DEPARTMENT OF TRANSPORTATION

Coast Guard

33 CFR Part 157

46 CFR Parts 31 and 35

[CGD 91–045]

RIN 2115–AE01

Operational Measures To Reduce Oil Spills From Existing Tank Vessels Without Double Hulls

AGENCY: Coast Guard, DOT.

ACTION: Final rule.

SUMMARY: The Coast Guard issues regulations that will require the owners, masters, or operators of tank vessels of 5,000 gross tons (GT) or more that do not have double hulls and that carry oil in bulk as cargo to comply with certain operational measures. This final rule contains requirements for bridge resource management and vessel specific policy and procedures, enhanced survey programs, maneuvering performance capability tests, and other measures aimed at reducing the likelihood of an oil discharge from these vessels. Additionally, the Coast Guard is amending requirements for the carriage of onboard emergency lightering equipment and has addressed animal fat, vegetable oil, and other non-petroleum oil in separate sections as required by the Edible Oil Regulatory Reform Act. These requirements will be effective until all existing vessels without double hulls are phased out in 2015.

DATES: This rule is effective on November 27, 1996, except for §§ 157.415 and 157.420 of 33 CFR part 157 which are effective on February 1, 1997; and §§ 157.445 and 157.460(a) of 33 CFR part 157 which are effective on July 29, 1997. The incorporation by reference of certain publications listed in §§ 157.430, 157.435, 157.450 of 33 CFR part 157 is approved by the Federal Register as of November 27, 1996. The incorporation by reference of certain publications listed in § 157.445 of 33 CFR part 157 is approved by the Federal Register as of July 29, 1997.

ADDRESSES: Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the Office of the Executive Secretary, Marine Safety Council (C–LRA/3406) (CGD 91–045), U.S. Coast Guard Headquarters, 2100 Second Street SW., room 3406, Washington, DC 20593–0001 between 930 a.m. and 2 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267–1477.

FOR FURTHER INFORMATION CONTACT: LCDR Suzanne Englebert, Project Manager, Office of Standards Evaluation and Development, at (202) 267–6490.

SUPPLEMENTARY INFORMATION:

Regulatory History

Section 4115(b) of the Oil Pollution Act of 1990 (OPA 90) (Pub. L. 101–380, 104 Stat. 520), which appears as a statutory note following 46 U.S.C., 3703a, directs the Coast Guard to develop structural and operational requirements for tank vessels of 5,000 gross tons (GT) or more without double hulls to serve as regulations until 2015, when all tank vessels operating in U.S. waters are required to have double hulls under section 4115(a) of OPA 90 (46 U.S.C. 3703a). Any requirements issued under the authority of section 4115(b) must provide as substantial protection to the environment as is economically and technologically feasible.

On November 1, 1991, the Coast Guard published an advance notice of proposed rulemaking (ANPRM) (56 FR 56284), which discussed structural and operational measures intended to meet section 4115(b) of OPA 90. The ANPRM included a request for data on the technical and economic feasibility of those measures for use on vessels covered by section 4115(b). Eighty-eight comments were received by the close of the extended comment period, which ended on January 30, 1992 (57 FR 1243).

After reviewing the comments, the Coast Guard published a notice of proposed rulemaking (NPRM) entitled ''Structural and Operational Measures to Reduce Oil Spills from Existing Tank Vessels Without Double Hulls'' (Existing Vessels) on October 22, 1993 (58 FR 54870). The Coast Guard issued two subsequent correction notices on November 19, 1993 (58 FR 61143), and December 14, 1993 (58 FR 65298), which made technical corrections to the NPRM. In response to several comments received on the NPRM, the Coast Guard published, on December 16, 1993, a notice of public meeting and extension of comment period (58 FR 65683).

The Coast Guard held a public meeting on January 20, 1994, to obtain information from the public on the proposed regulations. Topics addressed by speakers included applicability, differences between tank barges and tankships, exemptions, and economic and technical feasibility of the proposed regulations. Some of the basic assumptions of the proposed regulations addressed certain structural measures, particularly their reliance on Regulation 13G of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 (MARPOL 73/78). Information on the public meeting is available for public review at the address under **ADDRESSES**.

In light of the comments received at the public meeting and in response to the written comments received on the NPRM, the Coast Guard reviewed the proposed requirements for structural and operational measures. To expedite the implementation of section 4115(b) of OPA 90, the Coast Guard developed a three-pronged approach which encompassed three separate rulemaking projects. First, the Coast Guard issued a final rule on August 5, 1994, requiring the carriage of emergency lightering equipment and the inclusion of the vessel's International Maritime Organization (IMO) number in the advance notice of arrival report (59 FR 40186); second, on November 3, 1995, it issued a supplemental notice of proposed rulemaking (SNPRM) regarding additional operational measures (60 FR 55904); and third, on December 28, 1995, it reviewed comments on the NPRM for major structural measures, revised the Regulatory Assessment (RA), and issued an SNPRM regarding structural requirements for single-hull tank vessels (60 FR 67227). Structural measures addressed in this third project included hydrostatic loading requirements, structural refit of existing hull areas, emergency cargo off-loading capabilities, and other structural adaptations or major cargo carrying adjustments.

Background and Purpose

Section 4115 of OPA 90 mandates regulations to provide improved protection from oil spills from tank vessels in waters subject to the jurisdiction of the United States due to collisions and groundings. This section applies to tank vessels that are constructed, adapted to carry, or that carry oil in bulk as cargo or cargo residue.

The Coast Guard has determined that the applicability of these regulations should reflect section 4115(a) of OPA 90, which requires certain existing tank vessels without double hulls to be phased out of operation by 2015. The Navigation and Vessel Inspection Circular (NVIC) 10–94, ''Guidance for Determination and Documentation of the Oil Pollution Act of 1990 (OPA 90) Phaseout Schedule for Existing Single-Hull Vessels Carrying Oil in Bulk,'' provides a detailed explanation of the applicability of section 4115(a).

To clarify how each of these regulations apply to foreign flag vessels, the Coast Guard has amended the applicability section of 33 CFR part 157. This amendment ensures, consistent with international law, that the regulations do not impede freedom of navigation by foreign flag vessels in the Exclusive Economic Zone (EEZ) of the United States or in innocent passage in the territorial sea of the United States. However, they do apply to foreign flag vessels engaging in lightering operations or off-loading oil at a deepwater port in the U.S. territorial sea or the EEZ.

This final rule also requires a barge owner to assume additional responsibility for ensuring the towing vessel has the information and equipment needed to safely operate. Barge operations for loading cargo are generally handled by company representatives or facility personnel. However, navigational control of the tank barge has historically been the responsibility of the towing vessel. Although section 4115(b) of OPA 90 did not specifically recognize the towing vessel's shared role in tank barge operations, the towing vessel's role in the navigation and control of the tank barge must be addressed to reduce accident risk from tank barges. This final rule requires the tank barge owner or operator to ensure that operation of the towing vessel meets certain standards comparable to those required for tankships.

Discussion of Comments and Changes

The Coast Guard received a total of 187 comment letters on the operational measures SNPRM (60 FR 55904; November 3, 1995). These comment writers addressed various issues, and more than 350 comments were presented. This discussion is divided into the following sections: general comments; solicited comments; personnel training and information; surveys; navigation and maneuverability; additional requirements for tank barges; and emergency lightering requirements. All comments received on this rulemaking are available for inspection in docket (CGD 91–045) at the address under **ADDRESSES**. For the purposes of this preamble discussion, the term ''single-hull'' means an existing tank vessel without a double hull.

General Comments

1. Authorized Classification Societies

One comment writer requested clarification of the term ''recognized classification society'' used in §§ 157.430 and 157.445 of the SNPRM. This comment writer presumed that the term meant a classification society that is recognized by the flag administration of the ship concerned. The Coast Guard notes that the comment writer's interpretation of an authorized classification society is correct and is described in 46 CFR 31.10 and 33 CFR 157.04.

2. Communications

One comment addressed issues pertaining to vessel communications. This comment writer stated that the Coast Guard and the Federal Communications Commission (FCC) should work together to clear frequencies of interference from overpowered transmitters, cellular telephones, and paging systems because improved communications would assist in avoiding environmental damage caused by collisions. While the Coast Guard will continue to work with the FCC on marine frequency issues, this is not the thrust of the present rulemaking. In this rulemaking, vessel watchstanding communication effectiveness has been and remains the focus. While communication hardware is vital and already regulated, an individual's ability to effectively communicate with bridge watchstanders and other vessel traffic requires further regulation because timely feedback can significantly reduce the risk of an accident.

3. Navigational Charts

One comment addressed the issue of updating coastal navigational charts and suggested that the Coast Guard work with the National Oceanic and Atmospheric Administration (NOAA) in this process. The comment cited the grounding of the *M/V Alvenus* which was caused by a shoal that was not indicated on U.S. navigational charts even though the charts were properly updated. The majority of the vessels affected by this rulemaking are required to have pilots on board when entering port or getting underway. These pilots, along with updated charts and broadcast notice to mariners, all work in conjunction to provide mariners with timely information. The Coast Guard is working with NOAA and is continuing to upgrade vessel traffic systems and other navigation information systems.

4. Fairways and Anchorages

One comment writer urged the Coast Guard to develop regulations that would protect fairways and anchorages from obstruction. Drilling operations and poorly buried pipelines were cited as causes for obstructions. The Coast Guard regulates these areas in 33 CFR subchapter P. Specific problems of this nature should be brought to the attention of local Captains of the Port (COTPs) and are not within the scope of this rulemaking.

5. International Regulations and Standards

Twenty-one comments addressed issues of international regulations and standards. Two comment writers stated that established International Maritime Organization (IMO) guidelines should be mandatory, not optional. Other criticisms in these comments included: perceived redundancy of the proposed regulations because provisions of the SNPRM already have been covered in international standards, and compliance with these international standards would promote uniformity as well as decreased redundancy, costs, and confusion for the shipping industry; the Coast Guard is undermining the international process; that competency and manning requirements fall under flag state jurisdiction; and the SNPRM goes beyond international requirements in some cases.

The Coast Guard understands the value of international standards and has incorporated them into this rulemaking where appropriate. The manning and competency requirements proposed in the SNPRM have been revised or removed because they have been included in the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW), and the 1995 amendments to the STCW; these will be implemented by the signatory flag states. Implementation of the International Safety Management Code (ISM Code) in 1998 will ensure that these requirements are effectively implemented and reviewed by company management, as well as by the Coast Guard, to further improve safety.

Where international standards do not address certain operations, the Coast Guard has met the intent of Congress by issuing these rules to ensure that specific vessels reduce their accident risk. The Coast Guard has imposed requirements in conformity with STCW, MARPOL 73/78, and other international guidelines where international standards only recommend certain conduct rather than prescribe it.

6. Human Factors

Eleven comments addressed the issue of human factors. These comments suggested that the regulations complement STCW as well as the Coast Guard's plan to address human factor issues in its Prevention Through People (PTP) program. The comments also

supported the PTP program asserting that the program promotes more effective environmental protection at reasonable costs to shipowners. Other comments asserted that a prevention program requires fully implemented international regulations, clear rules, and industry standards; the Coast Guard adopt a stronger position regarding drug and alcohol testing; and the Coast Guard focus on researching human factors so that regulations do not become, without basis, too focused on social engineering.

The Coast Guard notes the support of some of the comment writers for incorporating human factors into these regulations and is committed to ensuring that tank vessels fully implement this rule, as well as international standards. The Coast Guard has implemented requirements fro companies to have drug and alcohol testing programs for their employees in 46 CFR, subchapter B. These programs are appropriate and it is not within the scope of this rulemaking to revise them.

7. Congressional Intent

One comment writer asserted that the Coast Guard improperly divided this rulemaking into three separate phases when Congress enacted a single provision requiring operational and structural measures. Because of this rulemaking separation, the comment writer accuses the Coast Guard of denying the public the opportunity to comment in violation of the Administrative Procedure Act (5 U.S.C. § 552, *et seq.*). This comment writer also asserted that the Coast Guard has not complied with OPA 90 because it has intentionally delayed the rulemakings, has addressed mishap risk reduction and ignored oil outflow mitigation reduction (especially hydrostatic balanced loading (HBL) requirements), and that the proposed operational measures only reflect minor adjustments to current industry practice.

The Coast Guard disagrees with the assertion that it has not provided appropriate opportunities to comment. This rulemaking project has resulted in the publication of an ANPRM, NPRM, and two SNPRMs. At each stage, notice and an opportunity to comment have been provided to the public. By breaking the implementation of 4115(b) into three parts, the public has actually been given more opportunity to comment and specifically focus those comments on the economic feasibility of each segment of this diverse rulemaking. The Coast Guard notes the comment pertaining to the OPA 90 deadline. Oil outflow mitigation requirements are thoroughly discussed in the SNPRM for Structural Measures To Reduce Oil Spills From Existing Tank Vessels Without Double Hulls (60 FR 67226; December 28, 1995), including a discussion on HBL. While the operational requirements in this rule complement some current industry ''best'' practice, in other cases, they add requirements where current international requirements are silent or are only recognized as guidance. The Coast Guard continues to require these operational measures because they clearly support operational safety and environmental conservation.

8. Deployable Oil Booms

One comment writer suggested that requirements be added to provide deployable oil booms and oil-scrubbing equipment, to remove spilled oil within the boom, on board vessels carrying oil. The comment writer stated that the savings in insurance costs should offset the cost of providing these booms and equipment. Onboard discharge removal equipment has been required on vessels since June 20, 1994, and is deemed sufficient as a minimum standard. While deployable booms and scrubbing equipment are effective in many circumstances, the Coast Guard does not intend to require additional equipment in this final rule.

9. Collection of Information

The Coast Guard received three comments on the proposed collection of information requirements which included the following: documentation and logging may prove too burdensome for inland water voyages; documentation requirements for proposed § 157.420 are not necessary since they are already covered in proposed § 157.415; and the posting of minimum rest hour requirements in crew lounge areas and work spaces is needed as proposed in § 157.425(d) and should be expanded to include the wheelhouse and lounge areas.

The Coast Guard has revised the collection of information requirements because some proposed requirements have changed or been eliminated in this rule. No training or rest hours are required in this rule; therefore, the logging and posting requirements have been removed. As a logical outgrowth of the training requirement, tank vessels owners and operators will be required to provide vessel personnel with policy and procedures on bridge resource management and vessel orientation. This is a less burdensome collection requirement than logging or tracking individual vessel personnel training completion. COTP reporting requirements have also been removed in this rule. This reporting requirement was replaced with a less burdensome collection requirement to consult with the pilot and, in some cases, the tank vessel owner or operator prior to a port transit.

10. Exemptions of Certain Vessels

Four comments suggested that tankers calling exclusively at deepwater ports be exempt because these requirements are an unnecessary burden for these vessels. Another comment suggested that the Coast Guard clarify that single-hull tank vessels engaged exclusively in oil spill response are exempt. The operational measures in the regulations are economically feasible for all vessels transporting oil and, therefore, there is no exemption for vessels calling at deepwater ports. Vessels that are solely engaged in oil spill response are already exempt from these requirements in 33 CFR part 157.08.

