after financing, \$475,841.80 per vessel.

<sup>76</sup> Although the owner or operator has the option to not conduct Critical OSC activities or not use DP while conducting Critical OCS activities, the Coast Guard does not anticipate these to be likely

alternatives, since these alternatives would effectively remove the vessel from being considered for future work from contractors. Therefore, the Coast Guard believes that the preferred option will

be purchasing a DP-2 crewboat instead of a DP-1 crewboat.

<sup>77</sup> See the Cost section of this Regulatory Analysis for more detail on this cost.

However, this cost would only be incurred by a small percentage of owners that would have built a DP-1 crewboat in the absence of this proposed rule. In addition to these owners, we estimate that there would be some owners who would incur a smaller cost, because they are expected to build crewboats with DP-2 systems even in the absence of this proposed rule. Finally, we expect that there will be some owners who would choose not to build a crewboat with DP, and therefore,

would not incur costs from this proposed rule.<sup>78</sup>

In addition to new builds, owners or operators of existing crewboats that use DP systems would also incur a cost to comply with the reporting requirements of this proposed rule. Using publicly available data on vessel specifics, we estimate that, of existing vessels that use DP, 30 percent use DP-1 systems, with the remainder using DP-2 systems.<sup>79</sup> Further, there are 224 crewboats

currently operating in U.S. waters that do not use DP systems.

We estimate that this proposed rule would result in a first-year cost of \$114.40 per vessel to owners or operators of existing crewboats that use DP systems, as they would be grandfathered from being required to comply with most of the requirements in this proposed rule.

Table 29 summarizes this estimated cost.

TABLE 29—FIRST-YEAR COSTS TO AN EXISTING NON-COMPLIANT CREWBOAT

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$114.40
Replace DP-1 Crewboats .....	0.00
Cost to receive DP-2 Class Notation .....	0.00
Conduct an FMEA .....	0.00
Develop a CAMO and ASOC .....	0.00
Report DP System Incidents .....	0.00
Conduct DP Incident Investigation And Write Report .....	0.00
Report Serious Marine Incidents Resulting from DP Incident .....	0.00
Submit Annual DP Incident Investigation Report .....	0.00
Obtain DPVAD .....	0.00
Report DP Surveys .....	0.00
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>114.40</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

Although the first-year cost to owners or operators for future builds is estimated to be large, this cost will be borne by only a small percentage of

crewboat owners or operators. Because we assume, for simplicity, that these owners or operators already own or operate crewboats that are in operation

today, we calculate the expected first-year cost to the existing eight crewboat owners or operators in business today. Using the expected value formula,

*Expected Cost =*

$$\frac{((43 \text{ existing DP vessels} \times \$114) + (224 \text{ existing vessels}_{no DP} \times \$0) + (2 \text{ future vessels}_{DP-2} \times \$351,085) + (1 \text{ future vessels}_{DP-1} \times \$475,842))}{270 \text{ Total Crewboats}}$$

we estimate that the expected average first-year cost to crewboat owners or operators would be \$4,381.23 as a result of this proposed rule.

Using this expected average first-year cost, we then estimate the first-year revenue impact to the three small entities identified earlier in Table 21. During the first-year of implementation, we estimate that 67 percent of these owners or operators would incur a cost less than 1 percent of their annual revenue stream. The other owners or operators would incur costs less than 3 percent of their annual revenue stream.

Table 30 summarizes the revenue impact that this NPRM would have on

the existing population of small crewboat owners.

TABLE 30—FIRST-YEAR REVENUE IMPACT TO SMALL ENTITIES THAT OWN CREWBOATS

Revenue impact range	Impact from first year costs
Expected Cost per Vessel .....	\$4,381.23
0% < Impact <1% .....	67%
1% < Impact <3% .....	33%
3% < Impact <5% .....	0%
5% < Impact <10% .....	0%
Above 10% .....	0%

\* Numbers may not add due to rounding.

\* Dollar figures are in 2013 terms.

In subsequent years, we expect that the annual cost to comply with this NRPM would decrease significantly for owners or operators of newly-built crewboats and slightly for owners or operators of existing crewboats.

Table 31 summarizes the annual cost to an owner or operator of a new crewboat that would not have met the design standards of this proposed rule.

<sup>78</sup>Through statistical analysis, we estimate that 1 crewboats per year would incur the full cost listed in Table 28 in the first three years following issuance of a final rule.

<sup>79</sup>These percentages are based on a review of all existing crewboats' vessel specifics, 13 crewboats list DP-1 systems, 30 list DP-2 systems, and 224 list no DP system.

TABLE 31—ANNUAL COSTS TO A FUTURE NON-COMPLIANT CREWBOAT

Requirement	First year cost
Make Available DPO/DPOQ Training Certificates .....	\$44.50
Replace DP-1 Crewboats .....	124,756.44
Cost to receive DP-2 Class Notation .....	0.00
Conduct an FMEA .....	0.00
Develop a CAMO and ASOC .....	0.00
Report DP System Incidents .....	177.87
Conduct DP Incident Investigation And Write Report .....	2,236.19
Report Serious Marine Incidents Resulting from DP Incident .....	3.46
Submit Annual DP Incident Investigation Report .....	169.10
Obtain DPVAD .....	0.00
Report DP Surveys .....	4.10
Submit DP Systems Plan .....	0.00
<b>Total .....</b>	<b>127,391.65</b>

\* Numbers may not add due to rounding.  
 \* Dollar figures are in 2013 terms.

For future builds that would meet the DP design standards even in the absence of this proposed rule, the estimated annual cost to owners or operators is

\$2,635.21. Lastly, we estimate that owners or operators of existing crewboats that use DP would incur an annual cost of \$44.50.

Using the same formula we used above, we calculate the expected annual cost per vessel to a crewboat owner or operator.

*Expected Annual Cost =*

$$\frac{((43 \text{ existing DP vessels} \times \$45) + (224 \text{ existing vessels}_{no DP} \times \$0) + (2 \text{ future vessels}_{DP-2} \times \$2,635) + (1 \text{ future vessels}_{DP-1} \times \$127,392))}{270 \text{ Total Crewboats}}$$

We estimate that the expected annual cost to crewboat owners or operators is \$498.43 per vessel as a result of this proposed rule. After the first year of implementation, all crewboat owners who are defined as small entities would incur a cost less than 0.01 percent of their revenue stream annually.

5. An Identification, to the Extent Practicable, of All Relevant Federal Rules That May Duplicate, Overlap, or Conflict With the Proposed Rule

There are no relevant Federal rules that may duplicate, overlap, or conflict with the proposed rule.

6. A Description of any Significant Alternatives to the Proposed Rule That Accomplish the Stated Objectives of Applicable Statutes and That Minimize Any Significant Economic Impact of the Proposed Rule on Small Entities

Because of the frequency of DP-related incidents, as well as the severe consequences that could occur as the result of an incident, we decided that the benefits that would be gained through requiring compliance from existing OSVs and crewboats would outweigh any additional costs that would be incurred by industry.

To minimize the impact on existing OSVs and crewboats, we developed the proposed alternative, which uses a phase-in schedule to provide existing

non-drilling vessels with some flexibility in meeting the provisions of this proposed alternative. Further, we decided to grandfather existing non-drilling vessels from being required to comply with the most costly provisions in this proposed rule, namely, the provisions that would require a vessel using DP to use a DP-2 system or higher and obtain a DP-2 or higher class notation.

By providing flexibility to existing OSVs and crewboats, the proposed alternative minimizes costs without sacrificing benefits that could accrue from a larger population of vessels.

If you think that your business, organization, or governmental jurisdiction qualifies as a small entity and that this NPRM would have a significant economic impact on it, please submit a comment to the Docket Management Facility at the address under the “Public Participation and Request for Comments” section of this preamble.

*C. Assistance for Small Entities*

Under section 213(a) of the Small Business Regulatory Enforcement Fairness Act of 1996 (Pub. L. 104-121), we want to assist small entities in understanding this NPRM so that they can better evaluate its effects on them and participate in the rulemaking. If the NPRM would affect your small business,

organization, or governmental jurisdiction and you have questions concerning its provisions or options for compliance, please consult LT Jeff Bybee, Project Manager, CG-ENG-1, Coast Guard, telephone 202-372-1357. The Coast Guard will not retaliate against small entities that question or complain about this proposed rule or any policy or action of the Coast Guard.

Small businesses may send comments on the actions of Federal employees who enforce, or otherwise determine compliance with, Federal regulations to the Small Business and Agriculture Regulatory Enforcement Ombudsman and the Regional Small Business Regulatory Fairness Boards. The Ombudsman evaluates these actions annually and rates each agency’s responsiveness to small business. If you wish to comment on actions by employees of the Coast Guard, call 1-888-REG-FAIR (1-888-734-3247).

*D. Collection of Information*

This NPRM would call for a collection of information under the Paperwork Reduction Act of 1995 (44 U.S.C. 3501-3520). As defined in 5 CFR 1320.3(c), “collection of information” comprises reporting, recordkeeping, monitoring, posting, labeling, and other, similar actions. The title and description of the information collections, a description of those who must collect the information,



and an estimate of the total annual burden follow. The estimate covers the time for reviewing instructions, searching existing sources of data, gathering and maintaining the data needed, and completing and reviewing the collection.

*Title:* Requirements for MODUs and Other Vessels Conducting Outer Continental Activities with Dynamic Positioning Systems.

*OMB Control Number:* 1625—NEW.

