

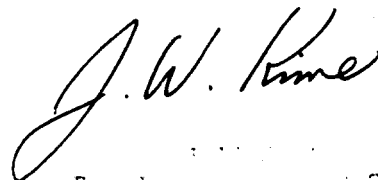
NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-87

Subj: Guidance on Implementation of Annex II of the MARPOL Protocol of 73/78 For Vessels Carrying Noxious Liquid Substances (NLS) In Bulk

1. PURPOSE. The purpose of this circular is to provide guidance regarding the implementation of Annex II of MARPOL 73/78 and the issuance of the appropriate certificates to vessels carrying noxious liquid substances in bulk. Also included are enforcement guidelines for vessels not in compliance with Annex II and related regulations.
2. BACKGROUND. Annex II of MARPOL 73/78 will enter into force on 6 April 1987. The design and operating requirements of the Annex are intended to control operational pollution and reduce accidental pollution resulting from groundings and collisions. The U.S. is a Party to this Convention. The Act to Prevent Pollution From Ships (33 USC 1901 et. seq.) authorized the Secretary of Transportation to administer and enforce Annex II of MARPOL 73/78 and this authority has been subsequently delegated to the Coast Guard at 49 CER 1.46( hh). This Annex applies to all vessels carrying noxious liquid substances (NLS) in bulk. A list of these substances, categorized as A, B, C, or D according to the degree of harm they present to the marine environment, is contained in the Annex. Any self-propelled and oceangoing non-self-propelled vessels carrying these substances in bulk must have the appropriate certification to indicate that they have been inspected and approved for such carriage.
3. DISCUSSION.
  - a. The Coast Guard has developed regulations to implement Annex II which will apply to self-propelled and oceangoing non-self-propelled U.S. vessels and foreign flag vessels trading in U.S. waters that carry noxious liquid substances in bulk. These regulations are contained in 46 CFR Parts 98, 151 and 153 and 33 CER Part 151.
  - b. This NVIC provides guidance to vessel owners and operators and Coast Guard marine inspection field personnel on conducting the initial and subsequent inspections and examinations of U.S. and foreign vessels carrying NLS as required by the regulations, and instructions on completing the appropriate certificates. This information is contained in enclosure (1). Separate guidance is being promulgated which will address the duties of the prewash surveyor, routine verifications of prewash procedures, and implementation of those MARPOL requirements applicable to reception facilities.
  - c. Enclosure (2) provides uniform guidelines for the enforcement of the NLS regulations and Annex II requirements for both U. S. and foreign vessels. These guidelines are based upon those agreed to internationally by the International Maritime Organization ('MO).

4. PROCEDURES.

- a. Enclosure (1) will be used as a guide by marine inspection personnel in conducting the initial and subsequent inspections and examinations of vessels carrying noxious liquid substances in bulk to ensure that they meet the requirements of 46 CFR Parts 98, 151 or 153 or 33 CFR Part 151. This NVIC will also be an aid to vessel owners and operators in determining what to expect for a given inspection.
- b. The Coast Guard Officer in Charge, Marine Inspection (OCMI) will conduct the appropriate inspections and examinations as outlined in enclosure (1) based upon the cargos intended to be carried by a vessel.
- c. Upon conditional approval of the Procedures and Arrangements Manual by the Marine Safety Center (MSC) and satisfactory completion of the inspection, the OCMI will issue the appropriate certificate(s) endorsed for the specific cargos which have been approved for carriage. It should be noted that issuance of an 'MO Certificate of Fitness is predicated on requirements other than those dealing strictly with noxious liquid substances.
- d. A foreign flag vessel having a valid Certificate of Fitness or NLS Certificate will be issued a Certificate of Compliance (COC) (currently Letter of Compliance) and Subchapter O Endorsement (SOE) upon satisfactory completion of a COC examination and the survey detailed in enclosure (1). If a vessel already has a valid COC (LOC), Commandant (G-MTH) will issue the SOE to the COC, as detailed in enclosure (1), upon acceptance of the vessel's Certificate of Fitness (COF). On such a vessel a spot examination should be conducted to verify compliance with the Annex II requirements, however a complete COC examination would not be necessary. If a foreign flag vessel does not have a Certificate of Fitness or NLS Certificate which is recognized by the Coast Guard as demonstrating compliance with Annex II, it will be required to meet all the Annex II related requirements applicable to U.S. vessels.
- e. Enclosure (2) will be used as a guide in determining the enforcement action to be taken when vessels are found not to be in compliance with Annex II and related U. S. regulations. The enforcement action to be taken is predicated upon a vessel's degree of compliance and what action has been taken<sup>1</sup> and continues to be taken, to bring the vessel into compliance.
- f. The INO Certificate of Fitness (CG-5148B), International Certificate of Fitness (CG-51485), and NLS Certificate (CG-5461) may all be ordered through Supply Center Brooklyn by using stock numbers 7530-01-G12-8670, 7530-01-GF3-2070, and 7530-01-G13-2090, respectively. All certificates are issued in packages of 50.



Commandant  
U.S. Coast Guard

Director, Office of Distribution

NAVIGATION AND VESSEL INSPECTION CIRCULAR NO. 5-87

- End: (1) Guidelines for Conducting Annex II of MARPOL 73/78 Surveys and Issuing The Appropriate Certificates  
(2) Guidelines for the Enforcement of the Provisions of Annex II Relating to Vessel Equipment Installations and Inspections

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ZTC-68.

Guidelines for Conducting Annex II of  
MARPOL 73/78 Surveys and Issuing  
The Appropriate Certificates

Part I  
DEFINITIONS

There are numerous terms that have come into being as a result of Annex II of MARPOL 73/78. The majority of these definitions may be found in 46 CFR 151.03, 46 CFR 153.2, and 33 CFR 151.05 (Regulation 1 of Annex II). Some of the most significant of these and other important definitions are also given below with supplementary information. Since some of the following definition. have been abbreviated for clarity, the appropriate regulations and/or Annex II should be checked for more exact definitions.