11. Application to Additional Vessel Types

Thirteen comments suggested expanding the applicability of these regulations to encompass vessel types and sizes other than single-hull tank vessels 5,000 GT or more. Nine of these 13 comments suggested applying these regulations to all vessels; six of these nine comments suggested implementing this application through the international process. These comments suggested that the operational requirements should apply to all vessels, as well as double hull tankers and cargo ships carrying only bunker fuel, because improved operational safety of all vessels will result in less accident risk to single-hull tank vessels.

The Coast Guard is acting under the authority of section 4115(b) of OPA 90 and does not intend by these regulations to extend the rules to vessels other than vessels of 5,000 GT or more that do not have double hulls and that carry oil in bulk as cargo in this rulemaking. Implementing these operational requirements on vessels, regardless of type or size, is prudent and will be beneficial. Because of this, the Coast Guard may consider applying these requirements to other vessels in future rulemakings.

12. State Regulation

Three comment writers addressed two federal preemption issues. The suggestions included the following: the Coast Guard should state that the rule does not alter the relationship between State and Federal governments regarding pilotage requirements; and the requirements should be exclusively under Federal domain because, under *Ray* v. *Atlantic Richfield Co.*, 435 U.S.

151 (1978), any regulations on tankers issued by the Coast Guard should preempt State regulations on the same subject. The Coast Guard believes these Federal requirements are preeminent.

13. Other Comments

The Coast Guard also received several other comments which included the following: Clarify the definition of a double bottom hull; incorporate the strengthened operating procedures and personnel policies used by the Washington State Office of Marine Safety (OMS) because these procedures and policies offer a higher level of protection than Coast Guard regulations; make IMO regulations mandatory rather than optional.

The Coast Guard notes these comments and has reviewed the Washington State Office of Marine Safety procedures and policies. Many of the requirements in this rule complement or parallel these Washington State requirements. Other Washington State requirements are outside the scope of this rulemaking. Certain IMO requirements are made mandatory in this rule; others are not because they are outside the scope of this rulemaking. The term ''double bottom hull'' is not used in this rule. A vessel that has a double bottom covering the length of the cargo tanks is one that meets the requirement of 33 CFR 157.10.

Solicited Comments

In the preamble of the SNPRM, the Coast Guard solicited comments on various issues relating to this rulemaking. The following discussion addresses the comments made in response to this request.

1. Non-Petroleum Oil

The Coast Guard requested comments on the SNPRM's regulatory impact on vessels that carry only non-petroleum oil. Of the two comments received, one comment writer asserted that the Coast Guard's treatment of animal fat and vegetable oil in the same manner as petroleum oil directly conflicts with the provisions of the Edible Oil Regulatory Reform Act (Pub. L. 104–55, 109 Stat. 546–547 [1995] and, therefore, animal fat and vegetable oil carriers should be exempt. The other comment writer, however, supported extending these regulations to all existing tank vessels carrying non-petroleum oil and remarked that it is economically feasible and environmentally beneficial for these vessels to meet the requirements.

The Coast Guard has addressed animal fat, vegetable oil, and other non-petroleum oil separately in this final rule as required by the Edible Oil Regulatory Reform Act. The Edible Oil Regulatory Reform Act requires federal agencies to differentiate between classes of oils and consider different treatment of these classes, if appropriate. The law does not mandate exemptions. Subparts H and I are now included in 33 CFR part 157 to address these cargoes. The Coast Guard has considered the differences between these cargoes and petroleum cargoes with respect to appropriate operational measures to reduce the risk of an accident on single-hull tank vessels. The development of these operational measures included the presumption that the accidents prevented or mitigated through these measures may result in the loss of the content of an entire cargo tank at one time. As discussed in the SNPRM and in the final rules on Vessel Response Plans (61 FR 1052; January 12, 1996) and Response Plans for Marine Transportation-Related Facilities (61 FR 7890; February 29, 1996), the Coast Guard has determined that bulk spills of animal fat, vegetable oil, and other non-petroleum oil can be damaging to the environment; therefore, the operational requirements for vessels carrying these products are similar to those requirements for petroleum oil carrying vessels in this final rule.

2. Towing Vessel Requirements

The Coast Guard requested comments on the extension of certain towing vessel requirements to the tank barge industry. One comment writer agreed with the Coast Guard and asserted that an owner of a tank barge should be ultimately responsible in the event of a spill and should establish a screening system for selecting safe towing vessels. Several other comments suggested the following: The Coast Guard does not have the legal authority under 4115(b) to place legal obligation upon the tank vessel owner or operator to ensure the competency of individuals assigned to certain duties on primary towing vessels; the minimum rest hour, training, navigational and additional tank barge requirements raise liability questions for tank barge owners who charter a tug and crew from another company and should not shift the burden of compliance to the tank barge owner exclusively; the minimum rest hour requirements, as proposed, are too onerous on towing vessel operators; operational requirements should be included directly into other rulemaking or the final rule should state that the requirement is applicable to the towing vessel with no tank barge owner or operator implication; and barge owners or operators should not be held responsible for the compliance of a primary towing vessel.

The Coast Guard has reviewed these comments and finds that the responsibility of implementing operational measures on tank barges has been appropriately applied to tank barge owners or operators. The ease of implementing these requirements and showing their implementation for tank barge owners and operators, especially as it pertains to leased towing vessel operators, has been addressed in this rule by revising certain sections. The tank barge owner or operator remains responsible for ensuring that certain information is available to the towing vessel master or operator and that certain equipment is onboard the towing vessel. Because the Coast Guard requires the barge owner to be liable for the operation of the barge, the barge owner will actively screen towing vessel operator quality, thus reducing the risk of oil spills from the barge.

3. Economic Impact on Remote Geographic Areas, Tourism, and Fishing

The Coast Guard requested comments on the impact of the SNPRM on areas that are geographically remote, or economically dependent on tourism or fishing. One comment writer, a representative for the Commonwealth of the Northern Mariana Islands (CNMI), a cluster of islands in the Pacific, stated that while the CNMI's economy is heavily dependent upon tourism and fishing and would, therefore, benefit from oil spill prevention, its economy also is dependent upon oil importation for the energy resources needed to maintain its tourism and local economy. This comment writer asserted that if these regulations were applied to vessels serving ports within the CNMI, they would either eliminate their service or raise their prices significantly, causing substantial damage to CNMI's economy. The comment writer requested that the Coast Guard exempt the CNMI or modify the regulations to consider local conditions in remote areas.

The Coast Guard has revised the operational measures, such as under-keel clearance requirements, to ensure that local port conditions are considered. Because the revisions will reduce the risk of an accident from single-hull tank vessels and also be cost effective for tank vessel owners or operators servicing remote locations, an exemption for vessels serving the CNMI is not contained in this rulemaking.

4. Vessel Resource Management Training

The Coast Guard requested comments on whether vessel resource management training should be required or recommended in these regulations. One comment supported the Coast Guard's proposal to require vessel resource management training. Another comment suggested that senior officers and engineers have this training available as an alternative to the proposed bridge resource management training. The Coast Guard has reviewed the training requirements proposed in the SNPRM in conjunction with STCW. STCW requires training for watchstanders that, if implemented correctly, will improve the quality of mariners throughout the industry. Because STCW is being implemented in the U.S. and internationally, the training requirements have been removed from this rule. Company guidance requirements have been included in this rule to ensure that bridge resource management philosophy and vessel specific training requirements are supported in, and made effective by, company policy. Companies that train their employees in vessel resource management are gaining valuable employees and should be commended for their commitment to improving operational safety and environmental conservation.

5. Rest Hours and Travel Time

The Coast Guard requested comments on travel time factors in the rest hour requirements proposed in the SNPRM. One comment writer asserted that air travel, jet lag, and time zone changes should be factored into minimum rest hour standards. Another comment suggested that the need to consider travel time before a crew member assumes responsibility is legitimate. The Coast Guard notes these concerns and has added them to the current rulemaking project entitled ''International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW): Implementation of 1995 Amendments'' (CGD 95–062) (61 FR 13284; March 26, 1996). Because the rest hour requirement is being implemented as part of STCW, the Coast Guard has removed the minimum rest hour requirements from this final rule.

6. Expansion of Work and Rest Hour Restrictions

The Coast Guard requested comments on the feasibility of expanding the application of work hour and rest hour restrictions of section 4114 or the adoption of similar IMO provisions, under the authority of section 4115(b) of OPA 90. Several comment writers responded to this request and their comments included the following: The requirements should conform with the work and rest hour provisions of STCW and should not go beyond them; the requirement should be more inclusive and require rest hours before departure as well as rest hours before arrival; and the rest hour requirements should include engineers supervising in bunkering and internal oil transfers.

The Coast Guard notes these comments and has determined that expanding the work hour or rest hour requirements beyond STCW requirements is not appropriate. Because another rulemaking is implementing STCW, this rulemaking no longer includes rest hour requirements. The work hours originally required by section 4114 of OPA 90 remain in effect.

7. Vital Systems

The Coast Guard requested comments on reporting requirements for the failure of specific components within the proposed vital systems. No comments were received regarding whether the failure of a system should or should not warrant COTP notification. The Coast Guard has retained the vital systems requirement in this rule without mandating a reporting requirement if a system fails; however, mariners are encouraged to follow the common practice of good seamanship and the existing reporting requirements in 33 CFR subchapter P remain in effect.

8. Autopilot Use on Towing Vessels

The Coast Guard requested comments on the inclusion of a requirement for primary towing vessels to have a restriction on the use of the autopilot similar to 33 CFR 164.13(d). One comment writer responded to this request, stating that vessels towing tank barges should not be allowed to use autopilot systems in rivers and restricted waters. The Coast Guard agrees that it is not a recommended practice for a towing vessel to use the autopilot while operating in restricted waters. However, there are times when the use of an autopilot is necessary because some towing vessels are designed to be operated by a single person.

9. Pilot Cards

The Coast Guard requested comments on whether the pilot card should have additional information. One comment suggested that information on the pilot card could be combined with the maneuvering information. The Coast Guard has retained the pilot card requirement, as proposed in the SNPRM, because the format is inclusive and reflects international standards.

10. Voyage Data Recorder Equipment

The Coast Guard requested comments on requiring the use of voyage data recorder equipment, inclusion of an early warning capability in a recording device, and recommending provisions for near miss data collection. One comment was received and suggested that all vessels over 1,600 GT operating in U.S. waters be required to carry voyage data recorders (VDRs) because they would help pinpoint the cause of an accident and assist companies in monitoring bridge watchstanding performance. Although this final rule does not include a requirement for a VDR, the Coast Guard is researching the application of this type of equipment and intends to work further with IMO on this issue.

11. Bow Thrusters

The Coast Guard requested comments on the feasibility of requiring bow thrusters on single-hull tankships. One comment writer disagreed with a bow thruster requirement, stating that bow thrusters were very expensive to retrofit, ineffective at higher speeds, and could not substitute for escort tugs. The Coast Guard notes this comment and is not including requirements for bow thrusters in this final rule.

12. Routing Restriction Requirements

The Coast Guard requested comments on establishing routing restriction requirements. Five comments were received, four of which suggested that the Coast Guard establish requirements for pilot passage plans and included the following comments: implementation of passage plans should not wait for IMO development; and plans should require pilots to advise the master of the intended passage because passage plans would reduce accidents. Reference was made to a study done by the Transportation Safety Board of Canada regarding the operational relationship between ship masters, watchkeeping officers, and marine pilots. This study found that 200 out of 273 accidents taking place between 1981 and 1992 involved human factors. Of these 200 human factor related accidents, 84 involved miscommunication between the pilot and the master. An opposing view, by the remaining comment writer, stated that the development of a passage plan would be ineffective and time-consuming, whereas information

provided by the Army Corps of Engineers would be much more useful.

The Coast Guard supports and recommends the use of pilot passage plans. With the implementation of STCW and this rule, the conference between the master and the pilot prior to getting underway or entering port should be, or will shortly evolve into, a valuable exchange of transit specific information. This rulemaking reflects certain elements of passage planning but does not specifically mandate that the pilot plans the voyage because the tank vessel owner or operator is liable for the vessel and its cargo.

13. Empty Wing Tanks

The Coast Guard requested comments on the economic and technical feasibility of significant structural refit to reinforce bulkheads between empty wing tanks and cargo tanks, possible piping refit, and substantial stability reassessment. One comment writer suggested that empty wing tanks be considered. Another comment writer asserted that keeping wing tanks empty or partially full to reduce the likelihood of oil outflow in collisions would make trading in the U.S. economically disadvantageous for tankers because empty wing tanks would not only reduce storage flexibility, but would also reduce storage capacity, resulting in an increase of traffic and the risk of pollution.

The Coast Guard notes that requiring a vessel to fit structural reinforcement and piping results in a long out-of-service period for the vessel and cause significant cargo shutout costs. The benefits achieved by implementing empty wing tanks are from post-accident oil outflow reduction. A vessel will be higher in the water with its wing tanks empty and its cargo, if released, will have a higher outflow rate because of the increased hydrostatic pressure difference between the oil and the sea. Therefore, in a grounding, a vessel with empty wing tanks could actually have a higher rate of oil outflow than single-hull tank vessels ballasted properly and carrying oil in all cargo tanks. The Coast Guard notes these comments and has not included a requirement for empty wing tanks in this rule because they are not cost-effective.

Personnel Training and Information

1. General

Several comments are received that addressed general applicability aspects of the training and rest hour proposed requirements, which included the following: Training should be required as part of the licensing process for all mariners, not just personnel on single-hull tank vessels; training and manning requirements should not be unilaterally applied to licensed officers on U.S. foreign vessels; towing vessel personnel should be clearly indicated and required to complete the training requirements; and training should be mandatory for all vessels, including small tank vessels used to lighter.

Several comments remarked on the relationship between the proposed training and rest hour requirements and international standards. Twenty-four comment writers urged the Coast Guard to work within the international process, and to conform with international standards such as STCW; Article 21 (2) of the United Nations Convention on the Law of the Sea (UNCLOS); Articles 5, 6, and 10 of the Convention on High Seas of 1958; and International Labor Organization (ILO) Convention No. 147. Other comments suggested that the requirements of this section exceed the Coast Guard's jurisdiction under international standards and represent unacceptable interference to international shipping operations.

Because of the implementation of STCW, the Coast Guard has revised this rule and no longer requires training or rest hours for watchstanders on single-hull tankships or primary towing vessels of tank barges. Mariner licensing requirements are being revised extensively in another rulemaking and will include training requirements similar to those proposed in the SNPRM; therefore, both foreign and U.S. mariners, operating all commercial vessel types, will soon have additional required training and be required to have rest hours. The requirements of STCW must be implemented by each vessel's flag state. STCW also contains provisions for port state control to allow the effective assessment of foreign mariner competence. These provisions will allow the Coast Guard to ensure that competent mariners are operating both foreign and U.S. single-hull tank vessels.

Other comments include specific recommendations for rising the proposed requirements as follows: emphasize company standing orders, policy and procedures, and the use of case studies; consider the effects of circadian rhythm on vessel personnel when developing training programs; clarify course validation or certification requirements; require an interactive computer or video training program because it would enhance safety, and would be more ship, cargo, and route specific; and require at least two English-speaking people on the bridge whenever a vessel is in U.S. waters.

The Coast Guard agrees that any company policy and procedures that support bridge resource management principles, new crew member orientation, or any other company standing orders are effective and essential to safe vessel operation. The policy and procedure requirements in this rule reflect STCW and have been included because of their benefit in reducing accident risk. Any computer training or other state of the art training techniques may also be beneficial; however, due to STCW training implementation, the Coast Guard has not included these types of requirements in this rulemaking. The Coast Guard has not specifically required that personnel speak English; however, it is not in keeping with the standards of prudent seamanship if bridge personnel cannot effectively communicate with the pilot, other vessels, or vessel traffic system (VTS) personnel, due to language difficulties.