*Summary Of The Collection Of Information:* Title 33 CFR Sections 140.315, 140.335, and Title 46 CFR 61.50–4, 61.50–3, 61.50–2, and 62.20–2 of this NPRM would have COI requirements for vessel owners or operators, and authorized DP assurance providers (DPSAOs). Section 140.315 would require owners or operators to provide the Coast Guard proof of the training records for their DPOs and DPOQs within 48 hours of a request. Section 140.335 (j) would require a vessel owner or operator to report to the cognizant OCMI a DP incident that results in either an emergency disconnect or a serious marine incident as defined by 46 CFR 4.03–2.

Proposed § 61.50–4 would require an authorized DP assurance provider to submit a DP incident investigation report annually to OCS NCOE if the vessel is a MODU conducting Critical OCS Activities; is a vessel other than a MODU conducting Critical OCS Activities while using a DP system installed after the effective date of a final rule; or is a vessel other than a MODU conducting Critical OCS Activities, and is greater than 500 GT ITC and uses a DP system installed prior

to the effective date of the final rule. Section 61.50–3 would require a prospective DP assurance organization to submit an application to the OCS NCOE prior to being recognized by the Coast Guard as an authorized DPSAO. Sections 61.50–2 would require the DPSAO conducting a vessel’s DP survey to notify the cognizant OCMI of the time and location of a DP initial and annual survey at least 30 days prior to when the survey would take place. Finally, § 62.20–2 would require an DPSAO to submit a copy of the DP system plan for each MODU or other vessel of at least 6,000 GT ITC that uses a DP system to conduct Critical OCS Activities.

*Need for Information:* The Coast Guard is requesting this information to determine whether a vessel satisfies the new regulatory requirements for vessel designs and operations, DP surveys, and DPO and DPOQ training. Furthermore, this information is required to better understand why DP system incidents occur.

*Proposed Use of Information:* The Coast Guard would use this information to determine whether a vessel satisfies the new regulatory requirements for vessel designs and operations, DP surveys, and DPO and DPOQ training. This information also would be used to better understand why DP system incidents occur.

*Description of the Respondents:* The respondents would be vessel owners or operators, ship engineers, and authorized DPSAOs of U.S.- and foreign-flag OSVs and MODUs that operate on the U.S. OCS.

*Number of Respondents:* This NPRM, if promulgated, would have 719

respondents in the first year after the effective date of a final rule.<sup>80</sup> Over the course of the 3-year collection period, there would be 784 respondents.<sup>81</sup>

*Frequency of Response:* The number of responses per year of this NPRM would vary by requirement. Owners or operators must provide proof of training for each DPO and DPOQ employed (we expect eight training certificates would need to be made available during the first year and three training certificates, on average, in subsequent years, to account for a worker turnover rate of 38.9 percent per year).<sup>82</sup> Owners or operators would be required to report, to the cognizant OCMI, DP incidents that result in an emergency disconnect or serious marine incident, which we estimate would occur at a rate of 0.19 and 0.05 per vessel per year, respectively. An authorized DP assurance provider would need to submit an application to the OCS NCOE in order to become an authorized DPSAO.

Additionally, the DPSAO would need to submit an annual summary report, per vessel, of DP incidents investigations that were conducted throughout the year. A DPSAO would also be required to submit a vessel’s DP system plan once. Finally, an authorized DPSAO would need to report the time and location of their initial DP survey once per vessel, as well as report the time and location of their annual DP survey once per year per vessel starting in the second year.

*Burden of Response:* The burden per response for each regulatory requirement varies. Details are shown in Table 32 for the burden to industry.

TABLE 32—SUMMARY OF INDUSTRY BURDEN FROM COLLECTION OF INFORMATION

PRA Item	Total annual number of responses	Average burden per response (in hours)	Total annual burden (in hours)
Make Available Certificates of Training Completion for DPOs/DPOQs Year 1 [140.315(d)] ...	5,720	0.1	572.0
Make Available Certificates of Training Completion for DPOs/DPOQs Year 2 [140.315(d)] ...	2,545	0.1	254.5
Make Available Certificates of Training Completion for DPOs/DPOQs Year 3 [140.315(d)] ...	2,534	0.1	253.4
Submit Annual DP Failure Investigation Report to OCMI Year 1 [61.50–4(b)] .....	89	4.0	356.0
Submit Annual DP Failure Investigation Report to OCMI Year 2 [61.50–4(b)] .....	129	4.0	516.0
Submit Annual DP Failure Investigation Report to OCMI Year 3 [61.50–4(b)] .....	152	4.0	608.0
Report DP Failures that Result in Emergency Disconnects to OCMI Year 1 [140.335(j)] .....	16	0.3	5.3
Report DP Failures that Result in Emergency Disconnects to OCMI Year 2 [140.335(j)] .....	18	0.3	6.0
Report DP Failures that Result in Emergency Disconnects to OCMI Year 3 [140.335(j)] .....	20	0.3	6.7
Report DP Failures that Result in Serious Marine Incidents to OCMI Year 1 [140.335(j)] .....	6	0.3	2.0
Report DP Failures that Result in Serious Marine Incidents to OCMI Year 2 [140.335(j)] .....	9	0.3	3.0
Report DP Failures that Result in Serious Marine Incidents to OCMI Year 3 [140.335(j)] .....	11	0.3	3.7
Submit DPSAO Application to OCSNCOE Year 1 [61.50–3] .....	4	30.0	120.0
Submit DPSAO Application to OCSNCOE Year 2 [61.50–3] .....	1	30.0	30.0
Submit DPSAO Application to OCSNCOE Year 3 [61.50–3] .....	1	30.0	30.0

<sup>80</sup>This is calculated from the sum of the projected affected population figures listed earlier in this analysis (610 OSVs, 59 MODUs, 46 crewboats, and 4 DPSAOs).

<sup>81</sup>This is calculated from the sum of the projected affected population figures at the end of the three year collection period of the analysis (652 OSVs, 73 MODUs, 53 crewboats, and 6 DPSAOs).

<sup>82</sup>These numbers are based on the assumption that each entity will need eight DPOs or DPOQs on staff.

TABLE 32—SUMMARY OF INDUSTRY BURDEN FROM COLLECTION OF INFORMATION—Continued

PRA Item	Total annual number of responses	Average burden per response (in hours)	Total annual burden (in hours)
Report Initial Surveys to OCMI Year 1 [61.50–2]	89	0.1	8.9
Report Initial Surveys to OCMI Year 2 [61.50–2]	40	0.1	4.0
Report Initial Surveys to OCMI Year 3 [61.50–2]	23	0.1	2.3
Report Annual Surveys to OCMI Year 1 [61.50–2]	.....	0.1	.....
Report Annual Surveys to OCMI Year 2 [61.50–2]	89	0.1	8.9
Report Annual Surveys to OCMI Year 3 [61.50–2]	129	0.1	12.9
Submit DP System Plans to MSC Year 1 [62.20–2]	64	0.5	32.0
Submit DP System Plans to MSC Year 2 [62.20–2]	13	0.5	6.5
Submit DP System Plans to MSC Year 3 [62.20–2]	11	0.5	5.5
Total: Year 1	5,988	.....	1,096
Total: Future Years	5,725	.....	1,751
Total	11,713	.....	2,848

*Estimate of Total Annual Burden:*  
This NPRM would have a first-year burden on industry of approximately 1,096 hours. The average annual burden on industry of this NPRM would be approximately 876 hours.

**E. Federalism**

A rule has implications for federalism under E.O. 13132 (“Federalism”), if it has a substantial direct effect on the States, on the relationship between the national government and the States, or on the distribution of power and responsibilities among the various levels of government. We have analyzed this NPRM under E.O. 13132 and have determined that it is consistent with the fundamental federalism principles and preemption requirements described in E.O. 13132. Our analysis follows.

It is well settled that States may not regulate in categories reserved for regulation by the Coast Guard. It is also well settled, now, that all of the categories covered in 46 U.S.C. 3306, 3703, 7101, and 8101 (design, construction, alteration, repair, maintenance, operation, equipping, personnel qualification, and manning of vessels), as well as the reporting of casualties and any other category in which Congress intended the Coast Guard to be the sole source of a vessel’s obligations, are within fields foreclosed from regulation by the States. (See the decision of the Supreme Court in the consolidated cases of *United States v. Locke* and *Intertanko v. Locke*, 529 U.S. 89, 120 S.Ct. 1135 (March 6, 2000).) This NPRM addresses the design, construction, maintenance, operation, training, and personnel qualification of MODUs and other vessels equipped with DP systems. For the portions of this NPRM that are promulgated under the authorities of 46 U.S.C. 3306, 3703,

7101, and 8101, the States may not regulate within these fields. Thus, these rules are consistent with the principles of federalism and preemption requirements in E.O. 13132.

Additionally, for those portions of this NPRM that are promulgated under the authority of 43 U.S.C. 1333, States are also field preempted from prescribing safety regulations on the OCS. Congress specifically granted the exclusive authority, through delegation by the DHS Secretary, to the Coast Guard, stating that the Coast Guard “shall have the authority to promulgate and enforce such reasonable regulations with respect to lights and other warning devices, safety equipment, and other matters relating to the promotion of safety of life and property on the artificial islands, installations, and other devices” or on “the waters adjacent thereto” on the OCS. Furthermore, States do not have jurisdiction to regulate on the OCS. Because states may not regulate within these categories on the OCS, this proposed rule is consistent with the principles of federalism and preemption requirements in E.O. 13132.