1. Noxious liquid substance (NLS) - these are substances listed in Table 1 of 46 CFR Part 153 and 33 CFR 151.47 (Appendix II of Annex II.) Although NLS's are also listed in 46 CER 151.12-5 and 33 CFR Part 151.49, these substances are also included in Table 1 of 46 CFR Part 153.
2. Special Areas - these are areas that are specifically designated as such because of their unique oceanographic and ecological condition. At present, the only designated "special areas" for Annex II are the Black Sea and the Baltic Sea. COI's of U.S. vessels carrying NLS must be specifically endorsed to operate in such areas. Since it is not anticipated that there will be any U.S. vessels operating in these areas, information on the additional requirements applicable to these areas is not included in this NVIC. Any questions regarding these additional requirements should be directed to Commandant (G-MTH).
3. International Bulk Chemical Code (IBC Code) - this is the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals In Bulk. It applies to all new (built after 30 June 1986) chemical tank vessels. The IBC may be applied to an existing vessel instead of the BCH if the owner so desires.
4. Bulk Chemical Code (BCH Code) - The Code for the Construction and Equipment of Ship s Carrying Dangerous Chemicals in Bulk. It applies to existing (built before 1 July 1986) chemical tank vessels.
5. Category A, B, C, and D NLS - these are the four categories of noxious liquid substances based upon the threat they pose to the marine environment if released. Those in category A present the greatest hazard to the marine environment while category D substances are the least hazardous.
6. Procedures and Arrangements (P&A) Manual - 46 CFR 153.490(a)(2) and 33 CER 151.37(b)(I) require an approved manual for every vessel carrying NLS except those offshore supply vessels (OSV's) which do not discharge NLS at sea. This manual must contain detailed information on cargo handling equipment, installed systems, and operational procedures concerned with the NLS the ship is permitted to carry in order for it to comply with the discharge provisions of Annex II. Detailed requirements for P & A manuals are contained in Part II of this NVIC.
7. Prewash - this is the washing of cargo tanks after cargo is discharged as required by 46 CIR 153.1108, 1112, 1116, and 1118. Whether or not a prewash is required depends upon a vessel's operating area, category of cargo carried, and whether or not the cargo is solidifying or high viscosity. Requirements for prewash procedures are contained in 46 CIR 153.1120.

8. Cycle - this is the period between two consecutive identical orientations of a washing machine. The minimum number of cycles for the different categories of cargo, based upon whether or not they are solidifying, are specified in Table 153.1120 of 46 CFR (Table EI of Appendix B of the "Standards"). Some machines have two nozzles. For these machines tank surfaces are washed two times in a single cycle.
9. Cargo Record Book - this is a book required on all ships carrying NLS. U.S. vessels must use form CG-4602B and those of foreign vessels must meet Appendix IV of Annex II.
10. Oil-like substances - these are NLS's that are listed in 33 CFR 151.49. As an alternative to carrying these NLS's under 46 CFR 153 the oil-like cargos may be carried by a tank vessel under the requirements of Annex I to MARPOL 73/78 if the requirements of 33 CFR 151 Subpart C are met. NVIC 9-86 contains information on tank vessels carrying oil-like NLS.
11. Oceangoing - the definition in 33 CFR 151.05(j) includes all vessels with ocean routes and those with coastwise routes which operate beyond the territorial sea or more than three miles from land. However, under 46 CIL 153.1(b)(4), certain vessels such as barges certificated for lakes, bays, and sounds routes which have an endorsement to also operate in the intracoastal waterway or between St. Marks, FL, and Carrabe lie, FL, not more than 20 miles offshore are excluded from meeting the Annex II requirements.
12. Ship - this term includes all vessels, such as barges, platforms, and OSV's, for the purposes of 33 CFR Part 151 and 46 CFR Parts 98, 151, and 153.

## PART II P & A MANUALS

Procedures and Arrangements Manuals are conditionally approved by the Marine Safety Center for U.S. vessels and foreign vessels of nations not signatory to Annex II. Foreign vessels must have a manual that is written in the language of the crew's officers with a translation into either English or French. The P & A manual must be approved by the home government or its designated representative. The basic contents of the manuals have been standardized by Chapter 2 and Appendix D of the 'MO "Standards for Procedures and Arrangements for the Discharge of Noxious Liquid Substances," Resolution MEPC 18(22), 1985 (the "Standards"). 46 CFR 153.490(b) contains the requirements for P & A manuals which includes a requirement that they meet these "Standards." The contents of manuals must be vessel specific and include the following:

1. A description of the main features of Annex II of MARPOL 73/78.
2. Description of the ship's equipment and arrangements including cargo heating and temperature control, discharge arrangements, schematic of cargo pumping and stripping systems, control equipment, and cargo pump information.
3. Cargo unloading and tank stripping procedures including any restrictions such as list or trim.
4. Detailed procedures relating to the cleaning of cargo tanks, residue discharge, ballasting, and deballasting.
5. A table listing each NLS that can be carried, its category, tanks it can be carried in, melting point, viscosity at 20<sup>o</sup>c, if its residues can be removed by ventilation, and if it's miscible (soluble) in water.

6. A table of cargo tank information including the tank designation, capacity, stripping quantity<sup>1</sup>, total residue<sup>2</sup>, and approved stripping level<sup>3</sup>.
7. Procedures to be followed when a cargo tank cannot be unloaded in accordance with required procedures.
8. The applicable portions of the flow diagrams contained in Addendum A of Appendix D of the "Standards" which address tank cleaning and disposal procedures for 1113 residue..
9. Prewash procedures which include the following:
  - a. Washing machines to be used, their positions, minimum number of cycles or estimated time to complete each prewash for the types of cargos carried, and minimum wash water pressure.
  - b. Minimum wash water temperature and any special procedures for solidifying or high viscosity substances.
  - c. Slops pumping out procedures.
  - d. Instructions for any cleaning agents that are used.
10. Ventilation procedures which may be used only for cargo. with vapor pressures greater than  $5 \times 10^{-3}$  Pa at 20°C.
  - a. ventilation positions to be used,
  - b. minimum flow or speed of fans,
  - c. procedures for venting pipelines, pumps, filters, etc.; and
  - d. procedures for determining that tanks are dry when ventilation is completed ( Drager tube sampling of tank atmosphere, visual inspection, etc).
11. Determination of permitted residue discharge rates specified in 46 CFR 153.481(b) for category B substances from existing vessels operating under the interim alternative standards allowed by this paragraph (Regulation 5A(2)(b) of Annex II). There should also be information on how the vessel meets the recording device requirements of 46 CER 153.481(b).
12. Any other information or operational instructions required by the home administration (MSC for U. S. vessels).

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<sup>1</sup> This is the amount of water collected from the cargo tank and associated piping after the initial stripping test required by 46 CIR 153.1602. For U.S. vessels this test must be witnessed by a Coast Guard marine inspector.

<sup>2</sup> This is the total residue left in the tank and piping after the stripping test (stripping quantity) plus the tank clingage. It only applies to existing ships which come under the alternative interim provisions of 46 CYL 153.481 and 482.