Other comments noted that because independent operators may not have adequate resources to provide effective training programs, they should be required to attend commercial training programs. Another comment noted that course completion does not necessarily ensure watchstander proficiency and the Coast Guard should be more proactive in supporting proficiency assessment requirements at IMO. Several comment writers asserted that this proposed section is biased against single-hull vessels, and urged the Coast Guard to conform solely to OPA 90 restriction. Another comment writer also requested definitions of the terms ''owner'' or ''operator''.

The Coast Guard notes that smaller companies may not be able to train personnel as cost effectively as larger companies; however, by setting minimum standards of proficiency within the licensing requirements, as STCW does, even small companies should have competent employees. The Coast Guard's support of training at IMO was key in the development of STCW; the Coast Guard will continue to work toward comprehensive competence standards for mariners. OPA 90 conveyed the need to regulate existing vessels without double hulls prior to their phaseout dates. This rule implements that Congressional mandate and uses the definitions of ''owner'' or ''operator'' as stated in OPA 90.

2. Bridge Resource Management Training

One comment writer supported proposed § 157.415 as written. Other

comments suggested revising the requirement as follows: include simulator training; change the name of this section to Bridge Team Management Training since courses in Europe on Bridge Resource Management Training do not reflect the provisions of § 157.415 of the SNPRM; and ensure that the requirement does not limit training to a commercial course.

Thirteen comment writers asserted that the proposed 12-month implementation of this training was too short and suggested that the implementation period be increased to 36 months or 1 year after STCW enters into force because the number of personnel who need training would exceed present training facility capacity and cumulative expenses would be difficult to meet. Similarly, another comment requested that foreign mariners be allowed to complete Coast Guard-approved commercial or company courses within 5 years rather than 36 months. Two refresher training requirement revisions were suggested: one suggested every 3 years; one supported the 5-year training requirement as proposed.

The Coast Guard has revised this section in this final rule to reflect the requirements in STCW, Section B–VIII/2, Part 3. Training is not required in this particular final rule; however, it has been proposed in a separate rulemaking entitled ''International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978 (STCW): Implementation of 1995 Amendments'' (61 FR 13284; March 26, 1996). This rule does include a requirement for owners or operators to provide policy and procedures addressing the bridge resource management issues in STCW. The Coast Guard has detailed the need for concise company guidance in its PTP program to reduce the risk of accidents. The Company guidance required by this rule will give the master and officers in charge of the navigational watch clear instructions of company expectations and emphasize the serious ramifications of poor bridge resource management. Although this guidance was place in Section B of STCW, and is not part of the mandatory requirements of STCW, the Coast Guard has determined that masters and officers in charge of a navigational watch need to be familiar with this guidance to ensure the environmental protection of U.S. waters from single-hull tank vessels. Because the hazard of bulk oil spills due to tank barges can also be reduced through implementation of bridge resource management policy, the requirement, which ensures that towing vessel operators are also provided with barge owner and operator guidance, has been included. Implementation of this requirement coincides with the STCW timeline of February 1, 1997.

3. Vessel Specific Watch Training

Seventeen comments addressed requirements as proposed in § 157.420, four of which supported this provision; although one noted that confirmation of completion of training would be difficult for barge owners or operators that lease towing vessels. Other comments included the following: clarify how academic training is to be received; apply academic training to the master and the officer in charge of a navigational watch only, instead of applying it to all watchstanders, which is excessive § 157.415); make a distinction between onboard training and academic instruction and include both in training programs; emphasize specific vessel attributes instead of general requirements; and remove the requirement for error trapping because it is a term more appropriately applied to system safety engineers rather than mariners.

Of seven comments received that urged only onboard training be given, four suggested that supervising officers conduct the training. Another comment suggested that training ashore be conducted by supervisory personnel. Other comments received indicated that refresher training be linked to a mariner's license renewal (every 5 years) while another comment suggested eliminating the refresher training requirement.

The Coast Guard is revising this section in this final rule to reflect the requirement in STCW, Section A–I/14. In the final rule, Owners or operators are required to provide policy and procedures addressing the vessel specific watch training issues in STCW. This complements the requirements in STCW and ensures that companies implement them. The requirement also ensures that barge owners or operators provide policy and procedures to towing vessel personnel to ensure that the company policy is clear. The Coast Guard intends to enforce this requirement by reviewing the policies and procedural guidance provided to towing vessel personnel by the barge owner or operator. An oversight program, or other management system, should be developed by the barge owner or operator to ensure that the policy and procedures are clear and implemented effectively. The implementation of this requirement coincides with the STCW implementation date of February 1, 1997 .

4. Minimum Rest Hour Requirements

Thirty-two comments addressed requirements as proposed in § 157.425, two of which supported this provision. The other comments included the following: Clarify the phrase ''prior to cargo transfer operations''; clarify the rest hour requirements for shifting between piers; remove the rest hour requirement because it does not imply a reduction in a mariner's fatigue; remove the rest hour requirement because the additional crew needed to meet this requirement would have less expertise and increase the risk of an accident; ensure that the rest hour requirement does not include monitoring a pilot's rest time; and ensure that the rest hour requirement does not allow owners or operators to assess a crew member's fitness for duty in the event the crew member's rest hours are interrupted by drills or emergencies.

Several comments questioned the Coast Guard's narrow application of this section to masters and recommend that the rest hour requirements be applied to masters at all times. Others recommend that the rest hour requirement be applicable to watchstanders both before port arrival as well as before port departure. Some comments recommended the rest hour requirements' applicability to be expanded to all crew members supervising bunkering or internal oil transfers. Another comment recommended that the Coast Guard pursue a change to 46 U.S.C. 8104, which would allow rest periods and coincide with the provisions in STCW.

As noted by many of the comment writers, STCW addresses rest hour requirements. Because it is effective and beneficial to include all mariners in the rest hour requirement, not just mariners on single-hull tank vessels, the proposed rest hour requirement has been removed from this rule. Implementation of STCW is well underway and, therefore, mariners on both U.S. and international vessels will be subject to rest hour requirements by February 1, 1997. In addition to these requirements, the work hour requirements of section 4114 of OPA 90 remain in effect.

Surveys

1. Enhanced Survey Requirements

Sixteen comment writers responded to proposed § 157.430, two of whom supported the requirements as written. Other comments included the following: Clarify how the enhanced survey implementation coincides with 46 CFR part 31; clarify how the enhanced

survey implementation coincides with classification special survey requirements; apply the Critical Area Inspection Plan (CAIP) program to all single-hull tank vessels 5,000 GT or larger; apply requirements of this section to all tankers and bulk carriers; conform the proposed section to Regulation 13G of MARPOL 73/78; and harmonize the section with the requirements adopted by the International Association of Classification Societies' (IACS) members.

One comment writer recommended eliminating the proposed alternative enhanced survey option for smaller tankships and tank barges because it complicates the requirements. Two comments recommended that the Coast Guard clarify the approval procedures for independent auditing authorities within the alternative provision. Four comment writers recommended considering shipowners' self-assessment programs as an alternative to the enhanced survey requirement.

Regulation of all tank vessels and bulk carriers is not within the scope of this rulemaking. The Coast Guard has revised the enhanced survey requirement in this final rule to clarify that the survey program will begin at a vessel's next regularly scheduled drydock exam. For U.S. tank vessels, this revision means that the next time the vessel is required by 46 CFR 31.10–21 to complete a drydock examination, as defined in 46 CFR 31.10–20, it must implement an enhanced survey program. For foreign tank vessels, the enhanced survey program must be implemented at the next drydock required by the flag administration. This implementation should not conflict with special surveys required under classification society rules. IACS has implemented these enhanced survey requirements since 1995 on most existing tankships because they are also required by MARPOL 73/78 to meet Regulation 13G. A vessel complies with this rule if it meets the enhanced survey requirements of Regulation 13G of MARPOL 73/78. Requiring the CAIP program, in addition to the enhanced survey program, would be costly and redundant; however, the CAIP program implemented for some tankships is comparable to international enhanced survey requirements. Therefore, this rule has been revised to include an equivalency provision for vessels enrolled in CAIP program. A Coast Guard review of the program has been included in this revision to ensure that it is comparable to the enhanced survey requirements prior to an equivalency determination.

The provision for smaller tankships and tank barge owners or operators to have an alternative survey program remains in the rule to reduce cost to small business owners and those not subject to MARPOL 73/78 requirements. Revisions to the alternative survey requirements were made to reflect the acceptance of a professional engineer as a third party oversight to the program. Not only will this revision ensure that the program is implemented and kept active through the vessel's life, but it will clarify and recognized the value of independent auditing by knowledgeable individuals.

2. Vital Systems Surveys

Seventeen comment writers responded to proposed § 157.435, one of whom supported the requirement. Other comments included the following: Conform the proposed section with the ISM Code; remove proposed § 157.435 because the ISM Code and industry already conform with this requirement; remove proposed § 157.435 because the requirement are already covered by the Federal Declaration of Inspection; revise proposed § 157.435 to include only the checklist requirements; develop a uniform list of elements for each system noted in this section rather than incorporating industry standards; include communication system and navigation system surveys in the requirement; inspect all vessel moorings twice a year instead of the proposed frequency; require that logbook entries, including surveys and checks, be done in the deck logbook, and not the Oil Record Book.

Several comments recommended adding the requirement to inspect mooring lines and emergency towing lines before arrival or departure, as appropriate. One comment recommended using standby tugs while moored in extreme areas and suggested that research be conducted on mooring a vessel to a pier using a magnetic field. Another comment suggested that the following activities be conducted more frequently: Hydro-pressure testing of cargo handling equipment; calibration of safety pressure relief devices in cargo pumping systems, and tank pressure and vacuum devices; and exercising of critical components of the system such as crude oil wash, inert gas, tank level indicators or alarms. This comment writer asserted that these recommendations, if implemented, would reduce the risk of spills.

The Coast Guard has reviewed the requirements proposed in the SNPRM and has revised them slightly. This rule goes beyond the requirements of the Federal Declaration of Inspection requirements and also reflects current recommended safety practices developed by the International Chamber of Shipping, Oil Companies International Marine Forum, and the International Association of Ports and Harbors. No checklists were proposed in the SNPRM and none have been developed for this final rule. The International Safety Guide for Oil Tankers and Terminals (ISGOTT), which is incorporated by reference, contains sufficient, valuable safety guidance to personnel in charge of transfer operations. The Coast Guard has incorporated the fourth edition of ISGOTT rather than the proposed second edition. This newer edition contains format changes and includes safety measures for loading at terminals having vapor-emission control systems.

The ISM Code does not specifically address or require companies to develop the safety measures detailed in this rule. It is anticipated that this requirement will become part of the company's Safety Management System when it implements the ISM Code.

This rule was also revised to allow personnel on tank vessels to inspect mooring, emergency towing, and anchoring gear either prior to entering port or prior to getting underway. The survey frequency in this rule, rather than a less frequent survey, is appropriate due to the propensity for severe weather to shift or damage this typically exposed gear. Communication and navigation surveys were not proposed in the SNPRM and are not included in this rule because they are required by 33 CFR part 164 for vessels 1,600 GT or more and are proposed in a separate rulemaking for towing vessels (60 FR 55890; November 3, 1995). The logging requirement for this rule has been revised to reflect entry of vital systems surveys in the deck logbook or other onboard documentation. The Coast Guard notes that measures such as magnetizing or requiring additional tugs at pier facilities may have some benefit, but these measures are not included in this rule because the cost to implement them would be prohibitive to many ports.

Navigation and Maneuverability

1. Autopilot Alarm or Indicator

Thirteen comment writers responded to proposed § 157.440, five of whom supported the requirement as written. Other comments suggested that the requirement should not allow the usage of the autopilot in rivers or restricted waterways. One comment writer, however, asserted that the requirements of this section are unnecessary because

a properly trained watch officer always knows the status of his or her course.

Autopilot use is specifically limited for tank vessels 1,600 GT or more in 33 CFR 154.13 and currently includes most restricted waterways and rivers. The Coast Guard has not specified additional autopilot restrictions because this autopilot alarm or indicator requirement will effectively reduce the misuse of autopilot when close to shore or in vessel traffic systems. Some companies have installed these alarms and have found that, even with highly skilled watchstanders, the alarm has sounded in waters where a disengaged autopilot was required. The Coast Guard is retaining the autopilot alarm or indicator requirements in this final rule because ensuring the autopilot is engaged only in certain waters is beneficial.

2. Maneuvering Performance Capability

Nineteen comment writers responded to proposed § 157.445, five of whom supported the requirement. Some of the comments suggested applicability changes including the following: Apply proposed § 157.445 to all vessels, regardless of their flags; extend application of the proposed § 157.445 to double hull vessels; work within IMO to apply IMO Resolution A.751(18) to all vessels and include internationally agreed upon compliance stipulations; remove proposed § 157.445 because the maneuvering capability measurements of IMO Resolution A.751(18) are intended only for new vessels, many existing vessels would fail the capability criteria, and it is unreasonable to require certain maneuvers at 90 percent of full speed; and remove the requirement because it is costly, difficult to complete, and not beneficial.

One comment writer asserted that proposed § 157.445 is too complex and considered current regulations adequate. Other comments for revisions to proposed § 157.445 included the following: Accept Annex 1.2.1 in addition to proposed Annex 1.2.2; specify that tests be conducted on only one vessel of the class; clarify that if a vessel fails to meet the maneuvering criteria, the vessel owner or operator will not be liable for allowing the vessel to enter port; remove the reporting requirement in proposed § 157.445 because it is burdensome and misinterpretation could occur; provide criteria to the COTP on applying restrictions; revise the list of criteria that COTPs can impose by removing proposed tug escort and speed limit options and including operational restrictions, such as reduced speed operation.

Regulation of all vessels or double hull tank vessels is not within the scope of this rulemaking. The Coast Guard has considered the applicability of these maneuvering performance tests to existing vessels and has retained the test requirements. The maneuvering capability standard has been removed because the standards are for new construction while the testing of the vessel's maneuvering capability is the focus of this rulemaking. By eliminating the requirement to meet the maneuvering capability standard, there is no longer an issue of vessel failure. The requirement has also been revised to allow the test methods of either Annex 1.2.1 or 1.2.2 of IMO Resolution A.751(18) to complete the tests. Therefore, scale model tests or computer predictions, validated by full-scale trials, or full-scale trial results are acceptable. Those vessel owners or operators that contend that the vessel's full-scale trials would be unsafe, can now use other technological means to meet this requirement. Additionally, this rule allows tankship owners or operators to substitute the test results of a sister vessel if its hydrodynamic and propulsion design characteristics are the same. By retaining this requirement, the Coast Guard ensures that the vessel's maneuvering capability, including valuable overshoot angle information and detailed stopping capabilities, are posted and discussed prior to port entry or departure. The COTP reporting requirement proposed in the SNPRM has been removed and replaced with a requirement for the master to discuss the maneuvering test results with the pilot. The Coast Guard anticipates that a transit specific discussion of maneuvering capability between the pilot and the master is sufficient to reduce the risk of accidents.