While it is well settled that States may not regulate in categories in which Congress intended the Coast Guard to be the sole source of authority to issue regulations, the Coast Guard recognizes the key role that State and local governments may have in making regulatory determinations. Additionally, for rules with federalism implications and preemptive effect, E.O. 13132 specifically directs agencies to consult with State and local governments during the rulemaking process. If you believe this proposed rule would have implications for federalism under E.O. 13132, please contact the person listed

in the **FOR FURTHER INFORMATION CONTACT** section of this preamble.

**F. Unfunded Mandates Reform Act**

The Unfunded Mandates Reform Act of 1995, 2 U.S.C. 1531–1538, requires Federal agencies to assess the effects of their discretionary regulatory actions. In particular, the Act addresses actions that may result in the expenditure by a State, local, or tribal government, in the aggregate, or by the private sector of \$100,000,000 (adjusted for inflation) or more in any 1 year. Though this NPRM would not result in such an expenditure, we do discuss the effects of this NPRM elsewhere in this preamble.

**G. Taking of Private Property**

This NPRM would not cause a taking of private property or otherwise have taking implications under E.O. 12630, Governmental Actions and Interference with Constitutionally Protected Property Rights.

**H. Civil Justice Reform**

This NPRM satisfies applicable standards in sections 3(a) and 3(b)(2) of E.O. 12988, Civil Justice Reform, to minimize litigation, eliminate ambiguity, and reduce burden.

**I. Protection of Children**

We have analyzed this NPRM under E.O. 13045, Protection of Children from Environmental Health Risks and Safety Risks. This NPRM is not an economically significant rule and would not create an environmental risk to health or risk to safety that might disproportionately affect children.

**J. Indian Tribal Governments**

This NPRM does not have tribal implications under E.O. 13175, Consultation and Coordination with

Indian Tribal Governments, because it would not have a substantial direct effect on one or more Indian tribes, on the relationship between the Federal Government and Indian tribes, or on the distribution of power and responsibilities between the Federal Government and Indian tribes.

#### K. Energy Effects

We have analyzed this NPRM under E.O. 13211, Actions Concerning Regulations That Significantly Affect Energy Supply, Distribution, or Use. We have determined that it is not a “significant energy action” under that order because it is not a “significant regulatory action” under E.O. 12866 and is not likely to have a significant adverse effect on the supply, distribution, or use of energy.

#### L. Technical Standards

The National Technology Transfer and Advancement Act, codified as a note to 15 U.S.C. 272, directs agencies to use voluntary consensus standards in their regulatory activities unless the agency provides Congress, through OMB, with an explanation of why using these standards would be inconsistent with applicable law or otherwise impractical. Voluntary consensus standards are technical standards (e.g., specifications of materials, performance, design, or operation; test methods; sampling procedures; and related management systems practices) that are developed or adopted by voluntary consensus standards bodies.

This NPRM uses the following voluntary consensus standards:

- IEC 60092–504—Electrical Installation in Ships—Part 504: Special Features—Control and Instrumentation Third Edition, 2001 (“IEC 60092–504”)
- IMO Circular 645—Guidelines for Vessels with Dynamic Positioning Systems, 1994 (“IMO MSC/Circ.645”)
- Marine Technology Society DP Operations Guidance (“MTS DP Operations Guide”), Part 1, October 2010
- Marine Technology Society DP Operations Guidance (“MTS DP Operations Guide”), Part 2, Appendix 1, March 2012
- Marine Technology Society DP Operations Guidance (“MTS DP Operations Guide”), Part 2, Appendix 2, July 2012
- Marine Technology Society DP Operations Guidance (“MTS DP Operations Guide”), Part 2, Appendix 3, July 2012

The proposed sections that reference these standards and the locations where

these standards are available are listed in 33 CFR 140.7, and 46 CFR 61.03–1, and 62.05–1. If you disagree with our analysis of the voluntary consensus standards listed above or are aware of voluntary consensus standards that might apply but are not listed, please send a comment to the docket using one of the methods under **ADDRESSES**. In your comment, please explain why you disagree with our analysis and/or identify voluntary consensus standards we have not listed that might apply.

#### M. Environment

We have analyzed this NPRM under Department of Homeland Security Management Directive 023–1 and Commandant Instruction M16475.ID, which guide the Coast Guard in complying with the National Environmental Policy Act of 1969 (NEPA)(42 U.S.C. 4321–4370f), and have made a preliminary determination that there are no factors in this case that would limit the use of a categorical exclusion under section 2.B.2 of the Instruction. Therefore, this NPRM is categorically excluded from further environmental documentation under figure 2–1, paragraphs (34)(a),(c),(d), and (e) of the Instruction, which exclude regulations that are editorial or procedural and regulations concerning: Internal agency functions or organization; training, qualifying, licensing and disciplining of maritime personnel; manning, documentation, inspection and equipping of vessels; and equipment approval and carriage requirements. This NPRM is also categorically excluded under paragraph 6(a) of the Appendix to National Environmental Policy Act: Coast Guard Procedures for Categorical Exclusions, Notice of Final Agency Policy, published in the **Federal Register** on July 23, 2002 (67 FR 48243), which excludes regulations concerning vessel operation and safety standards. The environmental impact associated with requiring additional equipment, training, and improved facilities will be insignificant. An “Environmental Analysis Check List” is available in the docket by following the instructions in the “Viewing comments and documents” section above.

#### List of Subjects

##### 33 CFR Part 140

Continental shelf, Incorporation by reference, Investigations, Marine safety, Occupational safety and health, Penalties, Reporting and recordkeeping requirements.

##### 33 CFR Part 143

Continental shelf, Marine safety, Occupational safety and health, Vessels.

##### 33 CFR Part 146

Continental shelf, Marine safety, Occupational safety and health, Reporting and recordkeeping requirements, Vessels.

##### 46 CFR Part 61

Incorporation by reference, Reporting and recordkeeping requirements, Vessels.

##### 46 CFR Part 62

Incorporation by reference, Reporting and recordkeeping requirements, Vessels.

For the reasons discussed in the preamble, the Coast Guard proposes to amend 33 CFR parts 140, 143, and 146, and 46 CFR parts 61 and 62 as follows:

### Title 33—Navigation and Navigable Waters

#### PART 140—GENERAL

- 1. The authority citation for part 140 continues to read as follows:

**Authority:** 43 U.S.C. 1333, 1348, 1350, 1356; Department of Homeland Security Delegation No. 0170.1.

- 2. Revise § 140.7 to read as follows:

#### § 140.7 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish a notice of change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG–ENG), 2703 Martin Luther King Jr. Ave., SE., Stop 7509, Washington, DC 20593–7509, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030, or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

(b) American National Standards Institute (ANSI), 11 West 42nd Street, New York, NY 10036, <http://www.ansi.org/>.

(1) ANSI A10.14–1975—Requirements for Safety Belts, Harnesses, Lanyards, Lifelines, and Drop Lines for Construction and Industrial Use, IBR approved for § 142.42.

(2) ANSI/UL1123-1987—Standard for Marine Buoyant Devices, IBR approved for § 143.405.

(3) ANSI Z41-1983—American National Standard for Personal Protection-Protective Footwear, IBR approved for § 142.33.

(4) ANSI Z87.1-1979—Practice for Occupational and Educational Eye and Face Protection, IBR approved for § 142.27.

(5) ANSI Z88.2-1980—Practices for Respiratory Protection, IBR approved for § 142.39.

(6) ANSI Z89.1-1981—Safety Requirements for Industrial Head Protection, IBR approved for § 142.30.

(c) International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, +44 (0)20 7735 7611, <http://www.imo.org>. (1) IMO Assembly Resolution A.414 (XI) Code for Construction and Equipment of Mobile Offshore Drilling Units, IBR approved for §§ 143.207 and 146.205.

(2) IMO MSC/Circ.645—Guidelines for Vessels with Dynamic Positioning Systems, 1994 (“IMO MSC/Circ.645”), IBR approved for § 140.325.

(3) The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended (the STCW Convention or the STCW), IBR approved for § 140.320.

(4) The Seafarers’ Training, Certification and Watchkeeping Code, as amended (the STCW Code), IBR approved for § 140.320.

(d) Marine Technology Society (MTS), 1100 H Street NW., Suite LL-100, Washington, DC 20005, 202-717-8705, <http://www.mtsociety.org>.

(1) MTS DP Operations Guidance for MODUs (March 2012), Project Construction Vessels (July 2012), Logistics Vessels (July 2012), IBR approved for § 140.335.

(2) Reserved.

■ 3. Add new subpart D, consisting of §§ 140.300 through 140.350, to read as follows:

#### Subpart D—Dynamic Positioning Systems

Sec.

140.300	Applicability.
140.305	Definitions.
140.310	DP system personnel requirements.
140.315	DP system training requirements.
140.320	DP system manning requirements.
140.325	Operations.
140.330	Minimum DP system requirements.
140.335	Intermediate DP system requirements.
140.340	Standard DP system requirements.
140.345	Enhanced DP system requirements.
140.350	Operational Control.

#### Subpart D—Dynamic Positioning Systems

##### § 140.300 Applicability.

This subpart applies to all MODUs and vessels other than MODUs that use a dynamic positioning (DP) system to engage in Outer Continental Shelf (OCS) activities on the U.S. OCS.

##### § 140.305 Definitions.

The following definitions apply throughout this subpart:

*Activity Specific Operating Criteria (ASOC)* means criteria that set out the operational, environmental, and equipment performance limits considered necessary for safe dynamic positioning (DP) system operations while carrying out a specific activity. The ASOC sets out various levels of operator action as these limits are approached or exceeded and varies depending on the activity. The ASOC defines whether the DP system must be configured in its Critical Activity Mode of Operation (CAMO) during that specific activity. If the CAMO is required for that specific activity, the ASOC will require the vessel to cease operations when an equipment failure makes operation in CAMO impossible.