<sup>3</sup> This is the maximum amount of residue allowed to remain in the tank and piping after stripping by 46 CIR 153.480, 481, and 482 (maximum is either .1, .3, or .9<sup>3</sup>) after routine cargo discharges.

### Part III Initial Surveys

Whenever a U.S. vessel owner desires to carry a NIS cargo, application for such, along with other required information, must be submitted in accordance with 46 CFR 153.8 unless the NLS is to be carried in a marine portable tank under 46 CER Part 98. For a tank vessel which is intended to carry category C or D oil-like NLS in accordance with Annex I, see 33 CFR 151.37, 151.41, and paragraph 6.1.4 of Part III of Enclosure (1) to NVIC 9-86.

When the cargo system plans and P&A manual are conditionally approved by the MSC, a marine inspector will conduct an initial survey to verify that the arrangements and particulars of the cargo systems for NLS are in accordance with them. It will also be necessary to determine the stripping quantity and total residue so that this information can be entered in the P & A manual. In those instances where a vessel owner may desire to conduct the stripping tests prior to the conditional approval of the P & A manual by the NSC, the marine inspector should conduct the tests in accordance with the P & A manual aboard. This manual should be the same as the one submitted to the MSC for approval. The initial inspection should include checks of the following:

1. Tank washing equipment such as number and types of washing machines, whether fixed or portable, location of tank washing openings, heating system capable of heating wash water to at least 60°C (140°F) at the washing machine nozzle, and that the tank washing machines are in working order. It is not intended that the inspector verify that the tank washing machines can reach all interior surfaces.
2. The Cargo Record Book to see that it is Form CG-4602B and is properly maintained in accordance with 46 CFR 153.909.
3. Equipment for removal of cargo residues by ventilation procedures, if applicable. This includes the number and capacity of fans, location of ventilation openings, ventilation hoses/piping, ventilation possibilities for cargo lines, and the means for determining whether the cargo tank is dry. The inspector should determine that the fans are in working order. Specific requirements are in 46 CFR 153.486.
4. The underwater discharge outlet(s) is of the proper size and location as specified in 46 CFR 153.470. The location must be such as to not allow the NLS to enter any of the vessel's seawater inlets. For existing vessels, the underwater discharge outlet is not required until January 1, 1988. Existing vessels intended to carry category B NLS and operate under the interim alternative stripping performance standard (1m<sup>3</sup> or 1/3,000 thousand of tank capacity, whichever is greater) must also have a recording and control system as specified in 46 CFR 153.481(b). This system must be checked for proper operation and accurate recording. Also, if the flow rate must be controlled, then the 151 and 251 criteria set forth in 46 CIR 153.481(b)(3) & (4), respectively, must be verified. For vessels that discharge category B NLS from slop tanks the flow rates specified in 46 CFR 153.1126(b) must be verified.
5. Cargo heating system and temperature sensors required for solidifying and high viscosity category A, B, and C NLS must be checked for compliance with 46 CFR 153.488 and 440(a)(3), respectively. This should include a test to see that the heating system in fact works and that the temperature sensor accurately measures the temperature. Remote reading thermometer means one which can be read from outside the tank. Tanks intended to carry high melting point category B cargos must have sides and bottom which are separate from the ship's side and bottom hull plating (46 CFR 153.488(b)).

6. Any discrepancies noted should be brought to the attention of the Marine Safety Center (MSC) and a determination made as to whether or not the plans/P&A manual must be corrected or the installation aboard the vessel changed to reflect what is indicated in the plans/P&A manual.
7. Once the arrangements and cargo system is checked and any discrepancies corrected, an operational test must be conducted to check the efficiency of the stripping system to see that it meets 46 CFR 153.480, .481, or .482, as appropriate. The standards for the efficiency of the stripping system are dependent upon whether the vessel is new or existing and whether it will carry category B or C NLS. The table below summarizes these requirements:

Cargo Category	CONSTRUCTED After 30 June 1986	CONSTRUCTED Before 1 July 1986	
	Efficient stripping permanently acceptable	Efficient stripping permanently acceptable	Interim alternative until 2 October 1994
Cat. A	-	-	-
Cat. B	0.1 m <sup>3</sup>	0.3 m <sup>3</sup>	1.0 m <sup>3</sup> or 1/3000 of tank capacity*
Cat. C	0.3 m <sup>3</sup>	0.9 m <sup>3</sup>	3.0 m <sup>3</sup> or 1/1000 of tank capacity*
Cat. D	-	-	-

\* Whichever is greater. Includes surface clingage.

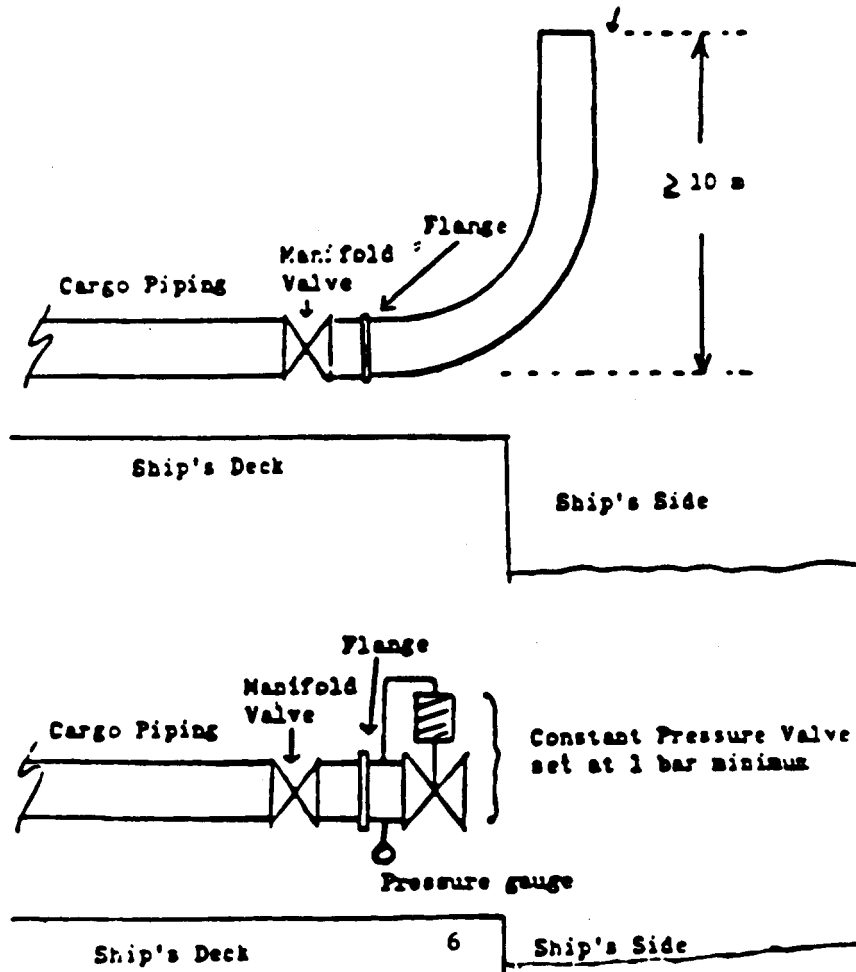
It should be noted that for the test, there is a 50 liter (.05m<sup>3</sup>) allowance which is reflected in 46 CFR 153.480, .481, and .482.