3. Maneuvering and Vessel Status Information

Thirteen comment writers responded to proposed § 157.450, five of whom supported the requirement and the incorporated standards. Other comments included the following: Combine pilot card and maneuvering information requirements into one document; reconcile the proposed section with 33 CFR 164.35(g) and 46 CFR 35.20–40 to eliminate conflicting requirements; remove the maneuverability booklet requirement because it is of little value; retain the information on the tanker's particulars recorded on the pilot card because it is valuable; delete the entire proposed § 157.450 because it is not practical; and apply the requirements to all new and existing U.S. and foreign vessels over 1,600 GT entering U.S. waters.

The Coast Guard has retained the maneuvering and vessel status information requirement in this final rule and has made it applicable to the vessels covered by section 4115(b) of OPA 90; however, the maneuverability booklet requirement in IMO Resolution A.601 Annex 3.3 is not required. Combining the pilot card with other maneuvering information is not required because the format of the pilot card, maneuvering poster, and other maneuvering information has been accepted by the international community. The maneuvering poster requirement of this rule is more detailed than the requirements of 33 CFR part 164 and 46 CFR part 35 in that they require squat and other engine information to be displayed along with the general turning circle information. The format of the required maneuvering poster is also standardized to enable quick review of this data and to prevent omission of important information. Meeting the requirements of IMO Resolution A.601(15) does not necessarily ensure that the requirements of 33 CFR part 164 and 46 CFR part 35 have also been met.

4. Minimum Under-Keel Clearance

The Coast Guard received 169 comments that responded to proposed § 157.455, four of which supported this section. Many of the comments suggested removal of proposed § 157.455 for the following reasons: most unintentional groundings are caused by operator error or mechanical failure rather than inadequate clearance; each port already as draft limits based on its own geography; calculations are unreliable because of variable environmental factors and vessel schedules; the public may perceive proposed § 157.455 as ''a quick fix'' and, in some cases, if implemented, may actually be detrimental to marine safety; a vessel operator's own safety program is sufficient; studies have not indicated that this requirement would result in increased safety; tank vessel owners and operators may be unable to calculate clearances based on lack of local knowledge; it is more appropriate to include under-keel clearance awareness and calculation requirements as a training requirement; a vessel's liability cap may be broken if it is grounded outside the navigational channel; the authority of the COTP is undermined and proposed § 157.455 is contrary to PTP's partnership policy; proposed § 157.455 replaces the valuable local knowledge of the mariner with the COTP; and proposed § 157.455, if

implemented, could wrongly extend to all vessels.

Other comments suggested that the calculation of the anticipated under-keel clearance was acceptable; however, the COTP reporting requirement was unacceptable for the following reasons: The role of the COTP, as an independent authority able to enforce clearance requirements without being a party to the decision, should be preserved; proposed § 157.455 should be revised to prohibit the passage of vessels unable to navigate the channel without touching the bottom because it would be clear, enforceable, and not require COTP approval; and authority of the COTP is illusory and would not be used because of the COTP's unwillingness to depart from the official Coast Guard standard.

One key issue, addressed by 143 comment writers, was that under-keel clearance levels should be determined locally because of the variety of local conditions and expertise. Another comment suggested that because shoals establish a maximum loading draft that could vary daily, the local minimum under-keel requirements should be set on a daily basis. Several comments suggested that the Coast Guard allow the COTP to grant exceptions in situations where there might be a need to deviate from the minimum under-keel clearance regulations because of safety or other compelling port operation purposes. Other comment writers recommended that the requirement either exclude or make clearance-reduction allowances for the facility. Another comment suggested that the Coast Guard should only intervene in the event of intentional overloading, misstating, or understating of the draft.

Four comments specifically recommended reducing the frequency of calculating under-keel clearance and designating a local authority, other than the COTP, to set minimum under-keel clearance requirements and provide water depth data. Other comments suggested that the calculation include more detail such as squat, size of the vessel, ship handling, swell, tidal conditions, type of seabed, and salinity.

In contrast, several comments suggested expanding the minimum under-keel clearance requirement to include the following: Double hull tank vessels; double bottom tank vessels; and all vessels. Other comments suggested the following: provide precedence over other commercial vessels for fully-laden, heavy beam, self-propelled tank vessels; prescribe convoy-transit-times for potentially high-risk vessels; require escort tugs be used wherever possible; and require more than just the vessel personnel to calculate the under-keel clearance.

Because OPA 90 section 4115(b) addresses existing vessels without double hulls, expanding this requirement to include all vessels, double hull vessels or bulk carriers is not within the scope of this rulemaking. The Coast Guard has revised the anticipated under-keel clearance requirement. The requirement no longer has a standard of .5 meter; however, the rule retains under-keel calculations and review of port requirements because the need for single-hull tank vessels to ensure good safety practices relating to under-keel clearance while transiting port is particularly essential. The proposed .5 meter reporting requirement has also been revised in this rule because the Coast Guard recognizes that many ports have effectively set guidelines followed by most vessels. Instead of the COTP reporting requirement, the master and pilot must review the anticipated clearance. The pilot acts as an advisor, not as a regulator. Partnerships and other civic groups all assist the Coast Guard in its effort to make the industry safe; however, owners and operators continue to ignore cooperatively developed safety practices when profits are favorable. Oil spills have occurred because tank vessels enter port with drafts too deep for the facility and then ''find'' an anchor or rock as they intentionally ground at the facility. Because this rulemaking emphasizes risk reduction, grounding any vessel at the facility, especially an existing tank vessel without a double hull or double bottom, is not deemed prudent.

The factors used to calculate anticipated under-keel clearance remain general because the Coast Guard has emphasized the planning and review of the Calculation by the master, pilot, and owner or operator. The Coast Guard anticipates that a mariner, especially one that has met the competency requirements of STCW, will use the appropriate factors such as salinity, tide, and sinkage to complete the anticipated under-keel clearance calculation. This rule specifically requires the master to review the calculations with the pilot in order to ensure that a valuable exchange of relevant information occurs prior to the transit. This rule also ties the owner or operator into the decision-making process. If owners or operators influence the master to enter port with under-keel clearances that are imprudent or not in line with pilot safety guidance, the vessel owner or operator may risk the loss of the limits on liability if the vessel grounds during transit.

Additional Requirements for Tank Barges

Of the few comments received addressing additional requirements for tank barges, two supported the proposed requirements as written. Another comment suggested that proposed § 157.460(a) be removed because two engines, a single screw, and duplicate controls have proven to be safe. Other comments expressed concern that the tank barge owner or operator would have a difficult time ensuring that the towing vessel meets the proposed steering and fendering requirements. The Coast Guard has retained these requirements to ensure the safe operation of tank barges. If a towing vessel owner has duplicate controls, but not an alternate power unit, positive steering control cannot be maintained. Barge owners or operators should be able to screen towing vessels for these requirements, either by physically checking that this equipment is in place, or using a contractual agreement as a basis for hiring appropriate towing vessels.

Emergency Lightering Requirements for Tank Vessels

Eleven comment writers responded to proposed § 157.410, six of whom supported the requirement as written. The remaining five comment writers requested clarification on why this proposed lightering equipment requirement also addressed the piping that would be directly connected to it. It was not the intent of proposed § 157.410 to require complete on-deck piping refits on those existing vessels that have installed malleable iron cargo piping. This rule was developed to ensure that the equipment was on board and available for use in an emergency. It was not developed to require a complete reconfiguration or a new piping system. Surveys and regular maintenance should ensure that piping systems on existing vessels constructed of malleable iron remain intact and safe. The Coast Guard has revised this requirement slightly to simply require that the reducers, bolts, and gaskets not be constructed of cast iron or malleable iron.

Discussion of Definitions and Subparts

This final rule has added several definitions to meet the requirements of the Edible Oil Regulatory Reform Act (Pub. L. 104–55, 109 Stat. 546 [1995]) which requires different oil types to be categorized separately. The definitions of ''petroleum oil,'' ''vegetable oil,'' ''animal fat,'' and ''other non-petroleum oil'' have been added to this rule to

delineate the differences between these cargoes. The definition of ''departing port'' has been removed because it was used to reduce the impact of the proposed rest hour requirement on small tankship and tank barge companies. In measures that include port entry or departure requirements such as vital systems survey and under-keel clearance, the term ''getting underway'' is used in this rule because it is appropriate and logical to require these calculations or surveys to be done prior to vessel movement.

Two subparts have been added to this final rule. New subpart H was created to separate animal fats or vegetable oils from other oils. Subpart I was created to separate out other non-petroleum oils. The Coast Guard has determined that a discharge of animal fat, vegetable oil, or other non-petroleum oil from a vessel could reasonably be expected to cause harm to the environment. Therefore, vessels that carry animal fat, vegetable oil, or non-petroleum oil in bulk are required to comply with the operational measures in subpart G.

Amendments to 46 CFR Part 31

To ensure cross reference to the enhanced survey requirements, tables (a) and (b) in 46 CFR 31. 10–21 have been revised to direct individuals using 46 CFR part 31 to § 157.430; however, it does not change existing drydock requirements.

Amendments to 46 CFR Part 35

To ensure cross reference to part 157, § 35.01–40(c) of title 46 of the CFR is revised to refer individuals using 46 CFR part 35 to the applicable pollution prevention requirements.

Incorporation by Reference

The Director of the Federal Register has approved the material in § 157.02 for incorporation by reference under 5 U.S.C. 552 and 1 CFR part 51. The material is available as indicated in that section.

Assessment

This final rule is a significant regulatory action under section 3(f) of Executive Order 12866 and has been reviewed by the Office of Management and Budget (OMB) under that order. It requires an assessment of potential costs and benefits under section 6(a)(3) of that order. It is significant under the regulatory policy and procedures of the Department of Transportation (DOT) (44 FR 11040; February 26, 1979).

An Assessment has been prepared and is available in the docket for inspection or copying where indicated under **ADDRESSES**. The Assessment is summarized in the following discussion.

This rulemaking applies to all existing vessels of 5,000 GT or more that do not have double hulls and that carry oil, animal fat, vegetable oil, and other non-petroleum oil, in bulk as cargo. An estimated 1,359 existing tank vessels (190 U.S. tankships, 1,080 foreign tankships, 86 U.S. tank barges, and 3 foreign tank barges) currently operating on U.S. navigable waters are affected by this rulemaking.

Comments on the SNPRM Assessment

1. Methodology of Assessment

The Coast Guard requested comments on the methodology used for the preliminary benefit analysis in the SNPRM as well as each measure's anticipated benefits and economic feasibility. One comment suggested that the ''fault trees'' used to represent data in the preamble of the SNPRM were excellent, but recommended that grounding be separated into its own category for this analysis. The Coast Guard has reviewed all accidents in its database that involved single-hull tank vessels and occurred between 1989 through 1994. Groundings were researched as well as other types of accidents. Although the ''fault trees'' were not reconstructed for this final rule, the effectiveness factors were estimated with respect to the risk of grounding and further field data was collected to compare and adjust the projected oil spilled benefit numbers estimated due to groundings.

2. General Comments on Costs and Benefits

One comment writer asserted that the cost-benefit analysis inflated certain costs, discounted certain benefits, and inflated the estimated costs. Another comment writer stated that travel and accommodations for additional crew members would result in higher industry costs than the costs estimated in the SNPRM assessment. Several comment writers remarked on the costs of compliance with the minimum under-keel clearance provision of this rulemaking by asserting the following: a detailed cost-benefit analysis of the under-keel clearance requirement should be completed; the potential impact on local trade should be factored into the cost analysis; the increase in traffic due to the under-keel clearance requirement would reduce the benefits; and the under-keel clearance requirement would not improve safety, add economic benefits, or raise environmental protection. Some comments also suggested that the costs for the rest hour requirement were underestimated because 46 U.S.C. 8104(a) only applies to the officer taking the vessel out of port, not, as the SNPRM estimated, both the officer and the master.

The Coast Guard has reassessed the benefits from each of the measures in this rule and has considered remote locations within its flexibility assessment. The costs were carefully assessed for each measure and were not overinflated. The costs for rest hours have been removed in this assessment because the rule no longer requires rest hours. Benefits have been estimated based on an assessment of each measure's effectiveness and the actual historical data that suggests the likelihood of the type of accident the measure mitigates. Some requirements have been revised and the cost-benefits have been reviewed and changed to reflect these cost and benefit adjustments. In some cases, measure's cost has been reduced, an its estimated effectiveness at mitigating an accident has been reduced as well. This results in little to no change in the measure's present value cost-effectiveness. The Coast Guard has kept operational safety and environmental conservation paramount during the development of these operational measures and has effectively balanced the Congressional restriction to only mandate economically and technically feasible requirements.

3. Comments on Under-Keel Clearance Cost and Benefits

The cost associated with the proposed under-keel clearance requirement was discussed in many comments. The overriding statement of concern, endorsed by 117 comments, was that proposed § 157.455, if implemented for all vessels, would have a negative economic effect on ports and shipping due to the reduction in carrying capacity of vessels, costs associated with dredging, and tug costs. The comments suggested that costs, due to an all encompassing national under-keel standard, would result in the following: for the West Gulf ports, the economic impact would be $110 million annually; the economic impact of this .5 meter requirement would negatively impact Texas, Florida, Louisiana, and Virginia; port costs such as dredging or costs due to lost customers would place significant economic pressure on the ports; costs would be higher than estimated because delay times must be allowed for oil redistribution after partial discharge operations; the shutout costs to one barge unit, associated with a .5 meter clearance, would be $600,000

per year; and the 15 percent reduction of capacity of Aframax lightering vessels would result in an additional lightering vessel operation for each very large crude carrier (VLCC) discharge. In contrast, other comment writers remarked that 10 percent of the draught in fairways is standard practice inside ports, and that the cost assessment appears to be too high since under-keel clearance restrictions are already established in most ports.

Ninety-eight comments suggested that the benefit estimates for proposed § 157.455 were overestimated by noting the following: the oil spill from the vessel *World Prodigy* was not caused by inadequate under-keel clearance, but by the vessel being on the wrong side of the buoy and in shallow water; pollution would not be minimized on the Mississippi River, Delaware River, or any other river because there has never been an incident; the proposal would result in an increased risk to the environment from vessel traffic increases due to lightering and the added danger of spills from the transfer of oil at sea; and because groundings occur outside the channel, benefits from proposed § 157.455 would be minimal or nonexistent.

The Coast Guard extensively reviewed the estimated cost and the anticipated benefit for this measure. A review of the port of New Orleans records revealed that 1 percent of vessels have entered port in the last 3 years with drafts exceeding the water depth or entered port ignoring local pilot guidance. There are records of in-channel groundings from these vessels, and it is not uncommon to find vessels aground at the facility prior to off-load operations. Oil spills, such as the *World Prodigy,* indicate that lack of passage planning, specifically lack of under-keel clearance planning, has contributed to accidents. The majority of comment writers mistakenly assumed that the proposed under-keel clearance requirement prohibited port entry and was applicable to all vessels. This rule applies to each single-hull tank vessel that is not fitted with a double bottom that covers the entire cargo tank length. It does not extend to all vessels. The cost to ports was not included in the estimate because the majority of comments and the Coast Guard's review revealed that most ports already have under-keel clearance guidance. This rule addresses the small percentage of single-hull tank vessel owners or operators who knowingly allow their vessels to enter port at drafts deeper than port guidance recommends or knowingly ground at the facility. By requiring the master and pilot to review the anticipated under-keel clearance calculation and compare or review it with the owner's or operator's guidance, the risk of a grounding will be reduced.