*Critical Activity Mode of Operation (CAMO)* means a tabulated presentation of how to configure the vessel’s DP system, including power generation and distribution, and propulsion and position reference systems, so that the DP system as a whole is fault-tolerant and fault-resistant. The CAMO is validated by a Failure Modes and Effects Analysis (FMEA) proving test at the initial survey described in § 61.50-5 of this subchapter.

*Critical OCS Activities* means OCS activities where maintaining station is critical because a loss of position could cause a personal injury, environmental pollution, or catastrophic damage. See § 140.10 of this subchapter for the definition of *OCS activity*.

*Critical OCS Activities on a MODU* means OCS activities where a loss of position could cause a major process safety incident, such as a loss of well control where flow reaches the MODU, or water. These OCS activities include but are not limited to: Well test and completion operations; running non-sheareables such as drill collars through the Blowout Preventer (BOP); and an OCS activity on a well where hydrostatic balance is lost and BOP rams are used to maintain well control. The Coast Guard may identify other activities that fall within this

definition.<sup>83</sup> Each MODU that engages in Critical OCS Activities must include those activities in the MODU’s WSOC.

*Critical OCS Activities on Vessels Other than MODUs* means OCS activities where a loss of position could cause a serious marine incident as defined by 46 CFR 4.03-2. These OCS activities include but are not limited to: OCS activities where loss of position risks a collision with a production riser; transfer of oil or other hazardous material while underway; personnel transfer between vessels or structures while underway; and engaging in diving support or remotely operated vehicle operations when maintaining station is critical. The Coast Guard may identify other activities that fall within this definition.<sup>84</sup> Each vessel that engages in Critical OCS Activities must include those activities in the vessel’s ASOC.

*Dynamic Positioning Operator or DPO* means a mariner who holds a credential as a rating forming part of the navigational watch, able seafarer-deck, operational-level deck officer, chief mate, master, a rating forming part of the engineering watch, able seafarer-engine, operational-level engineer officer, second engineer, or chief engineer; and has completed the applicable training requirements of 33 CFR 140.310 and, if applicable, 33 CFR 140.315.

*Dynamic Positioning Operator, Qualified or DPOQ* means a mariner who holds a credential as a rating forming part of the navigational watch, able seafarer-deck, operational-level deck officer, chief mate, master, rating forming part of the engineering watch, able seafarer-engine, operational-level engineer officer, second engineer, or chief engineer; has completed the applicable training requirements of 33 CFR 140.310 and, if applicable, § 33 CFR 140.315 for that specific vessel; and has obtained the written endorsement of the vessel’s DPO and master for that specific DP system.

*Dynamic Positioning System or DP System* is defined in 46 CFR 62.10-1.

*Direct communication*, for purposes of 33 CFR 140.310 only, means being in the direct line of sight of the officer in charge of the navigational watch, or maintaining direct two-way communications by a convenient, reliable means, such as a predetermined

<sup>83</sup> The Coast Guard would provide industry with advance notice and an opportunity to provide input before determining that additional activities meet the definition of critical OCS activities on a MODU.

<sup>84</sup> The Coast Guard would provide industry with advance notice and an opportunity to provide input before determining that additional activities meet the definition of critical OCS activities on vessels other than MODUs.

working frequency over a handheld radio.

*Dynamic Positioning System Assurance Organization or DPSAO* means an organization approved by the Coast Guard under 46 CFR 61.50–3 to conduct independent verification that a MODU or other vessel's DP system is in compliance with applicable requirements contained in this subchapter.

*Vessels* include, but are not limited to, Mobile Offshore Drilling Units (MODUs). Vessels other than MODUs that conduct certain activities or possess certain design characteristics means vessels that conduct such activities or possess such characteristics and are not MODUs.

*Well Specific Operating Criteria (WSOC)* means criteria that set out the operational, environmental, and equipment performance limits considered necessary for safe DP system operations while operating on a well. The WSOC sets out various levels of operator action as these limits are approached or exceeded, and varies depending on the well or location. The WSOC defines when the DP system must be configured in its CAMO during drilling or production. If the CAMO is required for that specific activity, the WSOC will require the MODU to cease operations when an equipment failure makes operation in CAMO impossible.

**§ 140.310 DP system personnel requirements.**

(a) When using a dynamic positioning (DP) system to engage in Outer Continental Shelf (OCS) activities on the U.S. OCS, each mobile offshore drilling unit (MODU) or other vessel to which this subpart applies must have on board a sufficient number of Dynamic Positioning Operators (DPOs) and Dynamic Positioning Operators, Qualified (DPOQs) to meet the following operational requirements:

(1) DPO and DPOQs must meet the rest hour requirements in 46 CFR 15.1111.

(2) DPOQs operating the DP system must be under the direct supervision of a DPO.

(3) A DPO or DPOQ must be available at the DP operating station.

(b) Determination of the number of DPOs and DPOQs must take into account the nature of the DP operations and the operational requirements of the DP system.

(c) On a MODU or other vessel using a DP system to engage in OCS activities on the U.S. OCS, navigational watches must be maintained at all times as required in § 140.320 of this subpart. The DPO or DPOQ must be in direct

communication with the officer in charge of the navigational watch during DP system operations. Nothing in this section is to be interpreted as relinquishing or lessening the responsibility of the master and watchstanding officer(s) to ensure the safe navigation and/or operation of the vessel.

(d) When using a DP system to engage in OCS activities on the U.S. OCS, each MODU or other vessel must have a properly trained DPO operating the DP system or directly supervising a DPOQ operating the DP system.

(e) A DPOQ on each MODU or other vessel using a DP system to engage in OCS activities on the U.S. OCS may operate the DP system on that specific MODU or other vessel only after meeting the training and practical experience requirements for that vessel and being endorsed in writing by the DPO and master of that MODU or other vessel.

(f) While operating the DP system pursuant to paragraph (d) of this section, the mate or officer of the watch may also serve as the DPO provided the mate or officer holds the appropriate credential and the DP system control systems are collocated with the navigational equipment.

**§ 140.315 DP system training requirements.**

(a) The Dynamic Positioning Operator (DPO) must receive training and practical experience in the operation of the dynamic positioning (DP) system and its components. The content of training and experience must include all provisions of paragraph (b) of this section, and the following:

(1) The DP system components, including the control station, power generation and management, propulsion units, position reference systems, heading reference systems, environmental reference systems, and external force reference systems, such as hawser tension gauges.

(2) The range of routine DP operations, as well as the handling of DP faults, failures, incidents, and emergencies, to ensure that operations are continued or terminated safely.

(3) The type and purpose of documentation associated with DP operations, such as operational manuals, Failure Modes and Effects Analysis (FMEAs), and capability plots.

(b) To be qualified to operate a DP system, the Dynamic Positioning Operator, Qualified (DPOQ) must have—

(1) Completed training that provides an introduction to the functions and use of a DP system;

(2) Completed 30 days of DP system training on board a vessel equipped with a DP system, including training on the design, components, related and integrated shipboard systems, system redundancy alarms, and warnings for that specific vessel's DP system;

(3) Demonstrated thorough knowledge of the DP system operating manual for the specific vessel on which the DPOQ will serve, including procedures for shifting the DP system between all normal operational modes and emergency procedures. A DPOQ who will serve on a vessel engaging in Critical Outer Continental Shelf (OCS) Activities must also demonstrate thorough knowledge of the industrial mission, including the Critical Activity Mode of Operations, and either the Activity Specific Operating Criteria or Well Specific Operating Criteria as defined in 46 CFR 62.10–1.

(4) Demonstrated a fundamental understanding of the specific DP system's FMEA and its implications; and

(5) Demonstrated familiarity with the vessel's specific DP system, including participating in a walkthrough of the design and mechanical features with the DPO, to include at a minimum—

(i) Power generation;

(ii) Power distribution;

(iii) Thruster units and associated equipment;

(iv) Power management/logic; and

(v) DP system control interfaces and related electronics and computer functions.

(c) DPOs and DPOQs must carry the original copy of their DP system record of training or be able to provide such a copy to a requesting authority within 48 hours of the request.

(d) The Coast Guard will accept company letters, course completion certificates from a training institution, letters or course completion certificates from the DP system manufacturer, or certification from an industry-accepted organization as proof of DP system training.

(e) The owner or operator of a U.S.-documented seagoing vessel using a DP system to maintain station must maintain a copy of each DPO and DPOQ training record in accordance with 46 CFR 15.1107.

(f) All onboard DP system training must be documented in each mariner's record of training in accordance with 46 CFR 15.1107.

(g) The master, officers in charge of a navigational watch, and DPOs must be familiar with the characteristics of the vessel and the specific equipment fitted on it prior to operating the equipment as required in 46 CFR 15.405. This

familiarization must include reading the DP system equipment and operations manual, DP system incident reports, FMEAs, and any documented history of the DP system. The familiarization must be documented.

**§ 140.320 DP system manning requirements.**

(a) All Mobile Offshore Drilling Units (MODUs) and other vessels to which this subpart applies must—

(1) Be under the command of an individual holding an appropriate certificate of competency as a master issued by the Flag State authority; and

(2) Maintain navigational watches with an adequate number of mates or officers in charge of a navigational watch holding an appropriate certificate of competency issued by the Flag State authority.

(b) Each person assigned duties as master, mate, or officer in charge of a navigational watch must meet the hours of rest requirements in Regulation VIII/1 of the STCW Convention and Section A-VIII/1 of the STCW Code (both incorporated by reference, see § 140.7 of this part).