Only one stripping test need be conducted for each category B and C NLS cargo tank. The standards for the highest category of NLS to be carried in the tank must be met. For those cargo tanks which are identical (size, internal structures, pump and sump locations, types and capacities of pumps, and stripping equipment and methods) only one of these tanks need be tested. In such instances, the tank tested should be the one located furthest from the manifold. However, the number of tanks tested should not be less than 25% of the total number intended to carry NLS. If the vessel intends to conduct stripping tests in different ports, the marine inspector in each involved port should complete a Special Inspection Report to document what items have been checked, what tanks have been tested, the results of any tests, and any discrepancies noted either with the vessel or P & A manual. A copy of the Special Inspection Report should be placed in the P & A manual and left with the master for use in next test port.

The following guidelines supplement the requirements for testing stripping efficiency contained in Subpart D of 46 CFR 153. Water should be used as the testing medium.

- a. The vessel must be at the most adverse position of list and trim as indicated by the P&A manual. 46 CFR 153.1602(b)(4) requires that this position be maintained throughout the stripping test.
- b. A backpressure of at least 1 atm (1 bar) must be maintained at the cargo tank's unloading manifold. This backpressure may be accomplished by the methods illustrated in the figures below.





- c. The tank(s) to be tested must be gas free and "safe for workers."
- d. The tank and associated piping must be clean before the test, but need not be dry.
- e. Means must be available to accurately measure the amount of water collected from the tank and associated piping after stripping. If a calibrated container is used for measuring the stripping quantity, it must be accurate to  $\pm 5\%$ . An uncalibrated container of normal configuration may be used for measuring the "stripping quantity" if the marine inspector can readily calculate the volume of residue based on the container's dimensions and depth of residue. Additionally, equipment must be available for removing and collecting any water remaining in the tank and piping after stripping is completed. This equipment may consist of squeegees, buckets, a wet vacuum, positive displacement pump, or an educator with an air/water separator in line.
- f. The tank should be filled with water to a depth equal to that at which stripping is commenced as stated in the P&A manual. The amount of water used should at least be enough to cover the bottom of the tank.
- g. Following the procedures in the P&A manual, the tank is to be pumped and stripped.
- h. Upon completion of stripping, the discharge manifold on deck is to be secured.

- i. Except for the manifold valve, all valves in the system for the tank being tested must be opened to allow any water to drain back to the tank. Also, any cargo pump foot valve must be opened to allow trapped water to drain to the tank.
- j. Collect all water from the following areas:
  - (1) Cargo pump sump;
  - (2) Any puddles on the tank bottom; and
  - (3) All low point drains in the affected cargo piping system up to the manifold valve. Either drains installed in the piping may be used, or flanged connections may be broken to collect any residue water. It should be noted that any water collected from a cargo line servicing more than one tank may be equally apportioned between such tanks provided that the vessel owner has requested this and the P&A manual specifies that no tank associated with that portion of piping be washed until all the tanks associated with that piping have been discharged. Any water trapped in dead end pipe sections must also be either collected or its quantity calculated based upon the pipe dimensions, the pipe geometry, and conditions of the ship's list and trim.
- k. All water collected from the tank and associated piping must be measured in the container mentioned in paragraph 5 above. Any amounts of water in dead end piping that were calculated must be added to the measured amount to determine the "stripping quantity." This quantity must be entered in the cargo information table of the P&A manual.
- l. To ensure that the MSC was able to accurately evaluate the tank clingage calculations submitted by the vessel owner (required only on existing vessels using interim alternative standards), the internal structural members of the tank must be compared to approved plans to see that they accurately reflect what is installed.
- m. Any required clingage calculations must be completed prior to the stripping test so that they may be added to the "stripping quantity" to determine the "total residue" at the time the test is conducted. If the "total residue" is within the limits allowed by 46 CFR 153.481(b) or 153.482(b) for category B and C NLS, respectively, these amounts will be entered in the cargo tank information table of the P & A manual. If the total residue exceeds the allowed amount, steps must be taken to alter the procedures followed or the vessel's arrangement and another stripping test conducted.
- n. Although it is intended that only one stripping test be conducted, it may be necessary or desirable to conduct more than one test. If this is the case, then the average of all stripping quantities from the several tests will be taken as the final figure provided that no modifications are made to the tank, pumping system, or stripping procedures for the different tests. If modifications are made to the tank, pumping system, or stripping procedures, then the stripping quantity will be that determined from the test(s) performed after the last modification.
- 8. There are no stripping test requirements for tanks which will carry only category A or D NLS. This is because tanks carrying category A NLS must be washed and the residue discharged ashore until the concentration of the category A substance in the discharge is below the limits specified in 46 CFR 153.1120(a)(6), a required number of tank washing machine cycles must be completed as specified in 46 CFR 153.1120(b)(4), or the tank must be ventilated in accordance

with 46 CFR 153.1102(b)(2) until no residue remains. Category D NLS residues need only be mixed with water at a ratio of 1 to 10 as specified in 46 CFR 153.1128(b) before being discharged to the sea.