Industry Cost

Some of the operational measures require actions prior to each port transit or cargo transfer. As a result, vessels on coastwise or frequent transit schedules will incur higher expenses than vessels with a lower frequency of port calls. In contrast, the decrease in fleet size as vessels arrive at their phaseout date results in a downward trend in estimated annual costs from 1996 through 2014.

First-year compliance cost of this final rule will total about $60.5 million. Annual costs of the rule will trend downward, leveling out annually at $539,054 during 2012 to 2014, the final years that the rule will be in effect. The present value of this rule is discounted at 7 percent throughout this assessment in accordance with current OMB guidance to reflect the costs or benefits as they would have been in the year the Oil Pollution Act of 1990 (OPA 90) was enacted. The estimated present value of this rule, discounted at 7 percent, will total $106.3 million. U.S. tankships and tank barges account for an estimated one-third of the total cost, and foreign tank vessels and barges account for the remainder. A discussion of costs for each requirement follows.

The costs associated with each operational measure were developed based on vessel type, vessel use, and average vessel size. The cost analysis was applied to tankships and tank barges. Cost analysis calculations were based upon the following assumptions: (1) the rulemaking comes into effect in 1996; (2) the recurring cost of this rulemaking reflects the future vessel population decrease as required by the phaseout schedule in section 4115(a) of OPA 90; (3) costs and benefits developed for this rulemaking are discounted at 7 percent back to 1990; and (4) all recurring costs are calculated for the year 2001.

Emergency Lightering Equipment

Lightering equipment costs were based on the costs used in the final rule entitled ''Emergency Lightering Equipment and Advanced Notice of Arrival Requirements for Existing Tank Vessels Without Double Hulls'' (59 FR 40186; August 5, 1994). The vessel population affected by the emergency lightering equipment rule is small. Section 157.410 of title 33 of the Code of Federal Regulations requires oil tankers to have this equipment. It is not common industry practice to allow cast iron flanges and fittings on tank vessels; therefore, only tank vessels with exclusive animal fat, vegetable oil, or other non-petroleum cargo carriage authority were included in the cost of this rule. Approximately 114 foreign tankships and 2 foreign tank barges carry non-petroleum cargo and may be affected by this change. No U.S. vessels are indicated under this measure.

The onetime cost for this requirement for foreign tankships is estimated to be $456,000 to $1.1 million and the cost for foreign tank barges will be $8,000 to $19,000. Based on the average onetime cost for foreign tankships and tank barges, the present value of point-estimate costs for emergency lightering, discounted at 7 percent to 1990, is $530,000.

Bridge Resource Management Policy and Procedures

The cost for bridge resource management policy and procedures reflects a 5-month implementation period in order to be in line with the implementation of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers, 1978, as amended in 1995 (STCW).

Development of company specific bridge resource management policy and procedures was estimated to cost $5,000 per vessel per company and is representative of the initial first-year costs of this requirement. The cost for a company to review the policy and procedures, including vessel personnel oversight to ensure that the watchstanders understand and follow guidance, is estimated to be $1,000 per vessel per year.

The first-year costs imposed are estimated to total $4.7 million. Recurring costs are estimated to total $5.5 million over the 19-year life of this rule. Total costs of development and continued review of bridge resource management policy and procedures, discounted at 7 percent, will be approximately $10.17 million.

Vessel Specific Watch Policy and Procedures

The Coast Guard estimates the additional cost incurred by this requirement to be negligible. The cost attributed to time lost due to this policy and procedures requirement is negligible because implementing this type of policy falls within the scope of a master's present responsibility to ensure that the crew is ''fit for duty'' and this requirement is already mandated by STCW.

Enhanced Survey Requirements

Those tankships regulated by flag administrations that have adopted Regulation 13G of annex I of MARPOL 73/78 are presently required to meet this enhanced survey requirement; therefore, no cost was attributed to them for this rule. U.S. tankships currently are not required to meet Regulation 13G of Annex I of MARPOL 73/78; however, if they have a current classification by a classification society that is a member of IACS, they have been in an enhanced survey program since 1995. Under this rule, those U.S. and foreign tank vessels not covered by MARPOL 73/78 Regulation 13G and those not classed by an IACS member, will incur costs associated with developing or augmenting current survey programs to meet this requirement.

Cost attributed to the enhanced survey requirement includes the fee for the surveyor's time to conduct the survey and document it. Additional costs include making approximately two tank interiors accessible to the surveyor through the use of scaffolding, ladders, lines, or other arrangements and additional gauging requirements. Some additional repair costs may also be incurred after a review of the survey is completed. These repair costs were estimated in this assessment but were not increased due to vessel age because thorough, frequent hull surveys should detect repairs before they come comprehensive—even as the vessel approaches its phaseout. Cost estimates do not include the costs to drydock the vessel, gas free it for inspection, or keep it in the drydock because these costs are already incurred with present drydocking requirements.

Tank barges are not required to meet Regulation 13G of Annex I of MARPOL 73/78. This rule allows tank barges and vessels smaller than the MARPOL 73/78 cutoff to substitute comparable company programs for the enhanced survey requirements. Because the company program clause assumes the owner has an established survey program and will not need to conduct extensive additional repairs, the cost of these company programs will be less than a classification survey. The cost for this equivalency is estimated to be half the expense of a classification society to document an enhanced survey, and half the expense of a MARPOL 73/78 tankship owner to gauge, scaffold, and make repairs to two cargo tanks.

The total estimated cost for this rule reflects a 30-month initial implementation period which coincides with most vessels' regularly scheduled drydock examinations. Because the frequency of the drydock examination is once every 2.5 years, an implementation adjustment of .4 was multiplied by the cost for one survey to calculate annual costs. The Coast Guard assumes that the owners or operators will spread survey costs evenly over the 2.5-year interval. The Coast Guard estimates the total estimated first-year annual cost for this rule to be $2.4 million for U.S. tankships; $10.3 million for foreign tankships; $2.3 million for U.S. tank barges; and $80,000 for foreign tank barges. Because the cost estimates have been averaged and it has been assumed that vessels affected by this rulemaking will be in service for at least two drydock enhanced surveys prior to their phaseout, recurring costs will be the same as the first-year costs. The estimated present value enhanced survey cost, discounted at 7 percent in 1990, will total $28.2 million.

Vital Systems Surveys

The cost of this measure will vary based on port departure frequency, crew salary, and the estimated time required for each survey. A survey is required before a tank vessel begins cargo transfer operations or prior to a vessel either entering port or getting underway. An estimate of port arrivals was calculated based on 1993 Coast Guard data and reflects an average arrival frequency of 28 for U.S. tankships, 32 for U.S. tank barges, 6 for foreign tankships, and 7 for foreign tank barges. Three surveys were estimated for each port arrival.

Crew members affected by this requirement will be senior personnel. For tank barge surveys, an average towing vessel master's wage was used for cost evaluation. For tankship surveys, an average chief mate's wage and a chief engineer's wage were used for cost evaluation. Survey time was estimated at 1 hour on a tankship (0.5 hour each for both the chief mate and chief engineer) and approximately 48 minutes for the master of a primary towing vessel or a senior tank barge representative. The survey cost is estimated for U.S. tankships to be $660,000. The estimated survey cost to foreign tankships will be $465,000. The estimated survey cost to foreign tankships will be $465,000; to U.S. tank barges, $289,000; to foreign tank barges, $2,500. By 2001, the estimated cost of this rule to U.S. tankships will be $472,000; to foreign tankships $322,000; to U.S. tank barges, $208,000; and to foreign tank barges, $1,500. The present estimated value of the costs of vital system surveys during each year the rule will be in effect, discounted at 7 percent to 1990, will total $6.0 million.

Autopilot Alarm or Indicator

The cost for this measure was calculated based on the assumption for this measure was calculated based on the assumption that 10 percent of the U.S. tankships presently meet this requirement, none of the foreign tankships presently have this capability, and three towing vessels will require an indicator for every two tank barges affected by this final rule. It was also assumed that the tank barge company owned the towing vessel and, therefore, will incur the cost of this requirement. The estimated installation cost of a visual and audible autopilot alarm is $5,000 on electronic tankship steering systems and the estimated autopilot indicator cost is $100. Negligible additional costs are attributed to the testing of this alarm because the test is short and there is a preexisting requirement to test this type of equipment under 33 CFR part 164. This rule will have a onetime estimated cost to U.S. tankships of $855,000; to foreign tankships, $5.4 million; to U.S. tank barges, $12,900; and to foreign tank barges, $500. The estimated present value of autopilot alarm cost, discounted at 7 percent to 1990, will total $4.2 million.

Maneuvering Performance Capability

Under this final rule, foreign and domestic tankships of 5,000 GT or greater without double hulls will be required to conduct additional maneuvering tests and also recalculate or confirm other maneuvering characteristic datum. Required performance tests can be done with the vessel in operation or with computer simulation. Test costs are based on an independent subcontractor coming on board a tankship to conduct the tests and provide the documentation required. This estimate reflects industry cost for test preparation, equipment, personnel, transportation, vessel operational delay, data processing, and final report collation. It was assumed that no tankships affected by this rule have conducted these tests. Because sister vessel test substitutions are allowed in this rule, no cost was attributed to 20 percent of the vessel population. Model testing was assumed to be similar in cost to actual testing.

The total onetime estimated cost to the U.S. tankship industry will be $2.8 million and the cost to the foreign tankship industry will be $15.9 million. The estimated present value maneuvering performance capability cost, discounted at 7 percent to 1990, will total $12.46 million.

Maneuvering and Vessel Status Information

No additional maneuvering tests will be required for § 157.450; however, some recalculation of data from the original tests used to develop the wheelhouse poster of 33 CFR 164.35(g) may be required. A cost estimated of $1,080 was developed to reflect the recalculation of original maneuvering data and the fee of an average U.S. licensed naval architect. Vessel population estimates indicated that 75 percent of both foreign and U.S. tankships presently meet the wheelhouse poster requirement. The cost attributed to the pilot card requirement will be negligible because the time spent completing the pilot cards is within the scope of the officer in charge of a navigational watch's normal duties.

This requirement has a onetime cost attributed to the wheelhouse poster. For the 190 U.S. tankships, the estimated cost of the wheelhouse poster will be $10,000. For the 1,080 foreign tankships, the estimated cost of the wheelhouse poster will be $58,000. The estimated present value maneuvering and vessel status information cost, discounted at 7 percent to 1990, will total $43,995.

Minimum Under-Keel Clearance

The cost of the measure was based on several assumptions. This requirement anticipates that the under-keel clearance calculation will be completed by the vessel master or tug operator, reviewed with the pilot, and compared with company port specific guidance or reviewed with the vessel owner or operator prior to port entry or getting underway. For tank vessels, it was assumed that this calculation will be done at least twice for each port transit. It was assumed that this measure will affect approximately 1 percent of the tankship population and 10 percent of the tank barge population. Of the affected population, it was estimated that this rule will result in a 9 percent reduction in cargo carrying capacity. The cost attributed to the recording requirement will be negligible because the time spent completing the vessel log entry or other similar documentation is within the scope of the officer of a navigational watch's normal duties.

As a result of the reduced cargo capacity for the affected vessels, the first-year under-keel clearance cost is estimated for U.S. tankships to be $2.5 million. Foreign tankship costs will be about $3.6 million, U.S. tank barge cost will be about $4.2 million, and foreign tank barge costs will be about $142,000. By 2001, the estimated recurring cost of this rule to U.S. tankships will be $1.3 million; to foreign tankships, $2.5 million; to U.S. tank barges, $2.8 million; and to foreign tank barges, $142,000. The estimated present value of the costs of under-kneel clearance during each year the rule will be in effect, discounted at 7 percent to 1990, will total $43.97 million.

Emergency Steering Capability

Section 157.460(a) applied to the primary towing vessels engaged in towing tank barges of 5,000 GT or more without a double hull. An estimated total of 134 towing vessels will be affected by this final rule. Of these vessels, research indicates 80 percent presently meet this requirement. It was assumed that the towing vessels that do not meet this requirement are owned by the tank barge company. The cost to reconfigure the towing vessel's steering gear will be $25,000 based on an independent subcontractor installing additional piping and tankage on an existing hydraulic steering system.

The onetime emergency steering requirement cost is estimated to be $645,000 for U.S. tank barge companies, and $25,000 for foreign tank barge owners or operators. The estimated present value emergency steering capability cost, discounted at 7 percent to 1990, will total $446,000.

Fendering Systems

Section 157.460(b) applies to primary towing vessels and the fleeting or assist towing vessels engaged in maneuvering tank barges of 5,000 GT or more without double hulls. A total of 312 towing vessels will be affected by this final rule. Of these vessels, 80 percent presently have adequate fendering systems. It was assumed that those towing vessels that do not meet this requirement are owned by the tank barge company or the tank barge company will realize a cost increase in the leasing of an adequately fendered towing vessel. The cost to add or reconfigure the towing vessel's fendering system will be $1,320 based on a towing vessel's personnel installing an additional 8 linear feet of commercial fenders during a routine maintenance period.

This requirement is estimated to have an initial cost to U.S. tank barge companies of $79,500, and a cost to foreign tank barge companies of $3,000. Estimated recurring costs, reflecting the diminishment of the single-hull tank barge fleet by 2001, will be $57,000 for U.S. tank barge companies and $2,000 for foreign tank barge companies. The estimated present value of the cost of fendering systems, discounted at 7 percent to 1990, will total $329,000.

Government Cost

Federal Government cost will include Coast Guard personnel time and resources to review survey records and documentation required by this rule during annual tank vessel examinations (foreign vessels) or annual inspections (U.S. vessels). It does not include Federal Government cost to vessels in the National Defense Reserve Fleet (NDRF), because under Pub. L. 104–106, NDFR vessels are exempt from the provisions of section 3703a of title 46, United States Code.

The length of time added to a typical examination or inspection varies based on the type of service in which the vessel engages. The Coast Guard estimates that these requirements will increase the time of examination or inspection by an average of 0.5 hours for any given requirement. The various requirements range from 0.25 hours to inspect log entries to 8 hours to review documentation of an enhanced survey on a U.S. tankship or tank barge.

Government costs attributable to implementation of this rule are based on 11 requirements. The Coast Guard examination or inspection will evaluate relevant documentation on several measures. These measures are as follows: bridge resource management policy and procedures, vessel specific policy and procedures, enhanced surveys, vital systems surveys, maneuvering performance capability test information, maneuvering information, and minimum under-keel clearance. During an annual examination or random port inspection, the Coast guard will also ensure that the emergency lightering equipment, the autopilot alarm or indicator, the emergency steering gear, and the fendering systems meet the requirements.

The maneuvering performance capability requirement specifies that a tankship master shall discuss the vessel's test results with the pilot prior to port entry or getting underway. Coast Guard personnel will not have any oversight obligation for this requirement.

Therefore, the government cost analysis assumes annual inspection time will average 6.95 hours for U.S. tank vessels and 4.75 hours for foreign tank vessels. Based on a $35.00 per hour wage estimate for a Coast Guard inspector, the Coast guard expects that the 7,062 additional man-hours of inspection time will cost $247,179 annually.

Cost—Benefit Evaluation

Costs

Cost estimates were based on the forecasted 19-year life of this regulation. For all requirements, the undiscounted cost of compliance is projected to be $209 million. The estimated present value cost of this rule, discounted at 7 percent to 1990, will total $106.3 million.