(c) All MODUs using a dynamic positioning (DP) system to engage in Outer Continental Shelf (OCS) activities on the U.S. OCS must hold a manning certificate specifying the minimum complement necessary to maintain the navigational watches. The manning complement must meet the requirements in paragraph (a) of this section and § 140.310 of this part. The manning complement may be determined after considering the specialized nature of each MODU, including the limitations and capabilities of the DP system.

**§ 140.325 Operations.**

(a) Owners or operators of Mobile Offshore Drilling Units (MODUs) and other vessels to which this subpart applies must maintain a Dynamic Positioning (DP) System Operations Manual that complies with paragraph 4.4 of IMO MSC/Circ.645 (incorporated by reference, see § 140.7).

(b) The owner, operator, or master of each MODU or other vessel to which this subpart applies must ensure that all DP System Operations Manuals, including manufacturers' manuals, are available to the Dynamic Positioning Operator (DPO) at or near the DP system console when using a DP system to engage in OCS activities.

(c) When conducting vessel-to-vessel transfer operations using a DP system—

(1) Operational procedures for conducting oil or hazardous material transfers in DP mode must follow the

transfer procedures in 33 CFR 155.750 and must include emergency procedures for securing operations and executing emergency breakaway;

(2) Vessel masters and, as appropriate, chief engineers must—

(i) Determine which vessel will be designated to maintain a geographic position;

(ii) Ensure that all watchstanders of all vessels other than MODUs understand their responsibility to maintain a designated relative position to or remain clear of the vessel maintaining the geographic position;

(iii) Complete a Declaration of Inspection before beginning transfer operations; and

(iv) Reconcile any differences between the emergency procedures in each vessel's DP System Operations Manual;

(3) Vessel personnel must establish voice communications between participants to determine—

(i) The vessel designated as the controlling station;

(ii) The controlling station DPO coordination responsibility;

(iii) Primary and alternate communication channels;

(iv) An emergency-only channel that can be monitored uninterrupted for the duration of the procedure;

(v) The acquisition and assessment of regular weather forecast information for the area of operations; and

(vi) The sharing with other active vessels of weather information, assessment of prevailing conditions, and use of onboard weather forecasting instruments;

(4) When a MODU or other vessel to which this subpart applies uses a DP system to conduct vessel-to-vessel transfers with a vessel that is using a different DP system equipment class, the criteria for action in any emergency situation will be based on the least redundant DP system;

(5) Any crew member on a MODU or other vessel conducting a vessel-to-vessel transfer operation using a DP system for station keeping must execute a "stop operations" command if they identify a situation that warrants such action;

(6) Each unit's DPO must keep the bridge personnel of the other units, as defined in 33 CFR 140.10, involved in the vessel-to-vessel transfer fully advised of all alarm or emergency situations, including, but not limited to, DP system operations that could affect the operation in progress; and

(7) During an emergency or the sounding of a general alarm, pumping operations must cease until the problem has been resolved.

**§ 140.330 Minimum DP system requirements.**

Vessels to which this subpart applies must, at a minimum, satisfy the provisions of 33 CFR 140.310, 140.315, 140.320, 140.325 and 46 CFR 62.40–3. Vessels that must comply with the intermediate, standard, or enhanced DP system requirements in §§ 140.335, 140.340, and 140.345 must also comply with the provisions of this section.

**§ 140.335 Intermediate DP system requirements.**

(a) Vessels other than MODUs of more than 500 GT ITC (500 GRT if GT ITC not assigned) that use a dynamic positioning (DP) system installed before [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to engage in Critical Outer Continental Shelf (OCS) Activities on the U.S. OCS must comply with the provisions of this section no later than the applicable date in table 140.335 of this section.

(b) Vessels that must comply with the standard or enhanced DP system requirements in §§ 140.340 and 140.345 must also comply with the provisions of this section.

**TABLE 140.335—PHASE IN SCHEDULE FOR VESSELS (EXCEPT MODUS) WITH EXISTING DP SYSTEMS**

Tonnage of vessels other than MODUs	Date requirements effective
At least 1,900 GT ITC	Date of Final Rule + 3 years.
At least 900 GT ITC ...	Date of Final Rule + 6 years.
Greater than 500 GT ITC (500 GRT if GT ITC not assigned).	Date of Final Rule + 9 years.

(c) Vessels to which this section applies must meet the requirements of—

(1) 46 CFR 61.50 (Survey);

(2) 46 CFR 62.40–15 (FMEA);

(3) 46 CFR 62.40–20 (FMEA Proving Test Document); and

(4) 46 CFR 62.40–25 (CAMO).

(d) The DP System Operations Manual for a vessel other than a MODU to which this section applies must also meet section 4.8 of the MTS DP Operations Guide (incorporated by reference, see § 140.7) for either project/construction vessels or logistics vessels, as appropriate. The DP System Operations Manual for a vessel other than a MODU must contain Activity Specific Operational Criteria (ASOC) applicable to the operations performed by the vessel.

(e) The DP System Operations Manual for a MODU to which this section applies must also meet section 4.7 of the MTS DP Operations Guide for MODUs

(incorporated by reference, see § 140.7). The DP System Operations Manual on a MODU must contain Well Specific Operational Criteria (WSOC) applicable to the operations performed by the MODU.

(f) Vessels to which this section applies must define a Critical Activity Mode of Operation (CAMO) for use during Critical OCS Activities. The CAMO must be included in the DP System Operations Manual required by this section.

(g) Vessels other than MODUs to which this section applies must operate in accordance with the ASOC applicable to its operation every time the DP system is used, regardless of whether or not the particular operation is a Critical OCS Activity. A MODU must use a WSOC when operating on a well.

(h) Vessels to which this section applies must configure the DP system in its CAMO when engaging in Critical OCS Activities as defined in 33 CFR 140.305.

(i) In the event that a vessel to which this section applies experiences a reactive change of DP status from green to yellow or red as described in the applicable MTS DP Operations Guidance and defined by the vessel's ASOC or WSOC, the owner or operator of the vessel must report this DP incident to the DPSAO that conducted the DP surveys required under 46 CFR 61.50. For each such DP incident, the owner or operator of the vessel must conduct an investigation as described in section 4.11 of the MTS DP Operations Guide for MODUs or section 4.12 for either project/construction vessels or logistics vessels, as appropriate (incorporated by reference, see § 140.7) and send an investigation summary to the DPSAO that issued the DPVAD to the vessel. Each DP incident investigation summary must include—

(1) The cause of the DP incident and whether it was addressed by the vessel's FMEA, Well Specific Operating Criteria (WSOC) or Activity Specific Operating Criteria (ASOC), and Critical Activity Mode of Operation (CAMO), and lessons learned for incorporation into revised documents; and

(2) If the cause of the DP incident was not addressed by the vessel's FMEA, ASOC, WSOC, or CAMO, the changes that were made to those documents to address the cause(s) of the incident. This requirement is applicable whether or not the operation or activity at the time of the incident was a Critical OCS Activity.

(j) Immediately after addressing safety concerns resulting from a DP incident, the owner or operator of the vessel must notify the cognizant OCMi verbally and

by email of any DP incident reported under paragraph (i) of this section if the incident—

(1) Involved a reactive change of DP status from green to red; and

(2) Required an emergency disconnect from a well; or

(3) Was a serious marine incident as defined by 46 CFR 4.03–2.

(k) A vessel to which this section applies must be issued a Dynamic Positioning Verification Acceptance Document (DPVAD) by a DPSAO. The DPVAD describes the vessel's DP system particulars, the certificate's period of validity, the identification of the DPSAO, the requirements of this subpart that are being certified, the dates of the completed surveys required by paragraph (c) of this section, and the subsequent surveys required to maintain the certificate's validity.

(l) A DPVAD issued under paragraph (k) of this section is valid for 5 years.

(m) Alternative guidance may be used in lieu of the MTS DP Operations Guide to meet the requirements of paragraphs (d), (e) and (i) of this section if permitted by the Commandant (CG–ENG) to the extent and under conditions that will ensure a degree of safety comparable to or greater than that provided by use of the MTS DP Operations Guide.

#### § 140.340 Standard DP system requirements.

(a) Vessels other than MODUs of 6000 GT ITC or less that use a DP system installed on or after [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to engage in Critical OCS Activities must comply with the provisions of this section and 33 CFR 140.335 and 140.330.

(b) Vessels that must comply with the enhanced DP system requirements in § 140.345 must also comply with the provisions of this section.

(c) Vessels to which this section applies must meet—

(1) 46 CFR 62.40–5 (Design);

(2) 46 CFR 62.40–10 (Classification); and

(3) 46 CFR 62.25–40 (Environmental Design).

(d) Compliance with paragraphs (a) through (c) of this section must be verified by the DPSAO during the surveys required by 46 CFR 61.50 and documented on the DPVAD.

#### § 140.345 Enhanced DP system requirements.

(a) The following vessels must comply with the provisions of this section:

(1) Mobile Offshore Drilling Units (MODUs) that use a dynamic positioning (DP) system to engage in

Critical Outer Continental Shelf (OCS) Activities on the U.S. OCS; and

(2) Vessels other than MODUs of more than 6,000 GT ITC that use a DP system installed on or after [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to conduct Critical OCS Activities on the U.S. OCS.

(b) Vessels to which this section applies must meet the requirements of this section, 33 CFR 140.330, 140.335, 140.340, and 46 CFR 62.20–2 (Required plans for DP systems).