9. Those OSV's carrying NLS cargo in bulk which do not discharge NLS residues to the sea must maintain a cargo record book and have an endorsement on their Certificate of Inspection prohibiting them from discharging NLS residues to the sea as required by 46 CFR 98.31-10(a)(1) and (b).
10. Upon satisfactory completion of all tests and inspections conducted as part of the initial survey, the P & A manual will receive final approval by the cognizant OCMI. Any discrepancies noted between the plans or P & A manual and the conditions or procedures noted aboard the vessel should be brought to the attention of the NSC for resolution. After the OCMI and MSC decide upon what corrective action should be taken, the MSC will determine if the P&A manual must be resubmitted for further review.
11. Once the P & A manual receives final approval, the OCMI will deliver it to the vessel with appropriate amendments to the Certificate of Inspection indicating the NLS cargos approved for carriage. If the vessel engages in foreign voyages, the OCMI will also issue the appropriate IMO certificate.
12. Any subsequent changes made to the plans or P&A manual must be approved by the MSC and verified by a marine inspector as correctly reflecting conditions aboard a vessel. Any changes to a tank or pumping or stripping equipment or procedures will necessitate redoing the stripping test for the affected tank(s).
13. Foreign flag vessels desiring to carry category A, B, C, or D NLS in U.S. waters, other than those C and D cargos included in 33 CFR 151.47 or .49 (see paragraph 17) or non-self-propelled vessels carrying any category D cargos listed in 46 CFR 151.12-5 (see paragraph 18), must meet the conditions specified in 46 CFR 153.15(b)(l). An application to Commandant (G-MTH) must include a copy of the vessel's current INO Certificate of Fitness as required by 46 CFR 153.9. The Certificate of Fitness must attest to the vessel's meeting the BCH Code as amended by Resolution NEPC 20(22) or the IBC Code as amended by Resolution 19(22) which includes compliance with the requirements of Annex II. Commandant (G-MTH) will prepare a Subchapter 0 Endorsement (SOE) to document acceptance of a vessel's application. Vessels whose flag Administrations do not issue INO Certificates of Fitness must follow the plan review process and undergo an inspection as previously detailed for U. S. vessels.

Those foreign vessels which do not have a current Certificate of Compliance must undergo an examination following the procedures specified in 46 CFR 153.809 in addition to the examination detailed in paragraph 15 below. Those foreign vessels which possess a current Certificate of Compliance should undergo the examination outlined below in paragraph 15 to verify its compliance with Annex II.

14. The extent of the examination to verify a foreign vessel's compliance with Annex II and related U. S. regulations will vary depending upon such factors as cargos carried, age and condition of the vessel, and the vessel's boarding history. However, as a minimum, the following items should be checked:
  - a. The P & A manual should receive a cursory review to see that there are no obvious deficiencies, particularly in the areas of tank stripping, prewashing, and cargo loading.

- b. Various portions of the cargo systems and associated equipment should be spot checked to see that they are in agreement with the P & A manual.
  - c. The Cargo Record Book should be examined to see that it is being properly completed and there have been no problems with the cargo related equipment.
  - d. If an existing ship is operating under the alternative interim standards specified in 46 CFR 153.481(b), the recording and control equipment required by this paragraph should be sufficiently examined to determine that it is working properly.
  - e. It should be determined that any installed cargo heating system is in working order.
  - f. It should be determined that any installed ventilation system for removing cargo residues is in working order.
15. Upon satisfactory completion of the examination, the vessel may be issued a Certificate of Compliance for the NLS cargos it is allowed to carry by its home government and acceptable to the Coast Guard.
16. Foreign vessels desiring to operate in U.S. waters carrying only those category C and D Oil-like NLS cargos included in 33 CFR 151.49 may meet the requirements of Annex II by possessing a NLS endorsement to Form B of their IOPP Certificate. Submission of the certificate to Commandant (G-MTH) for acceptance is not required. These vessels will only need to have such certificate examined for completeness and currency and a check made to determine that the vessel does not carry any NLS cargos other than those indicated on the certificate. No special paperwork will be issued to these vessels as a result of the requirements for NLS; however, since many of the substances are flammable or combustible, vessels must continue to be examined for and issued a Certificate of Compliance (currently Tank Vessel Exam Letter) with the appropriate endorsement for the flammable and combustible cargos carried.
17. Foreign non-self propelled vessels carrying only those category D NLS cargos listed in 46 CFR 151.12-5, or any vessels carrying only those category D cargos listed in 33 CER 151.47 or those oil-like category D NLS listed in 33 CER 151.49 may meet the requirements of Annex II by possessing a NLS Certificate endorsed for the cargos carried. Submission of the certificate to Commandant (G-MTH) for acceptance is not required. These vessels will only need to have such certificate examined for completeness and currency and a check made to determine that the vessel does not carry any cargos other than those indicated on the certificate. No special paperwork will be issued to these vessels as a result of the requirements for NLS; however, the vessels carrying the category D oil-like NLS must continue to be examined for and issued a Certificate of Compliance (currently Tank Vessel Exam Letter) with the appropriate endorsement for the cargos which are flammable and combustible.
18. Information on all vessel inspections and examinations relating to the carriage of NLS shall be entered in the MSIS. The information entered in MSIS shall indicate that the vessel was examined/inspected for compliance with Annex II, what deficiencies were noted, if any, what action was taken (issued a certificate, issued a CG-835, commenced penalty action, etc.), and any requirements placed upon the vessel (obtain P & A Manual before returning to a U.S. port, conduct efficient stripping tests by a specified date, etc.). A separate COMDTINST is being developed which will specifically address the standard entries and codes to be used.

#### PART IV

### Subsequent Surveys

Since U.S. vessels will be issued the appropriate certificate(s) to carry NLS for a period not to exceed two years, only periodical (conducted for issuance of a new certificate) and intermediate (conducted within 6 months of the mid-period anniversary date of the certificate) surveys will be conducted. The periodic survey will normally be conducted as part of a vessel's inspection for certification and the intermediate survey conducted as part of its midperiod inspection.

1. The periodic survey is conducted to see that the arrangements and procedures are in full compliance with the regulations. It must be sufficient in scope to determine that the cargo pumping, stripping, and tank cleaning equipment is satisfactory. Any recording equipment should be checked for proper operation. The P&A manual should be compared against the conditions found and procedures followed to ensure its accuracy. A total of two stripping tests and residue measurements should be conducted during each four year period following the procedures for the initial stripping tests. These tests should be done on those tanks not previously tested (a field will be added to the Marine Inspection Status Details transaction of the MSIS system for data entry and retrieval of each tank's last test). When the tanks are to be tested during the four-year period is at the discretion of the vessel owner/operator. It is not anticipated that additional stripping tests will be required unless it is found that conditions or procedures have changed since issuance of the last certificate, or there is reason to believe that the cargo equipment is not functioning properly. Examination of the cargo record book should be of great assistance in this determination.
2. Procedures for subsequent periodical surveys on foreign vessels will be similar to those followed for the initial survey. These surveys will be conducted at least once every two years. Upon satisfactory completion of the survey, a new Certificate of Compliance will be issued, if appropriate.
3. For intermediate surveys on both U.S. and foreign vessels, a marine inspector should examine the cargo record book to see that it is properly maintained. The cargo pumping, stripping and tank cleaning equipment should be spot-checked to see that it appears adequately maintained and is operational. The P&A manual should be aboard and through spot-checks a determination made that it still accurately reflects the equipment aboard the ship and the procedures followed. The 'MO Certificate of Fitness or NLS Certificate on foreign vessels should be examined to determine that the annual and intermediate surveys have been conducted as required by Annex II. Also, the 'MO Certificate of Fitness should match the 'MO certificate identified in the Subchapter 0 Endorsement to the vessel's Certificate of Compliance. Upon satisfactory completion of the intermediate survey on a U.S. or foreign vessel, the marine inspector shall sign and date the appropriate certificate in the space so marked. In all cases, a MSIS entry shall be made to indicate the type of survey conducted.