Benefits

Pollution mitigation benefits from these operational measures will accrue mainly in areas around loading terminals, narrow channels, and in open waters during lightering operations.

A benefit analysis for each measure was completed after reviewing the 107 tank vessel casualties that have occurred to vessels without double hulls within the last 6 years. Casualty information was reviewed from the Coast Guard's marine safety information system as well as from National Transportation Safety Board (NTSB) reports, if available. Appendix C (available in the docket) contains details on the 107 casualties reviewed for this benefit analysis and ordering information on casualty case reports completed by NTSB.

The estimated benefits for each measure were calculated by reviewing the casualty report, analyzing each casualty's root causes, and estimating a percentage of the recorded or probable spillage associated with each root cause. The actual and potential amounts of oil spilled were then broken down from these estimated root cause percentages and accredited to each of the measures, if applicable.

An annual actual and potential oil spill estimate for each vessel was calculated for each measure. The actual amount of oil spilled and the actual dollar amount of damage done to the vessel, pier, or other structures was tabulated. A potential amount of oil spilled and damage was also estimated for each accident. These potential amounts are an estimate of how much additional spilled oil or damage could have occurred if there had been slight change in accident circumstances such as the amount of cargo in the damaged tank(s); the potential amounts do not reflect the worst-case scenario. By cumulating the actual oil spill and damage amounts over the 19-year rulemaking period and correlating these amounts with the phase-out schedule for single-hull tank vessels, mean values for spills and damages for each measure were established. An estimate of the variance in oil spills and damages over the next 19 years was developed by tracking the difference between the potential and actual oil spill and damage amounts. The anticipated volume of oil spilled and damage to vessels and equipment was determined to be slightly higher than the mean values because this assessment only reviewed 6 years of data.

Comparison with other long-term oil spill studies reveals that the 107 accidents studied in this assessment are not necessarily representative. Therefore, further analysis was done to estimate, using the variance values calculated for the 107 accidents, the appropriate increase in benefits attributable to each measure. To compare the data from the 107 accidents in this assessment, each accident was correlated with a general incident type (structural failure, collision, grounding, fire, or explosion). The benefits for those measures correlated with structural or fire and explosion incidents were not increased because these incidents occur randomly and their adverse effects within the 19-year period of this rulemaking are unpredictable. The benefits correlated with collisions, groundings, and operational spills were increased because the mean values determined from the 107 accidents were lower than estimates extrapolated from oil spill studies done between 1976 through 1989. To calculate the appropriate increase in benefits, the sum of all measures apportioned to each incident type was compared to an estimated of incident spill volumes from long-term oil spill studies. An iterative process was used to adjust the portion of the variance added to each benefit and compare the summed incident values to ensure that they remained below the estimated long-term spill volume amounts.

A risk effectiveness factor range was developed using figures 3 through 6 in the preamble of the SNPRM for each measure. This factor range estimates the percentage of causal factors leading to an accident that will be eliminated if the measures are followed. An estimated range of future barrels of avoided oil spilled and avoided damages, based on the qualitative risk assessment, was developed for each measure by multiplying the adjusted mean oil spill and damage amounts with the risk effectiveness factor range.

Each measure's actual benefit range, with the dollar figures adjusted to reflect the present value in 1990 dollars, are as follows:

Emergency lightering equipment. The estimated risk effectiveness factor range for this measure was established to be between 1 percent and 3 percent. The number of vessels used for the benefit calculations was assumed to be the same as the affected vessel population using the phase-out estimate described in the cost section. Because this requirement mitigates oil outflow and does not reduce accident risk, the benefits were estimated based on the amount of oil actually spilled (without any damage numbers included) from the 107 researched casualties. By cumulating the amount of actual oil spilled in the 107 casualties and dividing by the average number of single-hull vessels operating between 1989 and 1994, a per vessel oil spill amount was calculated. This oil spill amount was then divided by the 6-year period to give an estimated annual oil spilled per tank vessel amount of 43.33 barrels. A benefit total was calculated by cumulating this oil spill per vessel amount multiplied by the anticipated vessel population over the 19-year period. The cumulative benefit total was then multiplied by the estimated risk effectiveness factor range to provide the final benefit range. For the emergency lightering equipment requirement, the estimated present value benefit range is 485 to 1,456 barrels of unspilled oil for the 19-year life of this rule.

Bridge resource management policy and procedures. The estimated risk effectiveness factor range for bridge resource management policy and procedures was established to be between 5 percent and 8 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by making the master and watch officers aware of the need to effectively manage bridge personnel. Research on the 107 accidents attributed approximately $21 million in vessel damage and 94,161 barrels of oil spilled from 1989 to 1994 to poor bridge resource management practices. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The bridge resource management policy and procedures requirement benefits will range from 16,349 to 26,159 barrels of unspilled oil and $1,607,091 to $2,571,346 dollars of undamaged property for the 19-year life of this rule.

Vessel specific policy and procedures. The estimated risk effectiveness factor range for vessel specific policy and procedures was established to be between 2 percent and 10 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by ensuring new crew members are given the time and training they need to be effective. Research on the 107 accidents attributed approximately $22,050 in vessel damage

and 1,256 barrels of oil spilled from 1989 to 1994 to lack of crew knowledge in emergency procedures or equipment. These damage and oil spill estimates were cumulated per vessel per year, and the risk effectiveness factor range was then used to predict the final benefits. The vessel specific policy and procedures requirement benefits will range from 115 to 575 barrels of unspilled oil and $685 to $3,426 dollars of undamaged property for the 19-year life of this rule.

Enhanced survey requirement. The estimated risk effectiveness factor range for the enhanced survey requirement was established to be between 6 percent and 12 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by ensuring that the vessel's structure has a detailed inspection on a regular schedule. Research on the 107 accidents attributed approximately $1 million in vessel damage and 79,694 barrels of oil spilled from 1989 to 1994 to undetected structural flaws which led to major catastrophes. These damage and oil spill estimates were cumulated per vessel per year, and the risk effectiveness factor range was then used to predict the final benefits.

The benefit anticipated from this enhanced survey requirement is not from the actual survey, but from the timely repairs made to the vessel based on the survey. Although this assessment attributed some cost to repairs for each survey, this requirement, in and of itself, does not mandate repair. The requirement implies that a tank vessel owner or operator will review the survey reports and ensure that appropriate repairs are made to the vessel to prevent a major structural catastrophe. In some, but not all, cases the Coast Guard or the classification society will review the enhanced survey reports and oversee appropriate repairs, but the responsibility to ensure that appropriate repairs are done rests on the vessel owner or operator.

This assessment does not quantify the added benefits anticipated from savings realized from making only needed repairs. With this requirement a tank vessel will be subject to close scrutiny; therefore, extensive general repairs done because the surveyor is uncertain of specific damaged areas, will be scaled down to fix the appropriate area or eliminated since the added gauging and close-up examination will reveal more defined information on the structure's soundness.

Taking into account the anticipated effectiveness of this requirement, the enhanced survey program requirement benefits will range from 7,280 to 14,559 barrels of unspilled oil and $95,313 to $190,626 dollars of undamaged property for the 19-year life of this rule.

Vital system surveys. The estimated risk effectiveness factor for vital system surveys was established to be between 8 percent and 13 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by ensuring that systems are working properly prior to cargo transfers and port transits. Research on the 107 accidents attributed approximately $3.3 million in vessel damage and 3,920 barrels of oil spilled from 1989 to 1994 because critical pumping, piping, and deck gear were not maintained. These damage and oil spill estimates were cumulated per vessel per year and the risk effectiveness factor range was then used to predict final benefits. The vital systems survey requirement benefits will range from 1,153 to 1,874 barrels of unspilled oil and $402,125 to $653,454 dollars of undamaged property for the 19-year life of this rule.

Autopilot alarm or indicator. The estimated risk effectiveness factor range for autopilot alarms or indicators was established to be between 4 percent and 9 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by making sure that the tankship's master or the tug's master knows that the autopilot is engaged and that it must be turned off before maneuvering the vessel. Research on the 107 accidents attributed approximately $1.25 million in vessel damage and 12,900 barrels of oil spilled from 1989 to 1994 because the autopilot was engaged while the master or watch officer was trying to maneuver the vessel. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The autopilot alarm or indicator requirement benefits will range from 818 to 1,841 barrels of unspilled oil and $75,937 to $170,857 dollars of undamaged property for the 19-year life of this rule.

Maneuvering and vessel status information. The risk effectiveness factor range for this measure was estimated to be between 9 percent and 14 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by making sure the tankship's master understands the status of the vessel's equipment and maneuvering characteristics, including squat. Research on the 107 accidents attributed approximately $11.3 million in vessel damage and 3,333 barrels of oil spilled from 1989 to 1994 because the pilot or master was not aware of the equipment status. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The maneuvering and vessel status information requirement benefits will range from 2,025 to 3,150 barrels of unspilled oil and $1,569,018 to $2,440,695 dollars of undamaged property for the 19-year lift of this rule.

Maneuvering performance capability tests. The risk effectiveness factor range for this measure was estimated to be between 8 percent and 13 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident by making sure the tankship's master and the pilot discuss the vessel's maneuvering capabilities and know how the vessel's limitations may impact the transit. Research on the 107 accidents attributed approximately $.5 million in vessel damage and 3,337 barrels of oil spilled from 1989 to 1994 because masters and pilots failed to properly predict the vessel's capability to maneuver to tight turns or difficult approaches. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The maneuvering performance capability test requirement benefits will range from 3,960 to 6,435 barrels of unspilled oil and $65,592 to $106,587 dollars of undamaged property for the 19-year life of this rule.

Minimum under-keel clearance. The risk effectiveness factor range for the minimum under-keel clearance requirement was estimated to be between 10 percent and 23 percent. This reflects the anticipated effectiveness in reducing the risk of an accident by making sure the tankship or tug master understood the under-keel clearance of the vessel and do not bring the vessel into areas that are shallow or shoaling. Research on the 107 accidents attributed approximately $13.8 million in vessel damage and 7,176 barrels of oil spilled from 1989 to 1994 because the pilot or master did not correctly gauge the vessel's draft in relationship to the transit depths or ignored port specific draft guidance. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The under-keel clearance requirement benefits will range from 5,279 to 12,142 barrels of unspilled oil and $2,102,584 to $4,835,943 for the 19-year life of this rule.

Emergency steering capability. The estimated risk effectiveness factor range for the emergency steering capability requirement was established to be between 4 percent and 9 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an

accident by making sure the tug has steering while working with tank barges of 5,000 GT or more. Research on the 107 accidents attributed approximately $1.6 million in vessel damage and 428 barrels of oil spilled from 1989 to 1994 because the tug lost steering control while maneuvering tank barges of 5,000 GT or more. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The emergency steering capability requirement benefits will range from 67 to 150 barrels of unspilled oil and $79,766 to $179,474 dollars of undamaged property for the 19-year life of this rule.

Fendering systems. The estimated risk effectiveness factor range for fendering systems was established to be between 5 percent and 9 percent. This estimate reflects the anticipated effectiveness in reducing the risk of an accident due to damage by ensuring that the tank barge is protected from maneuvering tugs. Research on the 107 accidents attributed approximately $85,888 in vessel damage and 768 barrels of oil spilled from 1989 to 1994 because tugs ram the barge and either promote or create cracking. The estimated risk effectiveness factor range was multiplied by the cumulated benefits to estimate the requirement's benefit. The fendering system requirement benefits will range from 128 to 230 barrels of unspilled oil and $5,351 to $9,632 dollars of undamaged property for the 19-year life of this rule.

Cost-Benefit. The estimated cost-benefit for each measure was calculated by dividing the measure's present value net cost by the measure's present value barrels of unspilled oil. Net cost was calculated by subtracting the present value range of undamaged property, in dollars, from the present value cost of each measure. Estimates of damages to natural resources are not included in the net cost for this final rule. The net present value of the costs of various measures will range from $0 to $7,931 per barrel of unspilled oil. The overall mean present value of these operational measures is $2,025 per barrel of unspilled oil.

Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*), the Coast Guard must consider whether this rule will have a significant economic impact on a substantial number of small entities. ''Small entities'' may include (1) small businesses and not-for-profit organizations that are independently owned and operated and are not dominant in their fields, and (2) governmental jurisdictions with populations of less than 50,000. The Coast Guard has determined that this rule will not have a significant economic impact on a substantial number of small entities.

The operational measures will affect several small businesses within the maritime industry until 2015, a period of about 19 years. The Coast Guard has made this finding of no significant economic impact, however, after having determined that the flexibility in this rulemaking balances the requirements placed on tank barges and tankships and provides equitable treatment of U.S. and foreign flag vessels.

This rulemaking considered small business impact for vessels privately held by independent companies that have an estimated capital investment value of less than $500 million or have less than 500 employees. State and local governments, which altogether own less than a dozen tank vessels, will not be significantly affected. Not-for-profit organizations do not engage in the transportation of oil in bulk by water.

There are a number of companies meeting the definition of a small business operating in each segment of industry (tankship, tank barge, and towing vessel.) Of the 190 U.S. tankships affected by this final rule, 16 are owned by 6 small businesses. Many of these company's tankships are over 30 years old, have less cargo carrying capacity than their competition, and are laid up due to market or company financial conditions. Six small businesses own or operate 32 of the affected U.S. tank barge population. No foreign small businesses own or operate foreign tank vessels that will be affected by this final rule. Tank barge companies are required under this rule to enlist towing vessels with certain capabilities and trained personnel. Indirectly, some towing vessel companies may also be affected by these requirements; however, the Coast Guard has determined that most tank barge owners also own their towing vessels or regularly contract with a limited number of towing companies.

An economic impact is unavoidable because the statute clearly targets existing vessels of 5,000 GT or more that carry oil in bulk as cargo and do not have double hulls. The present value of the total cost to the industry of this rule, discounted at 7 percent to 1990, will total $106.3 million. However, the Coast Guard has several measures within this final rule to accommodate small business needs and provide flexibility to small entities affected by this final rule.

Flexibility and small business needs are accommodated in the enhanced survey requirement by allowing companies owning tank barges or tank vessels less than 30,000 deadweight tons (dwt) to conduct their own surveys and to choose among various organizations for program oversight. It also phases in this requirement over a 2.5-year period to enable small businesses to research their needs and plan for the implementation of an inspection program.

To accommodate small businesses in the tank barge industry, the cost of reconfiguring a towing vessel owned by the tank barge company was minimized by requiring the autopilot alarm to be an indicator; a simple sign placed on the wheel will suffice. This requirement gives a comparable warning in the small confines of the one-man towing vessel wheelhouse as will an alarm for the larger, multiple-person, complex bridge of a tankship. The emergency steering capability requirement accommodates a range of designs by allowing for either a secondary steering system or twin propulsion capability. This requirement allows the majority of tank barge companies to continue using their vessels or the vessels they typically lease; however, it also ensures that the master or operator will have some maneuvering capability in an electrical, hydraulic, or engine failure, which will be a benefit to all operators.

Smaller tankship companies should have the capability to conduct the maneuvering performance standard tests of IMO Resolution A.751(18). While the assessment cost of this item is for a commercial company to conduct the maneuvering tests, this rulemaking in no way prohibits a company form conducting the tests in-house. The guidelines and technical details of the tests are well documented and are within the capabilities of a licensed master or pilot. The equipment needed for these types of maneuvering tests, such as a Differential Global Positioning System (DGPS), is available on the commercial market at low cost.