(c) Vessels to which this section applies must have the surveys required by 46 CFR 61.50 completed and have the plans required by 46 CFR 62.20–2 approved by a DPSAO prior to receiving a Dynamic Positioning Verification Acceptance Document (DPVAD) under 33 CFR 140.335(j).

#### § 140.350 Operational Control.

If the Cognizant OCMi determines that a vessel is not in compliance with this part, the OCMi may require the owner or operator of a vessel to suspend use of DP to conduct an OCS activity until the OCMi determines that the vessel complies with this part.

### PART 143—DESIGN AND EQUIPMENT

■ 4. The authority citation for part 143 continues to read as follows:

**Authority:** 43 U.S.C. 1333(d)(1), 1348(c), 1356; 49 CFR 1.46; section 143.210 is also issued under 14 U.S.C. 664 and 31 U.S.C. 9701.

■ 5. Revise § 143.15 to read as follows:

#### § 143.15 Lights and warning devices.

(a) OCS facilities, except when using DP systems defined by § 140.305, must meet the lights and warning devices requirements under part 67 of this chapter concerning aids to navigation on artificial islands and fixed structures.

(b) \* \* \*

(c) Vessels, including MODUs and attending vessels, using a DP system defined by § 140.305 to maintain station, even when in contact of the seabed of the OCS, are considered underway and should display the lights and shapes for “vessel restricted in her ability to maneuver” as defined under Rule 3 of the International Regulations for Preventing Collisions at Sea 1972.

### PART 146— OPERATIONS

■ 6. The authority citation for part 146 continues to read as follows:

**Authority:** 33 U.S.C. 1223, 1226; 43 U.S.C. 1333, 1348, 1350, 1356; Sec. 109, Pub. L. 109–347, 120 Stat. 1884; Department of Homeland Security Delegation No. 0170.1.

■ 7. In § 146.405 add paragraph (b)(4) to read as follows:

**§ 146.405 Safety and Security notice of arrival for vessels arriving at a place on the OCS.**

\* \* \* \* \*

(b) \* \* \*

(4) Vessels to which 140.335 applies that use a dynamic positioning (DP) system, as defined by 140.305, must provide the following information from the Dynamic Positioning Verification Acceptance Document (DPVAD):

- (i) DPVAD period of validity; and
- (ii) Identification of the dynamic positioning system assurance organization, as defined in 140.305, that conducted surveys;

**Title 46—Shipping**

**PART 61—PERIODIC TESTS AND INSPECTIONS**

■ 8. The authority citation for part 61 is revised to read as follows:

**Authority:** 43 U.S.C. 1333; 46 U.S.C. 2103, 3306, 3307, 3703; sec. 617, Pub. L. 111–281, 124 Stat. 2905; E.O. 12234, 45 FR 58801, 3 CFR 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

■ 9. Revise § 61.03–1 to read as follows:

**§ 61.03–1 Incorporation by reference.**

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish a notice of change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG–ENG), 2703 Martin Luther King Jr. Ave SE., Stop 7509, Washington, DC 20593–7509, and is available from the sources listed below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to [http://www.archives.gov/federal-register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal-register/code_of_federal_regulations/ibr_locations.html).

(b) ASTM International 100 Barr Harbor Drive, West Conshohocken, PA 19428–2959, <http://www.astm.org>.

(1) ASTM D 665–98, Standard Test Method for Rust-Preventing Characteristics of Inhibited Mineral Oil in the Presence of Water, IBR approved for § 61.20–17.

(2) [Reserved]

(c) International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, +44 (0)20 7735 7611, <http://www.imo.org>. (1) IMO MSC/Circ.645—Guidelines for

Vessels with Dynamic Positioning Systems, 1994 (“IMO MSC/Circ.645”), IBR approved for §§ 61.50–3, 61.50–5, 61.50–10, and 61.50–15.

(2) [Reserved]

(d) Marine Technology Society, 1100 H Street NW., Suite LL–100, Washington, DC 20005, 202–717–8705, <http://www.mtsociety.org>.

(1) MTS DP Operations Guidance (“MTS DP Operations Guide”), Part 2, for MODUs (March 2012), Project Construction Vessels (July 2012), Logistics Vessels (July 2012), IBR approved for §§ 61.50–5(a) and 61.50–10.

(2) [Reserved]

■ 10. Add new subpart 61.50, consisting of §§ 61.50–1 through 61.50–20, to read as follows:

**Subpart 61.50—Dynamic Positioning System (DP System) Surveys and Dynamic Positioning System Assurance Organizations (DPSAO) for Vessels Operating on the Outer Continental Shelf.**

Sec.

- 61.50–1 Applicability.
- 61.50–2 Surveys of MODUs and vessels, other than MODUs.
- 61.50–3 Acceptance of dynamic positioning system assurance organizations.
- 61.50–4 Oversight of dynamic positioning system assurance organizations.
- 61.50–5 Initial survey.
- 61.50–10 Periodic survey.
- 61.50–15 Annual survey.
- 61.50–20 Appeals

**Subpart 61.50—Dynamic Positioning System (DP System) Surveys and Dynamic Positioning System Assurance Organizations (DPSAO) for Vessels Operating on the Outer Continental Shelf.**

**§ 61.50–1 Applicability.**

(a) The following vessels must comply with the provisions of this subpart:

(1) Vessels other than MODUs of more than 500 GT ITC (500 GRT if GT ITC not assigned) that use a dynamic positioning (DP) system installed before [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to conduct Critical Outer Continental Shelf (OCS) Activities, as defined in 33 CFR 140.305, on the U.S. OCS must comply with the provisions of this section no later than the applicable date in 33 CFR table 140.335;

(2) Vessels other than MODUS that use a DP system installed on or after (30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE) to engage in Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS; and

(3) MODUs that use a DP system to conduct Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS.

(4) For purposes of this subpart, “vessels” includes, but is not limited to, MODUs. Vessels other than MODUs that conduct certain activities or possess certain design characteristics means vessels that conduct such activities or possess such characteristics and are not MODUs.

**§ 61.50–2 Surveys of MODUs and vessels, other than MODUs.**

(a) The owner or operator of a vessel to which this subpart applies must ensure that the dynamic positioning system surveys required by §§ 61.50–5, 61.50–10, and 61.50–15 of this subpart are completed by a DPSAO and provide the cognizant Officer in Charge, Marine Inspection an opportunity to attend upon request. The DPSAO that conducts the surveys required by this subpart must notify the cognizant Officer in Charge, Marine Inspection at least 30 days in advance of the survey.

(b) Alternative guidance may be used in lieu of the MTS DP Operations Guide to meet the survey requirements of § 61.50–5(a) and § 61.50–10(a) of this subpart if permitted by the Coast Guard Office of Design and Engineering Standards (Commandant (CG–ENG)) to the extent and under conditions that will ensure a degree of safety comparable to or greater than that provided by use of the MTS DP Operations Guide.

**§ 61.50–3 Acceptance of dynamic positioning system assurance organizations.**

(a) Each DPSAO, as described in § 61.50–2 of this subpart, must be accepted by the Coast Guard Outer Continental Shelf National Center of Expertise (OCS NCOE). To be accepted, such an organization must apply to the OCS NCOE in writing for acceptance. The application must contain information demonstrating that the organization or society—

(1) Has functioned as a recognized source to the industry of guidance on recommended practice through participation in industry groups (e.g., International Marine Contractors Association, Marine Technology Society, National Offshore Safety Advisory Committee);

(2) Has functioned as a DP assurance provider to vessel owner, operators, charterers, etc., for at least 5 years in the role of DP Assurance with a documented, auditable history of providing Failure Modes and Effects Analysis (FMEA) and survey services on a wide variety of Mobile Offshore Drilling Units (MODUs) and vessels with different industrial missions;

(3) Has a history of advising vessel owners, operators, and charterers and



providing guidance on appropriate corrective actions to address nonconformities and observations raised during DP trials and otherwise, to include incidents, casualties, and cases of nonconformity with DP class rules;

(4) Has adequate resources, including research, technical, and managerial staff, to ensure appropriate updates and maintenance of internal DP guidelines, trials procedures, and survey requirements;

(5) Has adequate resources and processes in place to ensure regular and adequate communications to the Coast Guard concerning recurring DP-related issues for purposes of trend analysis, reporting, and continuing development of rules and guidelines;

(6) Uses personnel with a minimum of 5 years of experience for both FMEA and survey services;

(7) Directly employs a number of surveyors adequate to meet Coast Guard survey requirements;

(8) Has adequate criteria for hiring and qualifying surveyors and technical staff;

(9) Has an adequate program for continued training and development of surveyors and technical staff. Training and development must be structured, measured, monitored, and auditable;

(10) Maintains an internal quality system based on current industry quality standards (e.g., ANSI/ASQC Q9001, or equivalent);

(11) Can determine whether MODUs and vessels, other than MODUs, comply with the DP requirements of the Coast Guard during appropriate surveys and DP trials;

(12) Can monitor all activities related to surveys and plan reviews performed pursuant to 46 CFR parts 61 and 62 for consistency and required end-results;

(13) Is not under the financial control of owners or builders of MODUs or vessels, other than MODUs, or of others engaged commercially in the manufacture, equipping, repair, or operation of MODUs or vessels, other than MODUs; and

(14) Does not have any business interest in, or share of ownership of, any MODU or other vessel to which it provides DP assurance services.

**§ 61.50–4 Oversight of dynamic positioning system assurance organizations.**

(a) The OCS NCOE may periodically audit the records of DPSAOs with reasonable advance notice to determine whether such organizations continue to comply with the provisions of paragraph § 61.50–3(a) of this subpart. The OCS NCOE may revoke acceptance after determining that such an

organization no longer complies with the provisions of paragraph § 61.50–3(a) of this subpart. Acceptance remains in effect until revoked by the OCS NCOE.