Part V  
Issuance of Certificates

There are several certificates which may be issued to a vessel to allow it to carry NLS. The type of certificate issued will depend upon the vessel type, the cargos it carries (in addition to NLS), and which of the 'MO chemical codes it meets, if any. It should be noted that certain vessels may be issued one of the several certificates discussed below depending upon the cargos carried. In all cases, a U.S. vessel's Certificate of Inspection will be endorsed for the cargos carried and will indicate under "Route Permitted and Conditions of Operation" if the vessel is approved to operate in Special Areas. Additionally, those OSV's which do not meet the requirements of 46 CFR 153 shall have their Certificate of Inspection endorsed to indicate that they do not discharge any NLS at sea as specified in 46 CFR 98.31-10(b). Any vessel issued a waiver under 46 CER 153.491(a) shall have an endorsement on its Certificate of Inspection to indicate this. The endorsement must indicate the specific cargo(s) allowed and the tank(s) affected.

All foreign vessels carrying NLS cargos, other than those listed in 33 CFR 151.47 or .49 or barges carrying the category D cargos listed in 46 CFR 151.12-5, must have a Certificate of Compliance issued by the Coast Guard with a Subchapter 0 Endorsement which identifies the NLS cargos it is allowed to carry. Those vessels having a current Certificate of Compliance will only be issued a new Subchapter 0 Endorsement and not a new COC. Foreign vessels carrying any of the category D NLS listed in 33 CFR 151.47 or .49, or foreign barges carrying any of the category D NLS listed in 46 CFR 151.12-5, may have an NLS Certificate issued by or on behalf of their flag administration in lieu of a Certificate of Fitness. Foreign vessels carrying those oil-like category C and D NLS listed in 33 CFR 151.49 may have Form B of their IOPP Certificate so endorsed (see NVIC 9-86) in lieu of a Certificate of Fitness. Foreign vessels having a NLS Certificate or endorsement on Form B of their IOPP Certificate will not be issued any additional certificates by the Coast Guard, except those carrying category C or D oil-likes which are also issued Certificates of Compliance (currently Tank Vessel Exam Letters).

1. In addition to a Certificate of Inspection all U.S. self-propelled and oceangoing non-self-propelled vessels sailing on foreign voyages and carrying NLS cargos in bulk must have one of the following certificates endorsed for the NLS cargos carried:
  - a. "International Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk" issued under the IBC Code ('MO Resolution NEPC 19(22)) -this certificate is required for all new oceangoing chemical tank ships and oceangoing tank barges making foreign voyages which carry any of the cargos listed in Table 1 of 46 CFR Part 153. However, it is not required for those vessels carrying only the category C or D cargos listed in 33 CFR 151.47 or .49, or those barges carrying only those category D NLS listed in 46 CFR 151.12-5. Existing vessels may be issued these certificates if requested by the owner and the vessel meets the IBC.
  - b. "Certificate of Fitness for the Carriage of Dangerous Chemicals in Bulk" issued under the BCH Code ('MO Resolution MEPC 20(22)) - this certificate is required for all existing oceangoing chemical tank ships and oceangoing barges making foreign voyages unless the vessel has an International Certificate of Fitness. However, it is not required for those vessels carrying only the category C or D cargos listed in 33 CER 151.47 or .49, or those barges carrying only those category D NLS listed in 46 CFR 151.12-5.
  - c. "International Pollution Prevention Certificate for the Carriage of Noxious Liquid Substances in Bulk" - this certificate may be issued to all oceangoing tank barges on foreign voyages which only carry those category D NLS listed in 46 CFR 151.12-5 and any oceangoing vessels on foreign voyages which only carry those category D NLS

listed in 33 CFR 151.47 or .49. This certificate is issued in lieu of the Certificates of Fitness discussed in subparagraphs a. and b. above and the endorsement to Form B of the IOPP Certificate discussed in subparagraph d. below.

- d. "International Oil Pollution Prevention Certificate" issued under Annex I of MARPOL 73/78 - the Form B of this certificate may be endorsed for the carriage of category C and D oil-like NLS listed in 33 CFR 151.49 for all oceangoing tank ships and oceangoing tank barges (see 33 CER 151.37 and paragraph 6.1.4 of Part III of NVIC 9-86). This endorsement is issued in lieu of the Certificates of Fitness discussed in subparagraphs a. and b. above and the NLS Certificate discussed in subparagraph c. above.

2. Instructions for completing these forms are as follows:

a. International Certificate of Fitness "(CG-5148B)

- (1) The first part of this form is self-explanatory. The ship type is either 1, 2, or 3 as defined in paragraph 2.1.2 of the IBC depending upon the damage stability criteria the vessel meets.
- (2) A more detailed definition of date built can be found under "Built" in 46 CFR 153.2.
- (3) Any amendments to the IBC which the vessel meets should be entered. At present, there are no amendments to the IBC.
- (4) Any waivers of the IBC that have been granted to the vessel must be entered.
- (5) Those statements in paragraphs 1, 4, and 5 that do not apply should be lined out.
- (6) The expiration date, place and date of issuance, and authorized signature are self-explanatory.

b. Enclosure (1A) to the Certificate of Fitness.

Enter on this enclosure those products the vessel has been approved to carry and any conditions of carriage as stated on the form. In all cases, the specific tank(s) approved for carrying each product shall be listed. The information regarding which products are approved, where they may be carried, and any other conditions of carriage will be provided by the MSC. The names of the cargos will be as listed in Table I of 46 CER Part 153 or Table 1 of 33 CFR Part 151.

c. Enclosure (2A) to the Certificate of Fitness.

Enter on this form the locations of the cargo tanks. Tanks below deck should be indicated within the ship outline and any tanks on or above the Rain deck should be indicated outside the outline along the side of the vessel in their relative fore and aft positions.

d. Enclosure (1A) to the Certificate of Fitness.

Enter on this form any equivalents to the required provisions of the code which have been found acceptable and approved. This information is normally provided by the MSC.