Unfunded Mandate

Under the Unfunded Mandates Reform Act (Pub. L. 104–4), the Coast Guard must consider whether this rule will result in an annual expenditure by State, local, and tribal governments, in the aggregate, or by the private sector, of $100 million (adjusted annually for inflation). The Act also requires (in Section 205) that the Coast Guard identify and consider a reasonable number of regulatory alternatives and, from those alternatives, select the least costly, most cost-effective, or least burdensome alternative that achieves the objective of the rule.

The cost analysis completed for this rule estimates first-year compliance costs to be $60.5 million. Annual costs of this rule will trend downward, leveling out annually at $539,054 during 2012 through 2014, the final years that the rule will be in effect. This rule will not result in estimated costs of $100 million or more to either State, local, or tribal governments in the aggregate, or to the private sector. The cost-benefit analysis done for this rule addresses expected cost-effectiveness for each measure. For those measures that were estimated to be the most costly, alternative requirements, extended implementation periods, or provisions for the company to determine appropriate implementation on a case-by-case basis were included in this rule.

Collection of Information

Under the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), the Office of Management and Budget (OMB) reviews each rule that contains a collection-of-information requirement to determine whether the practical value of the information is worth the burden imposed by its collection. Collection-of-information requirements include reporting, recordkeeping, notification, and other, similar requirements.

This rule contains collection-of-information requirements in the following sections: §§ 157.415, 157.420, 157.430, 157,435, 157.445, 157.450, and 157.455. The following particulars apply:

DOT No.: 2115.

Administration: U.S. Coast Guard.

Title: Operational Measures to Reduce Oil Spills From Existing Tank Vessels Without Double Hulls

Need For Information: Without adequate operational measures on tank vessels, the potential for spills as a result of human error is greatly increased. This rule requires the mariner to log or otherwise record information that is necessary for the safe operation of the vessel including: (1) documentation for company management and the Coast Guard to ensure personnel are informed and systems are being surveyed both frequently and thoroughly; (2) accessibility to certain vessel specific maneuvering characteristics so that personnel navigating the vessel have a quick reference to critical information; (3) documentation of a vessel's command and control status to ensure a pilot receives accurate information prior to maneuvering evolutions; and (4) notification to company management (unless the company provides written guidance) of the vessel's anticipated under-keel clearance so that the company can ensure prudent clearance is maintained. These recordkeeping requirements are consistent with good commercial practice and the dictates of good seamanship for safe navigation and maintenance of vital equipment.

Proposed Use of Information: The primary use of this information will be for Coast Guard inspectors to determine if a vessel is in compliance or, in the case of a casualty, whether failure to meet these regulations contributed to the casualty. The Coast Guard has no specific plan to collect this data for statistical analysis.

Frequency of Response: Owners, master, or operators of tank vessels subject to this rule will be required to record or maintain the following documentation: (1) under § 157.415, develop bridge resource management policy and procedures; (2) under § 157.420, develop vessel specific watch policy and procedures; (3) under § 157.430, complete an enhanced survey during each drydock examination (this information must also be provided to the Coast Guard upon its request); (4) under § 157.435, by vessel log entry or similar means on board the vessel, record the results of each required vital systems survey; (5) under § 157.445(d), post test results for maneuvering performance capability; (6) under § 157.450, post the standardized IMO maneuvering information in the wheelhouse and complete a pilot card before entering the port or place of destination and prior to getting underway; (7) under § 157.455, calculate anticipated under-keel clearance before entering the port or place of destination and prior to getting underway.

Burden Estimate: 73,411 hours.

Respondents: 1,404.

Average Burden Hours Per Respondent: 52.29.

Persons are not required to respond to a collection of information unless it displays a currently valid OMB control number. The Coast Guard has submitted the requirements to OMB for review under section 3504(h) of the Paperwork Reduction Act, however, OMB approval has not been finalized. Individuals and organizations may submit comments by August 29, 1996 on the information collection requirements in this final rule and should direct them to the Executive Secretary, Marine Safety Council as indicated under **ADDRESSES** and to the Office of Information and Regulatory Affairs, OMB, New Executive Office Bldg., room 10235, 725 17th St. NW., Washington, DC 20503, Attention: Desk Officer for DOT. The Coast Guard will publish a notice in the Federal Register of OMB's decision to approve, modify, or disapprove the information collection requirements.

Federalism

The Coast Guard has analyzed this final rule under the principles and criteria contained in Executive Order 12612 (October 26, 1987) and has determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment.

Environment

The Coast Guard considered the environmental impact of this rule and concluded that preparation of an Environmental Impact Statement is not necessary. An Environmental Assessment and a Finding of No Significant Impact are available in the docket for inspection or copying where indicated under **ADDRESSES**.

The additional operational considerations required by this rule will enhance navigation safety and thereby reduce the likelihood of an oil spill or other environmental damage.

Two comments specifically addressed the issue of treating edible oils in the same manner as petroleum oil in the Environmental Assessment. One comment stated that the Coast Guard should exempt addressing animal fat, vegetable oil, and other non-petroleum oil carriers in the same manner as petroleum oil in the regulation based on the provisions of the Edible Oil Regulatory Reform Act (Pub. L. 104–55, 109 Stat. 546–547 [1995]). Another comment supported extending these regulations to existing tank vessels carrying non-petroleum oils and remarked that it is economically feasible and environmentally beneficial for these vessels to meet the operational requirements. The Coast Guard contends that bulk spills of animal fat, vegetable oil, and other non-petroleum oil can be damaging to the environment.

The Coast Guard has attempted to balance environmental protection with a recognition of the diverse requirements called for by different substances, such as non-petroleum oils. These substances are clearly harmful; and therefore, are regulated in a manner that recognizes their differences from other more toxic materials such as petroleum oils. Interpretations of statutes are governed by legal decisions which have granted agencies discretionary authority in areas committed to agency jurisdiction. The Coast Guard, as well as other agencies, have exercised this discretion. For these reasons, the Coast Guard has determined that a discharge of animal fat, vegetable oil, or other non-petroleum oil from a tank vessel could

reasonably be expected to cause harm to the environment.

As discussed in the Environmental Assessment, this rulemaking is expected to have no significant effect on the environment.

List of Subjects

33 CFR Part 157

Cargo vessels, Incorporation by reference, Oil pollution, Reporting and recordkeeping requirements.

46 CFR Part 31

Cargo vessels, Marine safety, Reporting and recordkeeping requirements.

46 CFR Part 35

Cargo vessels, Marine safety, Navigation (water), Occupational safety and Health, Reporting and recordkeeping requirements, Seaman.

For the reasons set out in the preamble, the Coast Guard amends 33 CFR part 157 and 46 CFR parts 31 and 35 as follows:

PART 157—RULES FOR THE PROTECTION OF THE MARINE ENVIRONMENT RELATING TO TANK VESSELS CARRYING OIL IN BULK

1. The authority citation for 33 CFR part 157 is revised to read as follows:

Authority: 33 U.S.C. 1903; 46 U.S.C. 3703, 3703a (note); 49 CFR 1.46. Subparts G, H, and I are also issued under section 4115(b), Pub. L. 101–380, 104 Stat. 520; Pub. L. 104–55, 109 Stat. 546.

2. Section 157.01(a)(2) is revised to read as follows:

§ 157.01 Applicability.

(a) * * *

(2) Any other vessel that enters or operates in the navigable waters of the United States, or that operates, conducts ligtering under 46 U.S.C. 3715, or receives cargo from or transfers cargo to a deepwater port under 33 U.S.C. 1501 *et seq.*, in the United States Exclusive Economic Zone, as defined in 33 U.S.C. 2701(8).

* * * * *

3. Section 157.02 is added to read as follows:

§ 157.02 Incorportion 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 paragraph (b) of 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 Office of the Federal Register, 800 North Capitol Street NW., suite 700, Washington, DC, and at the U.S. Coast Guard, Office of Operating and Environmental Standards (G–MSO), 2100 Second Street SW., Washington, DC 20593–0001, and is available from the sources indicated in paragraph (b) of this section.

(b) The material approved for incorporation by reference in this part and the sections affected are as follows:

International Maritime Organization (IMO)—4 Albert Embankment, London SE1 7SR, England.	
IMO Assembly Resolution A.601(15), Provision and Display of Manoeuvring Information on Board Ships, Annex sections 1.1, 2.3, 3.1, and 3.2 with appendices, adopted on 19 November 1987	157.450
IMO Assembly Resolution A.744(18), Guidelines on the Enhanced Programme of Inspections During Surveys of Bulk Carriers and Oil Tankers, Annex B sections 1.1.3–1.1.4, 1.2–1.3, 2.1, 2.3–2.6, 3–8, Annexes 1–10 with appendices, adopted 4 November 1993	157.430
IMO Assembly Resolution A.751(18), Interim Standards for Ship Manoeuvrability, Annex sections 1.2, 2.3–2.4, 3–4.2, and 5, adopted 4 November 1993 with Explanatory Notes in MSC/Circ. 644 dated 6 June 1994	157.445
Oil Companies International Marine Forum (OCIMF)—15th Floor, 96 Victoria Street, London, SW1E 5JW, England.	
International Safety Guide for Oil Tankers and Terminals, Fourth Edition, Chapters 6, 7, and 10, 1996	157.435

4. In § 157.03, the following definitions are added in alphabetical order to read as follows:

§ 157.03 Definitions.

* * * * *

Animal fat means a non-petroleum oil, fat, or grease derived from animals and not specifically identified elsewhere in this part.

* * * * *

Fleeting or assist towing vessel means any commercial vessel engaged in towing astern, alongside, or pushing ahead, used solely within a limited geographic area, such as a particular barge fleeting area or commercial facility, and used solely for restricted service, such as making up or breaking up larger tows.

* * * * *

Non-petroleum oil means oil of any kind that is not petroleum-based. It includes, but is not limited to, animal fat and vegetable oil.

* * * * *

Officer in charge of a navigational watch means any officer employed or engaged to be responsible for navigating or maneuvering the vessel and for maintaining a continuous vigilant watch during his or her periods of duty and following guidance set out by the master, international or national regulations, and company policies.

* * * * *

Other non-petroleum oil means an oil of any kind that is not petroleum oil, an animal fat, or a vegetable oil.

* * * * *

Petroleum oil means petroleum in any form including crude oil, fuel oil, mineral oil, sludge, oil refuse, and refined products.

Primary towing vessel means any vessel engaged in towing astern, alongside, or pushing ahead and includes the tug in an integrated tug barge. It does not include fleeting or assist towing vessels.

* * * * *

Vegetable oil means a non-petroleum oil or fat not specifically identified elsewhere in this part that is derived from plant seeds, nuts, kernels, or fruits.

* * * * *

5. The subpart heading of subpart G is revised to read as follows:

Subpart G—Structural And Operational Measures For Certain Tank Vessels Without Double Hulls Carrying Petroleum Oils

6. Section 157.400 is revised to read as follows:

§ 157.400 Purpose and applicability.

(a) The purpose of this subpart is to establish mandatory safety and operational requirements to reduce environmental damage resulting from petroleum oil spills.

(b) This subpart applies to each tank vessel specified in § 157.01 of this part that—

(1) Is 5,000 gross tons or more;

(2) Carries petroleum oil in bulk as cargo or cargo residue; and

(3) Is not equipped with a double hull meeting § 157.10d of this part, or an equivalent to the requirements of § 157.10d, but required to be equipped with a double hull at a date set forth in 46 U.S.C. 3703a (b)(3) and (c)(3).

7. Section 157.410(c) is revised to read as follows:

§ 157.410 Emergency lightering requirements for tank vessels.

* * * * *

(c) Reducers, bolts, and gaskets must meet the requirements of 46 CFR subpart 56.25. Cast iron and malleable iron must not be used.

8. Section 157.415 is added to read as follows:

§ 157.415 Bridge resource management policy and procedures.

(a) Not later than February 1, 1997, a tankship owner or operator shall provide written policy and procedures to masters and officers in charge of the navigational watch concerning the need for continuously reassessing how bridge-watch resources are being allocated and used, based on bridge resource management principles. This written policy and procedures must include vessel and crew specific examples that address the following:

(1) The number of qualified individuals that should be on watch to ensure that all duties can be performed effectively.

(2) The appropriate qualifications of all members of the navigational watch, the importance of confirming that all members of the watch are fit for duty, and the need to ensure that all members of the navigational watch are not impaired by fatigue.

(3) The need to take into account any known limitation in qualifications or fitness of individuals when making navigational and operational decisions.

(4) The need to be clear and unambiguous in assigning duties and the need to establish that the individual understands his or her responsibilities.

(5) The need to perform tasks in a clear order of priority and to adjust the priority of tasks as circumstances may require.

(6) The importance of assigning and reassigning members of the watch to locations where they can perform their duties most effectively.

(7) Conditions that warrant task reassignment among members of the watch.

(8) The instruments and equipment necessary for the effective performance of each task and appropriate actions if the instruments and equipment are not available or not functioning properly.

(9) The need for, and examples of, clear, immediate, reliable, and relevant communication among members of the navigational watch.

(10) The action to be taken to suppress, remove, and avoid nonessential activity and distractions on the bridge.

(11) The importance of collecting, processing, and interpreting all essential information and making it conveniently available to other members of the navigational watch and the pilot, as necessary to perform their duties.

(12) The need to ensure that nonessential materials are not placed on the bridge.

(13) The need to ensure that members of the navigational watch are prepared to respond at all times efficiently and effectively to changes in circumstances.

(b) Beginning not later than February 1, 1997, a tank barge owner or operator shall not permit the barge to be towed unless those individuals assigned to duties that are similar to the duties of the officer in charge of a navigational watch on the primary towing vessel have been provided written bridge resource management policy and procedures as specified in paragraph (a) of this section.

9. Section 157.420 is added to read as follows:

§ 157.420 Vessel specific watch policy and procedures.

(a) Not later than February 1, 1997, the owner or operator of a tankship shall provide written policy and procedures to masters concerning the need for each individual who is newly employed on board the vessel to have a reasonable opportunity to become familiar with the shipboard equipment, operating procedures, and other arrangements needed for the proper performance of their duties, before being assigned to such duties. This written policy and procedures shall be followed by the master and shall include the following:

(1) Allocation of a reasonable and appropriate time period for each newly employed individual to allow him or her the opportunity to become acquainted with the following:

(i) The specific equipment the individual will be using or operating; and

(ii) The vessel specific watchkeeping, safety, environmental protection, and emergency procedures and arrangements the individual needs to know to perform the assigned duties properly.

(2) Designation of a knowledgeable crew member who will be responsible for ensuring that an opportunity is provided to each newly employed individual to receive essential information in a language the individual understands.

(b) Beginning not later than February 1, 1997, a tank barge owner or operator shall not permit the barge to be towed unless those individuals assigned to duties as master or operator on the primary towing vessel have been provided written policy and procedures as specified in paragraph (a) of this section.

10. Section 157.430 is added to read as follows:

§ 157.430 Enhanced survey requirements.