(b) DPSAOs must submit an annual report to the OCS NCOE that contains each DP investigation summary reported to it under 33 CFR 140.335(i). The DPSAO must confirm in the report that each DP investigation summary complies with 33 CFR 140.335(i).

(c) Where the OCS NCOE is not satisfied with the resolution of any DP incident contained in the report required by paragraph (b) of this section, the OCS NCOE:

(i) will advise the cognizant OCMI who may exercise operational control under 33 CFR 140.350 and require the DPSAO and the owner or operator of a MODU or vessel other than MODU to satisfactorily resolve the cause of the DP incident; and,

(ii) may initiate an audit of the DPSAO under paragraph (a) of this section.

**§ 61.50–5 Initial survey.**

(a) An initial survey, specified in paragraph 5.1.1.1 of IMO MSC/Circ.645 (incorporated by reference, see § 61.03–1) and section 4.6 of the MTS DP Operations Guide for MODUs or section 4.7 for either project/construction vessels or logistics vessels, as appropriate (incorporated by reference, see § 61.03–1), must be conducted on a Mobile Offshore Drilling Unit (MODU) or vessel other than a MODU to which this subpart applies. The initial survey must include a Failure Modes and Effects Analysis (FMEA) proving test using the dynamic positioning (DP) system FMEA proving test document described in § 62.40–20 of this subchapter. The initial survey must identify the Critical Activity Mode of Operation (CAMO) defined in § 62.10–1 of this subchapter.

(b) DP system software, programmable controls, and alarm system logic must not be altered after satisfactory completion of the initial survey without the approval of the DPSAO described in § 61.50–2 of this subpart. The DPSAO must notify the cognizant Officer in Charge, Marine Inspection of any approved alternation of software after an initial survey. The notification must include any changes to the vessel's FMEA or CAMO that resulted from the software change, if applicable.

(c) The initial survey must be completed in accordance with §§ 61.50–2 of this subpart.

**§ 61.50–10 Periodic survey.**

(a) A periodic survey, specified in paragraph 5.1.1.2 of IMO MSC/Circ.645

(incorporated by reference, see § 61.03–1) and section 4.6 of the MTS DP Operations Guide for MODUs or section 4.7 for either project/construction vessels or logistics vessels, as appropriate (incorporated by reference, see § 61.03–1), must be conducted on a vessel to which this subpart applies at intervals not exceeding 5 years. This survey is intended to verify compliance with IMO MSC/Circ.645 and the applicable requirements of this subchapter.

(b) The periodic survey must be completed in accordance with §§ 61.50–2.

**§ 61.50–15 Annual survey.**

(a) An annual survey, described in paragraph 5.1.1.3 of IMO MSC/Circ.645 (incorporated by reference, see § 61.03–1), must be conducted on a vessel to which this subpart applies within the 3 months before or after each anniversary date of the initial survey. The annual survey must ensure that the dynamic positioning system has been maintained in accordance with applicable parts of IMO MSC/Circ.645 and is in good working order.

(b) The annual survey must be completed in accordance with §§ 61.50–2 this subpart.

**§ 61.50–20 Appeals**

(a) Any person directly affected by an action or decision of the Coast Guard Outer Continental Shelf Center of Excellence (OCS NCOE) taken under the regulations in this subchapter may request reconsideration of that action or decision. If still dissatisfied, that person may appeal the action or decision of the OCS NCOE within 30 days to the U.S. Coast Guard Deputy Commandant for Prevention (CG–5P). The Deputy Commandant for Prevention will issue a decision after reviewing the appeal submitted under this paragraph. Rulings of the Deputy Commandant for Prevention constitute final agency action.

(b) An appeal to the Deputy Commandant for Prevention:

(1) Must be made in writing, except in an emergency when a verbal appeal may be accepted;

(2) Must describe the decision or action being appealed;

(3) Must state the reasons why the action or decision should be set aside or modified; and

(4) May contain any supporting documents and evidence that the appellant wishes to have considered.

(c) Pending determination of any appeal, the action or decision appealed remains in effect, unless suspended by the Deputy Commandant for Prevention.

## PART 62—VITAL SYSTEM AUTOMATION

■ 11. The authority citation for part 62 continues to read as follows:

**Authority:** 46 U.S.C. 3306, 3703, 8105; sec. 617, Pub. L. 111–281, 124 Stat. 2905; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; Department of Homeland Security Delegation No. 0170.1.

■ 12. In § 62.01–5 revise paragraph (a) to read as follows:

### § 62.01–5 Applicability.

(a) *Vessels.* Except as described in § 62.40–1 of this part, this part applies to self-propelled vessels of 500 gross tons or more that are certificated under 46 CFR subchapters D, I, or U and to self-propelled vessels of 100 gross tons or more that are certificated under 46 CFR subchapter H.

\* \* \* \* \*

■ 13. Revise § 62.05–1 to read as follows:

### § 62.05–1 Incorporation by reference.

(a) Certain material is incorporated by reference into this part with the approval of the Director of the Federal Register under 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than that specified in this section, the Coast Guard must publish notice of change in the **Federal Register** and the material must be available to the public. All approved material is available for inspection at the U.S. Coast Guard, Office of Design and Engineering Standards (CG–ENG), 2703 Martin Luther King Jr. Ave SE., Stop 7509, Washington, DC 20593–7509, and is available from the sources below. It is also available for inspection at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202–741–6030 or go to [http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html).

(b) American Bureau of Shipping (ABS), ABS Plaza, 16855 Northchase Drive, Houston, TX 77060, <http://www.eagle.org>.

(1) Rules for Building and Classing Steel Vessels, Part 4 Vessel Systems and Machinery (2003) (“ABS Steel Vessel Rules”), IBR approved for §§ 62.25–30, 62.35–5, 62.35–35, 62.35–40, 62.35–50, and 62.50–30.

(2) [Reserved]

(c) International Electrotechnical Commission (IEC), 3, rue de Varembe, Geneva, Switzerland, +41 22 919 02 11, <http://www.iec.ch>.

(1) IEC 60092–504 Electrical Installation in Ships—Part 504: Special Features—Control and Instrumentation

(Third Edition, 2001–03)(“IEC 60092–504”), IBR approved for § 62.25–40(b).

(2) [Reserved]

(d) International Maritime Organization (IMO), 4 Albert Embankment, London SE1 7SR, +44 (0)20 7735 7611, <http://www.imo.org>.

(1) Resolution MSC/Circ.645—Guidelines for Vessels with Dynamic Positioning Systems, 1994 (“IMO MSC/Circ.645”), IBR approved for §§ 62.40–3, 62.40–5(b), and 62.40–15.

(2) [Reserved]

(e) Marine Technology Society (MTS), 1100 H Street NW., Suite LL–100, Washington, DC 20005, 202–717–8705, <http://www.mtsociety.org>.

(1) MTS DP Operations Guidance (“MTS DP Operations Guide”), Part 2, for MODUs (March 2012), Project Construction Vessels (July 2012), Logistics Vessels (July 2012), IBR approved for §§ 62.40–5(a), and 62.40–15.

(2) [Reserved]

■ 14. Amend § 62.10–1 by adding, in alphabetical order, the definitions of the terms “Activity Specific Operating Criteria (ASOC)”; “Capability Plot”; “Consequence analyzer”; “Critical Activity Mode of Operation (CAMO)”; “Dynamic positioning system (DP system)”; “Redundancy”; “Vessels”; and “Well Specific Operating Criteria (WSOC)”, to read as follows:

### § 62.10–1 Definitions.

(a) \* \* \*

*Activity Specific Operating Criteria (ASOC)* means criteria that set out the operational, environmental, and equipment performance limits considered necessary for safe dynamic positioning (DP) system operations while carrying out a specific activity. The ASOC sets out various levels of operator action as these limits are approached or exceeded and varies depending on the activity. The ASOC defines whether the DP system must be configured in its Critical Activity Mode of Operation (CAMO) during that specific activity. If the CAMO is required for that specific activity, the ASOC will require the vessel to cease operations when an equipment failure makes operation in CAMO impossible.

*Capability Plot* means a document that provides an indication of a vessel’s DP station-keeping ability, expressed in a common format.

*Consequence analyzer* means a software function that continuously performs an analysis of the vessel’s ability to maintain its position and heading after a predefined, worst-case failure during operation. Possible consequences are based on the actual

weather conditions, enabled thrusters, and power plant status.

*Critical Activity Mode of Operation (CAMO)* means a tabulated presentation of how to configure the vessel’s DP system, including power generation and distribution, and propulsion and position reference systems, so that the DP system as a whole is fault-tolerant and fault-resistant. The CAMO is validated by a Failure Modes and Effects Analysis (FMEA) proving test at the initial survey described in § 61.50–5 of this subchapter.

*Dynamic positioning system (DP system)* means a complete installation of components and systems that act together and is sufficiently reliable to provide vessel position-keeping capability. Any vessel using a DP system is considered a vessel underway, even if maintaining a fixed position. A DP system is comprised of the following sub-systems:

(1) Power system, consisting of prime movers with necessary auxiliary systems and associated piping, generators, switchboards, and distribution system.

(2) Thruster system, consisting of thrusters with drive units and associated auxiliary systems and piping, main propellers, and rudders (if all such thruster system parts are under the control of the DP system), thruster control electronics, manual thruster controls, and associated cabling and cable routing.

(3) Control system, consisting of computer system, joystick system, sensor system, display system (operator panels), position reference system, and associated cabling and cable routing.