Note: The enclosures for the International COF (issued under the IBC Code) and the COF (issued under the BCH Code) are identical.

e. "Certificate of Fitness" (CG-5148A).

- (1) Entries at the top of the form are self-explanatory. The ship type should be either 1, 2, or 3 based upon damage stability criteria as defined in paragraph 2.2.4 of the BCH.
- (2) A more detailed definition of date built may be found under "Built" in 46 CFR 153.2.
- (3) Any amendments to the BCH which the vessel meets should be entered. All vessels must meet all amendments unless specifically exempted. The first ten amendments to the BCH were adopted as part of that code with the ratification of Annex II under 'MO Resolution NEPC 20(22). Therefore, these are no longer considered amendments per se and only amendments issued subsequent to these should be entered on the certificate.
- (4) Any waivers of the BCH that have been granted to the vessel must be entered.
- (5) Those statements in paragraphs 1, 4, and 5 that do not apply should be lined out.
- (6) The expiration date, place and date of issuance and authorized signature are self-explanatory.

f. "International Pollution Prevention Certificate for the Carriage of NLS in Bulk" (CG-5461).

- (1) Entries required for vessel name, official number, port of registry, and gross tonnage are self-explanatory.
- (2) Enter all NLS that the ship has been approved to carry and the tanks which have been approved for their carriage. All information here should agree with that contained in the approved P&A manual. The names of the NLS should be as specified in Table 1 of 46 CFR Part 153 or Table 1 of 33 CFR Part 151. The information on approved cargoes will be supplied by the MSC.
- (3) If there are no additional pages listing cargoes, the line referring to additional signed pages shall be lined out.
- (4) The expiration date, issue place and date, and signature of issuing authority are self-explanatory.
- (5) Those OSV's not meeting the requirements of 46 CFR 153 as allowed by 46 CFR 98.31-10(b) shall have paragraphs 1, 2, and 3 lined out and an entry made indicating that they do not discharge NLS at sea.

g. "International Oil Pollution Prevention Certificate" (CG-5352) and Form B.

Instructions for completing this form and the endorsements to Form B for the carriage of Category C and D oil-like NLS are contained in NVIC 9-86.



h. "Certificate of Compliance" (COC).

This certificate currently means either the Letter of Compliance or the Tank Vessel Examination Letter. Completion of the LOC and TVEL will follow current practice until the new COC form is implemented as an MSIS product.

i. "Subchapter 0 Endorsement" (SOE).

This endorsement to the COC is prepared by Commandant (G-MTH) based on acceptance of a foreign vessel's 'MO COF or in unusual cases where no COP exists on the basis of a special review by Commandant (G-MTH). The endorsement will document the nature of the vessel's compliance for carriage of NIS's and other hazardous cargos. The SOE is issued by Commandant (G-MTH) to a vessel possessing a current COC or stored in MSIS as a retrievable document to be issued by an OCHI when a new COC is issued.

3. The number of copies of each certificate and their distribution are as follows:

- a. Original: Issued to master, owner, or agent of vessel.
- b. 2 copies: Mailed to Commandant (G-MVI) via the district commander (a).
- c. 1 copy: Kept by issuing OCMI for vessel file.

4. All certificates issued to U.S. vessels, except IOPP Certificates, will be endorsed to expire two years after the issue date. Certificates of Compliance issued to foreign vessels will be endorsed to expire two years after their issue date. The Subchapter 0 Endorsement will expire on either the expiration date of the COC or the expiration date of the Certificate of Fitness, whichever is sooner.

Guidelines for the Enforcement of the Provisions of  
Annex II Relating to Vessel  
Equipment Installations and Inspections

1. Article 4 of MARPOL 73178 provides for violations of the convention to be mitigated under the laws of the administration within whose jurisdiction the violation occurs or to provide information and evidence of the violation to the ship's home administration. 33 U.S.C. 1904(e) requires a vessel to be detained if it does not have a valid certificate required by MARPOL 73/78 or whose equipment or condition is not in substantial compliance with the required certificate. Further, 33 U.S.C. 1908 provides for a criminal penalty of not more than \$50,000 or 5 years imprisonment, or both, for each willful violation of the MARPOL Protocol, and a civil penalty of not more than \$25,000 for each violation.
2. As of 6 April 1987 ships carrying noxious liquid substances in bulk which are not fully certified for such carriage are in violation of Annex II of MARPOL 73/78 and subject to penalty action. This enclosure provides guidance on enforcement of the U. S. regulations and Annex II requirements relating to equipment installations and inspections of U. S. and foreign ships carrying NLS cargos in bulk. This will ensure a strong and consistent enforcement program throughout the U. S. for encouraging ships to comply with the international and domestic requirements related to NLS cargos.
3. Tables 1 and 2 of this enclosure indicate the interim enforcement policy to be followed until 1 January 1988 for U. S. and foreign ships, respectively, based upon their degree of compliance and those actions taken by the ship's owners/operators to bring the ship into compliance. After 31 December 1987, all vessels not in full compliance with the Annex II requirements contained in 33 CFR 151 and 46 CIR Parts 98, 151, and 153 will be treated the same as those indicated in Table 1 or 2 that have made no effort to comply.
4. Enforcement policy for those vessels requiring a NLS certificate in lieu of a Certificate of Fitness because they only carry those category D cargos listed in Table 1 or 2 of 33 CFR Part 151 or 46 CFR 151.12-5 shall be in accordance with the attached tables depending upon the vessel's degree of compliance with the applicable portions of these tables. Enforcement policy for those vessels required to have an NLS endorsement to Form B of their IOPP Certificate because they only carry the oil-like NLS listed in Table 2 of 33 CFR Part 151 shall be in accordance with Section 4.K of Volume I of the Marine Safety Manual.
5. All vessels conducting any NLS cargo operations must have the Cargo Record Book required by 46 CFR 153.490 and properly complete the applicable portions of the book in accordance with 46 CFR 153.909. The one exception to this is a vessel which has a NLS endorsement to Form B of its IOPP Certificate for carrying an oil-like NLS listed in 33 CFR 151.49. Such a vessel must have and complete an Oil Record Book in accordance with 33 CF' 151.25. Any vessel not having a Cargo Record Book must obtain one, or copies thereof, before conducting cargo operations.