Beginning at each tank vessel's next regularly scheduled drydock examination and continuing as required under 46 CFR part 31, or, for each foreign flagged tank vessel, beginning at the next drydock and continuing as required under the foreign vessel's flag administration, a tank vessel owner or operator shall—

(a) Implement an enhanced survey program that complies with the standards of IMO Resolution A.744(18), Annex B sections 1.1.3–1.1.4, 1.2–1.3, 2.1, 2.3–2.6, 3–8, and Annexes 1–10 with appendices;

(b) Implement a vessel specific survey program that provides a level of protection equivalent to the requirements in paragraph (a)(1) of this section and is approved by the Commandant (G–MOC). A written request for program equivalency under this paragraph must be submitted to the Commandant (G–MOC); or

(c) For a tankship of less than 20,000 deadweight tons (dwt) carrying crude oil, a tankship of less than 30,000 dwt carrying product, or a tank barge, implement an enhanced survey program that—

(1) Includes oversight of the program by the Coast Guard, the vessel's flag administration, an authorized classification society as described in § 157.04 of this part, or a licensed professional engineer;

(2) Has the frequency of survey which is no less than the inspections required by 46 CFR subpart 31.10;

(3) Has survey scope and recordkeeping requirements that are comparable to the requirements of paragraph (a)(1) of this section; and

(4) Includes keeping a copy of the most recent survey on board the vessel or, upon request by the Coast Guard, making the surveys available within 24 hours for examination.

11. Section 157.435 is added to read as follows:

§ 157.435 Vital systems surveys.

(a) A tank vessel owner or operator shall ensure that surveys of the following system are conducted:

(1) *Cargo systems.* The survey must include the examination and testing of the items listed in chapters 6, 7, and 10 of the International Safety Guide for Oil Tankers and Terminals, if applicable, prior to cargo transfer operations.

(2) *Mooring systems.* The survey must include a visual examination of the

emergency towline, the anchor releasing mechanism, and mooring lines prior to entering the port or place of destination, if weather permits, or prior to getting underway.

(b) Surveys must be conducted by company management personnel, company designated individuals, or vessel officers knowledgeable about the equipment operating parameters and having the authority, capability, and responsibility to initiate corrective action when the equipment is not functioning properly.

(c) The results of the survey required in paragraph (a) of this section, including the material condition of each system, must be recorded in the tank vessel's deck log or other onboard documentation.

12. Section 157.440 is added to read as follows:

§ 157.440 Autopilot alarm or indicator.

(a) A tankship owner or operator shall ensure that each installed autopilot unit without automatic manual override has an audible and visual alarm, which is distinct from other required bridge alarms, that will activate if the helm is manually moved while the autopilot is engaged.

(b) A tank barge owner or operator shall ensure that each autopilot unit without automatic manual override installed on the primary towing vessel has a means to clearly indicate the autopilot status and warns personnel of the requirement to disengage the autopilot if positive rudder control is needed.

13. Section 157.445 is added to read as follows:

§ 157.445 Maneuvering performance capability.

(a) A tankship owner or operator shall ensure that maneuvering tests in accordance with IMO Resolution A.751(18), section 1.2, 2.3–2.4, 3–4.2, and 5 (with Explanatory Notes in MSC/Circ.644) have been conducted by July 29, 1997. Completion of maneuvering performance tests must be shown by—

(1) For a foreign flag tankship, a letter from the flag administration or an authorized classification society, as described in § 157.04 of this part, stating the requirements in paragraph (a) of this section have been met; or

(2) For a U.S. flag tankship, results from the vessel owner confirming the completion of the tests or a letter from an authorized classification society, as described in § 157.04 of this part, stating the requirements in paragraph (a) of this section have been met.

(b) If a tankship undergoes a major conversion or alteration affecting the control systems, control surfaces, propulsion system, or other areas which may be expected to alter maneuvering performance, the tankship owner or operator shall ensure that new maneuvering tests are conducted as required by paragraph (a) of this section.

(c) If a tankship is one of a class of vessels with identical propulsion, steering, hydrodynamic, and other relevant design characteristics, maneuvering performance test results for any tankship in the class may be used to satisfy the requirements of paragraph (a) of this section.

(d) The tankship owner or operator shall ensure that the performance test results, recorded in the format of Appendix 6 of the Explanatory Notes in MSC/Circ.644, are prominently displayed in the wheelhouse.

(e) Prior to entering the port or place of destination and prior to getting underway, the tankship master shall discuss the results of the performance tests with the pilot while reviewing the anticipated transit and the possible impact of the tankship's maneuvering capability on the transit.

14. Section 157.450 is added to read as follows:

§ 157.450 Maneuvering and vessel status information.

A tankship owner, master, or operator shall comply with IMO Resolution A.601(15), Annex sections 1.1, 2.3, 3.1, and 3.2, with appendices.

15. Section 157.455 is added to read as follows:

§ 157.455 Minimum under-keel clearance.

(a) Prior to entering the port or place of destination and prior to getting underway, the master of a tankship that is not fitted with a double bottom that covers the entire cargo tank length shall meet the following requirements:

(1) The tankship's deepest navigational draft must be calculated and include—

(i) The mean draft;

(ii) The trim and list characteristics; and

(iii) The intended transit speed and the corresponding squat characteristics, if known.

(2) The anticipated controlling depth must be calculated and include—

(i) Tide and current conditions;

(ii) Present sea state conditions;

(iii) Past weather impact on water depth;

(iv) The depth at the facility or anchorage; and

(v) The depth of the transit area found in the publication and chart materials required to be on board the tankship by 33 CFR part 164.

(3) The anticipated under-keel clearance must be calculated by subtracting the tankship's deepest navigational draft from the anticipated controlling depth. The tankship's calculated deepest navigational draft, anticipated controlling depth, and the calculated anticipated under-keel clearance must be recorded in the tankship's log or in other onboard documentation.

(4) The tankship shall discuss with the pilot the anticipated under-keel clearance calculation and its possible impact on the tankship's planned transit.

(5) The tankship master shall—

(i) Inform the tankship owner or operator of the calculated anticipated under-keel clearance, unless the owner or operator has provided the master with written port specific under-keel clearance guidance.

(ii) Record the communication with the owner or operator in the tankship's log or other documentation, if there is no written port specific under-keel clearance guidance provided by the owner or operator.

(6) Having been informed by the master of the anticipated under-keel clearance, the owner or operator shall not allow the tankship to proceed if the tankship's transit would not be prudent considering, but not limited to, the anticipated under-keel clearance, any COTP under-keel clearance guidance, and the pilot's recommended clearance.

(b) The owner or operator of a tank barge, that is not fitted with a double bottom that covers the entire cargo tank length, shall not permit the barge to be towed unless the primary towing vessel master or operator has been provided with written port specific under-keel clearance guidance that includes—

(1) Port specific minimum under-keel clearance requirements;

(2) Factors to consider when calculating the tank barge's deepest navigational draft;

(3) Factors to consider when calculating the anticipated controlling depth;

(4) Consideration of port specific weather or environmental conditions; and

(5) Conditions which mandate when the tank barge owner or operator shall be contacted prior to port entry or getting underway; if no such conditions exist, the guidance must contain a statement to that effect.

16. Section 157.460 is added to read as follows:

§ 157.460 Additional operational requirements for tank barges.

(a) *Emergency steering capability.* The owner or operator of each tank barge

shall not permit the barge to be towed unless, by November 27, 1997, the primary towing vessel has—

(1) A steering gear system with a main power unit, an alternative power unit, and two remote steering gear control systems, except that separate steering wheels or steering levers are not required. The steering gear control systems must be arranged so that if the system in operation fails, the other system can be brought into immediate operation from a position on the navigating bridge; or

(2) Twin screw propulsion with separate control systems for each propeller.

(b) *Fendering system* An owner or operator of a tank barge shall not permit the barge to be towed unless the primary towing vessel and any fleeting or assist towing vessels have a fendering system that is of substantial size and composition to prevent metal to metal contact between the towing vessel and the barge during maneuvering operations.

17. Subpart H, consisting of §§ 157.500 and 157.510, is added to read as follows:

Subpart H—Structural and Operational Measures for Certain Tank Vessels Without Double Hulls Carrying Animal Fat or Vegetable Oil

Sec.
157.500 Purpose and applicability.
157.510 Operational measures.

Subpart H—Structural and Operational Measures for Certain Tank Vessels Without Double Hulls Carrying Animal Fat or Vegetable Oil

§ 157.500 Purpose and applicability.

(a) The purpose of this subpart is to establish mandatory safety and operational requirements to reduce environmental damage resulting from the discharge of animal fat or vegetable oil.

(b) This subpart applies to each tank vessel specified in § 157.01 of this part that—

(1) Is 5,000 gross tons or more;

(2) Carries animal fat or vegetable oil in bulk as cargo or cargo residue; and

(3) Is not equipped with a double hull meeting § 157.10d of this part, or an equivalent to the requirements of § 157.10d, but required to be equipped with a double hull at a date set forth in 46 U.S.C. 3703a (b)(3) and (c)(3).

§ 157.510 Operational measures.

An owner or operator of a tank vessel that carries animal fat or vegetable oil in bulk as cargo or cargo residue shall comply with the requirements in all sections of subpart G of this part.

18. Subpart I, consisting of §§ 157.600 and 157.610, is added to read as follows:

Subpart I—Structural and Operational Measures for Certain Tank Vessels Without Double Hulls Carrying Other Non-Petroleum Oil

Sec.
157.600 Purpose and applicability.
157.610 Operational measures.

Subpart I—Structural and Operational Measures for Certain Tank Vessels Without Double Hulls Carrying Other Non-Petroleum Oil

§ 157.600 Purpose and applicability.

(a) The purpose of this subpart is to establish mandatory safety and operational requirements to reduce environmental damage resulting from the discharge of other non-petroleum oil.

(b) This subpart applies to each tank vessel specified in § 157.01 of this part that—

(1) Is 5,000 gross tons or more;

(2) Carries other non-petroleum oil in bulk as cargo or cargo residue; and

(3) Is not equipped with a double hull meeting § 157.10d of this part, or an equivalent to the requirements of § 157.10d, but required to be equipped with a double hull at a date set forth in 46 U.S.C. 3703a (b)(3) and (c)(3).

§ 157.610 Operational measures.

An owner or operator of a tank vessel that carries other non-petroleum oil in bulk as cargo or cargo residue shall comply with the requirements in all sections of subpart G of this part.

PART 31—INSPECTION AND CERTIFICATION

19. The authority citation for 46 CFR part 31 continues to read as follows:

Authority: 33 U.S.C. 1321(j); 46 U.S.C. 2103, 3306, 3703; 49 U.S.C. 5103, 5106; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; 49 CFR 1.46. Section 31.10–21a also issued under the authority of Sect. 4109, Pub. L. 101–380, 104 Stat. 515.

20. In § 31.10–21, table (a) is revised to read as follows:

BILLING CODE 4910–14–M

TABLE 31.10-21(a).--SALT WATER SERVICE VESSELS EXAMINATION INTERVALS IN YEARS

	Ship and single hull barge[9]	Double hull barge with internal framing[1]	Double hull barge with external framing[2]	Single hull barge with independent tanks[3, 9]	Wood hull ship and barge	Ship and single hull barge Grade D and E cargoes only[4, 9]	Double hull barge Grade D and E cargoes only[5]	Single hull asphalt barge[6, 9]	Double hull asphalt barge[7]
Drydock.....	2.5	5.0	5.0	5.0	2.5	2.5	5.0	2.5	5.0
Internal structural.....	2.5	2.5	2.5	2.5	5.0	5.0	2.5	10.0	2.5
Cargo tank internal..	[8]2.5	[8]5.0	[8]10.0	[8]10.0	[8]2.5	5.0	10.0	10.0	15.0

Notes:

[1]Applicable to double hull tank barges (double sides, ends, and bottoms) when the structural framing is on the internal tank surface.

[2]Applicable to double hull tank barges (double sides, ends, and bottoms) when the structural framing is on the external tank surface accessible for examination from voids, double bottoms, and other similar spaces.

[3]Applicable to single hull tank barges with independent cargo tanks where the cargo tanks are not a contiguous part of the hull structure and which has adequate clearance between the tanks and between the tanks and the vessel's hull to provide access for examination of all tank surfaces and the hull structure.

[4]Applicable to single hull tankships and tank barges certificated for the carriage of Grade D and E cargoes only.

[5]Applicable to double hull tank barges (double sides, ends, and bottoms) certificated for the carriage of Grade D and E cargoes only.

[6]Applicable to single hull tank barges certificated for the carriage of asphalt only.

[7]Applicable to double hull tank barges (double sides, ends, and bottoms) certificated for the carriage of asphalt only.

[8]Or as specified in part 38 or 151 as applicable

[9]Enhanced survey requirements apply as specified in 33 CFR part 157.

21. In § 31.10–21, table (b) is revised to read as follows:

TABLE 31.10-21(b).-- FRESH WATER SERVICE VESSELS EXAMINATION INTERVALS IN YEARS

	Ship and single hull barge[9]	Double hull barge with internal framing[1]	Double hull barge with external framing[2]	Single hull barge with independent tanks [3, 9]	Wood hull ship and barge	Ship and single hull barge Grade D and E cargoes only [4, 9]	Double hull barge Grade D and E cargoes only[5]	Single hull asphalt barge [6, 9]	Double hull asphalt barge [7]
Drydock.....	5.0	10.0	10.0	10.0	2.5	5.0	10.0	5.0	10.0
Internal structural.....	5.0	5.0	5.0	5.0	5.0	5.0	5.0	10.0	5.0
Cargo tank internal..	[8]5.0	[8]5.0	[8]10.0	[8]10.0	[8]2.5	5.0	10.0	10.0	15.0

Notes:

[1]Applicable to double hull tank barges (double sides, ends, and bottoms) when the structural framing is on the internal tank surface.

[2]Applicable to double hull tank barges (double sides, ends, and bottoms) when the structural framing is on the external tank surface accessible for examination from voids, double bottoms, and other similar spaces.

[3]Applicable to single hull tank barges with independent cargo tanks where the cargo tanks are not a contiguous part of the hull structure and which has adequate clearance between the tanks and between the tanks and the vessel's hull to provide access for examination of all tank surfaces and the hull structure.

[4]Applicable to single hull tankships and tank barges certificated for the carriage of Grade D and E cargoes only.

[5]Applicable to double hull tank barges (double sides, ends, and bottoms) certificated for the carriage of Grade D and E cargoes only.

[6]Applicable to single hull tank barges certificated for the carriage of asphalt only.

[7]Applicable to double hull tank barges (double sides, ends, and bottoms) certificated for the carriage of asphalt only.

[8]Or as specified in part 38 or 151 as applicable

[9]Enhanced survey requirements apply as specified in 33 CFR part 157.

BILLING CODE 4910–14–C

PART 35–OPERATIONS

22. The authority citation for 46 CFR part 35 continues to read as follows:

Authority 33 U.S.C. 1321(j); 46 U.S.C. 3306, 3703, 6101; 49 U.S.C. 5103, 5106; E.O. 12234, 45 FR 58801, 3 DRR, 1980 Comp., p. 277; E.O. 12777, 56 FR 54757, 3 CFR, 1991 Comp., p. 351; 49 CFR 1.46.

23. Section 35.01–40(c) is revised to read as follows:

§ 35.01–140 Prevention of oil pollution—TB/ALL.

* * * * *

(c) 33 CFR parts 151, 155, 156, 157, and 164.

Dated: July 24, 1996.

R.D. Herr,

Vice Admiral, U.S. Coast Guard, Acting Commandant.

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