\* \* \* \* \*

*Redundancy* means the ability of a component or system to maintain or restore its function when a single failure has occurred. For example, redundancy may be achieved by the installation of multiple components, systems, or alternate means that perform the same function.

\* \* \* \* \*

*Vessels* include, but are not limited to, Mobile Offshore Drilling Units. Vessels other than MODUs that conduct certain activities or possess certain design characteristics means vessels that conduct such activities or possess such characteristics and are not MODUs.

\* \* \* \* \*

*Well Specific Operating Criteria (WSOC)* means criteria that set out the operational, environmental, and equipment performance limits considered necessary for safe DP system operations while operating on a well. The WSOC sets out various levels of

operator action as these limits are approached or exceeded, and varies depending on the well or location. The WSOC defines when the DP system must be configured in its CAMO during drilling or production. If the CAMO is required for that specific activity, the WSOC will require the MODU to cease operations when an equipment failure makes operation in CAMO impossible.

■ 15. Add new § 62.20–2 to read as follows:

**§ 62.20–2 Required plans for DP systems.**

(a) The following vessels must comply with the provisions of this section:

(1) MODUs that use a dynamic positioning (DP) system to conduct Critical Outer Continental Shelf (OCS) Activities, as defined in 33 CFR 140.305, on the U.S. OCS; and

(2) Vessels of more than 6,000 GT ITC other than MODUs that use a DP system installed on or after [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to conduct Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS.

(b) The owner or operator of each vessel to which this section applies must submit the following DP system plans and information for approval to the dynamic positioning system assurance organization (DPSAO) that performs the surveys under subpart 61.50 of this subchapter and is accepted under § 61.50–3 of this subchapter by the Coast Guard Outer Continental Shelf National Center of Expertise (OCS NCOE):

(1) A DP system description, including a block diagram and functional relationships of various components.

(2) Specifications of position reference and environmental monitoring sensors or systems.

(3) The location of thrusters and control system components.

(4) Details of the DP system monitoring and alarm system and interconnection with the main centralized monitoring and alarm system.

(5) DP system Failure Modes and Effects Analysis (FMEA) and FMEA proving test documents as described in § 62.40–15 and § 62.40–20 of this part, respectively.

(6) The Critical Activity Mode of Operation determined from the initial survey required by § 61.50–5 of this subchapter.

(7) Designer or manufacturer self-certification of the DP system control equipment to the environmental design standards in § 62.25–40 of this part. See § 62.20–5 of this part.

(c) The DPSAO that performs the surveys under subpart 61.50 of this

subchapter must submit a copy of the approved plans under paragraph (b) of this section and the results of the initial survey, including the FMEA proving test required by subpart 61.50 of this subchapter to the Commanding Officer, Marine Safety Center, U.S. Coast Guard Stop 7410, 4200 Wilson Blvd., Suite 400, Arlington, VA 20598–7410. The Commanding Officer, Marine Safety Center may elect to review the plans to validate compliance with the requirements of this subpart and advise the DPSAO, the Coast Guard OSCNCOE and the cognizant Officer in Charge, Marine Inspection.

■ 16. Add new § 62.25–40 to read as follows:

**§ 62.25–40 Environmental design standards.**

(a) The following Mobile Offshore Drilling Units (MODUs) and vessels, other than MODUs, must comply with the provisions of this section:

(1) MODUs that use a dynamic positioning (DP) system to conduct Critical Outer Continental Shelf (OCS) Activities, as defined in 33 CFR 140.305, on the U.S. OCS; and

(2) Vessels other than MODUs that use a DP system installed on or after [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to conduct Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS.

(b) Computer-based systems, microprocessors, storage devices, power supply units, signal conditioners, analog/digital converters, computer monitors (visual display units), keyboards, reference sensors, and related systems (excluding printers), and data recording or logging devices must be designed to the environmental standards in Clause 5 of IEC 60092–504 (incorporated by reference, see § 62.05–1).

■ 17. Add new subpart 62.40, consisting of §§ 62.40–1 through 62.40–25, to read as follows:

**Subpart 62.40—Dynamic Positioning Systems**

Sec.

62.40–1 Applicability.

62.40–3 Minimum dynamic positioning system requirements.

62.40–5 Design for Critical OCS Activities.

62.40–10 Classification for Critical OCS Activities.

62.40–15 Failure Modes and Effects Analysis (FMEA).

62.40–20 Failure Modes and Effects Analysis (FMEA) proving test document.

62.40–25 Critical Activity Mode of Operation (CAMO).

**Subpart 62.40—Dynamic Positioning Systems**

**§ 62.40–1 Applicability.**

This subpart applies to all vessels, including Mobile Offshore Drilling Units (MODUs), that use a dynamic positioning (DP) system to conduct Outer Continental Shelf (OCS) activities, as defined in 33 CFR 140.10, on the U.S. OCS. “Vessels,” for purposes of this subpart, include but are not limited to MODUs.

**§ 62.40–3 Minimum dynamic positioning system requirements.**

Vessels to which this subpart applies must meet the applicable requirements of this part and 46 CFR 62.35–5 and 46 CFR 62.50–30 for remote propulsion control systems with periodically unattended machinery plants, as well as paragraph 3.4.1 of IMO MSC/Circ.645 (incorporated by reference, see § 62.05–1), except subparagraph 3.4.1.4.

**§ 62.40–5 Design for Critical OCS Activities.**

(a) The following vessels must comply with the provisions of this section:

(1) MODUs that use a dynamic positioning (DP) system to conduct Critical Outer Continental Shelf (OCS) Activities, as defined in 33 CFR 140.305, on the U.S. OCS; and

(2) Vessels other than MODUs that use a DP system installed on or after [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to conduct Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS.

(b) Vessels to which this section applies must meet the provisions of IMO MSC/Circ.645 (incorporated by reference, see § 62.05–1) and the provisions of the applicable MTS DP Operations Guide (incorporated by reference, see § 62.05–1) relevant to equipment class 2 (DP–2) or higher for MODUs, project construction vessels, or logistics vessels, as appropriate.

**§ 62.40–10 Classification for Critical OCS Activities.**

(a) The following vessels must comply with the provisions of this section:

(1) MODUs that use a dynamic positioning (DP) system to conduct Critical Outer Continental Shelf (OCS) Activities, as defined in 33 CFR 140.305, on the U.S. OCS; and

(2) Vessels other than MODUs that use a DP system installed on or after [30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE] to conduct Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS.

(b) Vessels to which this section applies must obtain an IMO MSC/Circ.645 equipment class 2 (DP–2) or

higher notation from a classification society that meets the requirements of paragraph (c) of this section.

(c) The classification society that issues an equipment class 2 (DP-2) or higher notation to vessels under this section applies must—

(1) Comply with the provisions of 46 CFR, part 8, subpart B;

(2) Possess DP system rules aligned with IMO MSC/Circ.645 and the MTS DP Operations Guide (incorporated by reference, see § 62.05-1) applicable to the vessel being classed; and,

(3) Submit evidence that it complies with paragraphs c(1) and c(2) of this section to the Coast Guard Outer Continental Shelf National Center of Expertise (OCS NCOE), which will authorize the classification society to issue notations as described in this section.

**§ 62.40-15 Failure Modes and Effects Analysis (FMEA).**

(a) The following vessels must comply with the provisions of this section:

(1) Vessels other than MODUs of more than 500 GT ITC (500 GRT if GT ITC not assigned) that use a dynamic positioning (DP) system installed before (30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE) to conduct Critical Outer Continental Shelf (OCS) Activities, as defined in 33 CFR 140.305, on the U.S. OCS;

(2) Vessels other than MODUs that use a DP system installed on or after (30 DAYS AFTER DATE OF PUBLICATION OF FINAL RULE) to conduct Critical OCS Activities; and

(3) MODUs that use a DP system to conduct Critical OCS Activities, as defined in 33 CFR 140.305, on the U.S. OCS.

(b) The owner or operator of each vessel to which this section applies must complete and maintain an FMEA with the details necessary to demonstrate compliance with the applicable provisions of IMO MSC/Circ.645 and must demonstrate compliance with the MTS DP Operations Guide (both incorporated by reference, see § 62.05-1) for equipment class 2 (DP-2) or equipment class 3 (DP-3) requirements and this subpart, as applicable.

(c) Vessels described in paragraph (a)(1) of this section must comply with the provisions of this section no later than the applicable date in 33 CFR table 140.335.

(d) Alternative guidance may be used in lieu of the MTS DP Operations Guide to meet the requirements of this section if permitted by the Office of Design and Engineering Standards (Commandant (CG-ENG)) to the extent and under conditions that will ensure a degree of safety comparable to or greater than that

provided by use of the MTS DP Operations Guide.

**§ 62.40-20 Failure Modes and Effects Analysis (FMEA) proving test document.**

(a) The owner or operator of each vessel to which § 62.40-15 of this subpart applies must complete and maintain a dynamic positioning system FMEA proving test document that—

(1) Provides the necessary test instructions, based on the FMEA required by this subpart, to demonstrate design and operation in accordance with the equipment class of the DP system and this subpart; and

(2) Is approved by the Marine Safety Center under § 62.20-2 of this part and retained on board.

**§ 62.40-25 Critical Activity Mode of Operation (CAMO).**

(a) The owner or operator of each vessel to which § 62.40-15 of this subpart applies must complete and maintain a CAMO as defined in § 62.10-1 of this part.

Dated: November 13, 2014.

**J.G. Lantz,**

*Director of Commercial Regulations and Standards, U.S. Coast Guard.*

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