**TABLE 1 - ENFORCEMENT ACTIONS FOR VARIOUS LEVELS OF COMPLIANCE  
WITH ANNEX II OF MARPOL 73/78 FOR U. S. SHIPS**

DEGREE OF COMPLIANCE AFTER 6 APRIL 1987				
INSTALLATION COMPLETE; DOCUMENTATION COMPLETE:	INSTALLATION COMPLETE; DOCUMENTATION INCOMPLETE:	INSTALLATION INCOMPLETE; DOCUMENTATION INCOMPLETE; LEVEL 1:	INSTALLATION INCOMPLETE; DOCUMENTATION INCOMPLETE; LEVEL 2:	NO EFFORT TO COMPLY:
Ship complies with applicable requirements of Annex II, has undergone survey, and has appropriate certificate(s). Cargo record book aboard and maintained.	Ship complies with applicable requirements of Annex II and has undergone survey. P&A manual, which has been submitted but not approved, is aboard. Appropriate certificate(s) has not been issued. Cargo record book aboard and maintained.	Ship has started but not completed survey for Annex II. Documentary evidence from the Coast Guard that all stripping tests have been satisfactorily completed. P&A manual, which has been submitted but not approved, is aboard. Cargo record book aboard and maintained. If vessel requires modifications to comply, documentary evidence (shipyard scheduled, equipment ordered, etc.) is aboard indicating date for completion prior to 1 January 1988.	Ship has started but not completed survey for Annex II. Documentary evidence that preliminary stripping tests have been satisfactorily completed, but not yet approved by the Coast Guard. P&A manual has not been submitted, but copy is aboard. Cargo record book is aboard and maintained. If vessel requires modifications to comply, documentary evidence (shipyard scheduled, equipment ordered, etc.) is aboard indicating date for completion prior to 1 January 1988.	No evidence of any effort to comply with Annex II can be shown. Ships only scheduling a shipyard availability are in this category.
Routine verification.	Permit cargo operations in accordance with P&A manual. Issue CG-835 for deficiencies. If deemed appropriate, initiate administrative action seeking nominal penalty.	Permit cargo operations in accordance with P&A manual. Issue CG-835 for deficiencies. Initiate administrative action seeking nominal to moderate penalty according to degree of compliance. Inform master, vessel may be delayed in other ports until installation complete.	Permit cargo operations in accordance with P&A manual. Issue CG-835 for deficiencies. Initiate administrative action seeking moderate to maximum penalty according to degree of compliance. Inform master, vessel may be delayed in other ports until installation complete. Subsequent visits must show continued action toward completing installation.	Prohibit cargo loading operations until acceptable proof is provided that tanks can meet stripping requirements. Permit discharge operations, but tanks not proven to meet stripping requirements must be washed and residue discharged ashore. Issue CG-835 for deficiencies. Initiate administrative action seeking maximum penalty. Inform master, vessel will be delayed in other ports until substantial compliance is obtained.

Note: If vessel does not have documented approval to carry a specific cargo in a tank, the marine inspector must determine that the vessel meets the ship type and cargo containment requirements of 46 CFR 153.230 to 153.232 for the cargos carried as specified in Table 1 of 46 CFR Part 153. It should be noted that ship type and cargo containment requirements for some cargos previously allowed by a certificate may now be different with the implementation of Annex II.

**TABLE 2 - ENFORCEMENT ACTIONS FOR VARIOUS LEVELS OF COMPLIANCE  
WITH ANNEX II OF MARPOL 73/78 FOR FOREIGN SHIPS**

DEGREE OF COMPLIANCE AFTER 6 APRIL 1987				
INSTALLATION COMPLETE; DOCUMENTATION COMPLETE:	INSTALLATION COMPLETE; DOCUMENTATION INCOMPLETE:	INSTALLATION INCOMPLETE; DOCUMENTATION INCOMPLETE; LEVEL 1:	INSTALLATION INCOMPLETE; DOCUMENTATION INCOMPLETE; LEVEL 2:	NO EFFORT TO COMPLY:
<p>Ship complies with applicable requirements of Annex II, has undergone survey, and has appropriate certificate(s). Cargo record book aboard and maintained.</p>	<p>Ship complies with applicable requirements of Annex II and has undergone survey. P&amp;A Manual, which has been submitted but not approved, is aboard. Appropriate certificate(s) has not been issued. Cargo record book aboard and maintained.</p>	<p>Ship has started but not completed survey for Annex II. Documentary evidence from administration that all stripping tests have been satisfactorily completed. P&amp;A manual, which has been submitted but not approved, is aboard. Cargo record book aboard and maintained. If vessel requires modifications to comply, documentary evidence (shipyard scheduled, equipment ordered, etc.) is aboard indicating date for completion prior to 1 January 1988.</p>	<p>Ship has started but not completed survey for Annex II. Documentary evidence that preliminary stripping tests have been satisfactorily completed, but not yet approved by administration. P&amp;A manual has not been submitted, but copy is aboard. Cargo record book aboard and maintained. If vessel requires modifications to comply, documentary evidence (shipyard scheduled, equipment ordered, etc.) is aboard indicating date for completion prior to 1 January 1988.</p>	<p>No evidence of any effort to comply with Annex II can be shown. Ships only scheduling a shipyard availability are in this category.</p>
<p>Routine verification during boarding examination. Issue or amend Certificate of Compliance if appropriate.</p>	<p>Permit cargo operations in accordance with P&amp;A manual. Issue Letter of Warning for deficiencies. If deemed appropriate, initiate administrative action seeking nominal penalty.</p>	<p>Permit cargo operations in accordance with P&amp;A manual. Initiate administrative action seeking nominal to moderate penalty according to degree of compliance. Inform master and flag state consulate, vessel may be delayed in other ports until installation complete.</p>	<p>Permit cargo operations in accordance with P&amp;A manual. Initiate administrative action seeking moderate to maximum penalty according to degree of compliance. Inform master and flag state consulate, vessel may be delayed in other ports until installation complete. Subsequent visits must show continued action toward completing installation.</p>	<p>If appropriate, deny entry. If allowed in port, prohibit cargo loading operations until acceptable proof is provided that tanks meet stripping requirements. Permit discharge operations, but tanks not proven to meet stripping requirements must be washed and residue discharged ashore. Initiate administrative action seeking maximum penalty. Inform master and flag state consulate, vessel will be denied entry or detained in other ports until substantial compliance is obtained.</p>

Note: If vessel does not have documented approval to carry a specific cargo in a tank, the marine inspector must determine that the vessel meets the ship type and cargo containment requirements of 46 CFR 153.230 to 153.232 for the cargos carried as specified in Table 1 of 46 CFR Part 153. It should be noted that ship type and cargo containment requirements for some cargos previously allowed by a certificate may now be different with the implementation of Annex II.

In all cases of incomplete documentation, the vessel must possess a current pre-Annex II Certificate of Fitness.