MSC Guidelines for the Review of Oceangoing Tank Barge Cargo Authority

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Purpose: To establish the procedures for reviewing ocean going tank barges for the carriage of bulk liquid cargoes, generating the appropriate cargo lists, and producing a Cargo Authority Attachment (CAA) as needed.

References:

a. 46 CFR Subchapter O, Part 153

b. International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (2007)

c. MARPOL 73/78 (2006)

d. NVIC 03-06

Contact Information: If you have any questions or comments concerning this document, please contact the Marine Safety Center (MSC) by email or phone. Please refer to the Procedure Number C1-42.

Email: MSC@uscg.mil
Phone: 202-475-3401
Website: http://homeport.uscg.mil/msc

Responsibilities: Using applicable portions of references (a) through (e), the submitter shall provide sufficient documentation and plans to indicate compliance with the applicable requirements. The submission shall be made electronically to the above email address or, if paper, in triplicate to the MSC's address found on the above website. To facilitate plan review and project management, all plans and information specified in these guidelines should be submitted as one complete package through a single point of contact for the project.

Background: The International Convention for the Prevention of Pollution from ships is known as MARPOL. It is split into six Annexes, of which the first two concern the carriage of liquids in bulk. Annex I pertained strictly to vessels

carrying oil, while MARPOL Annex II concerns the carriage of chemicals. The International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (The IBC Code) was created to provide the specific construction requirements for vessels carrying chemicals under Annex II. The IBC Code categorizes chemicals into Category X, Y, and Z, and Other Substances (OS), with Category X being the most hazardous. The requirements for the construction of chemical carrying vessels is based upon the category of the substances to be carried as well as special safety restrictions dependent on the specific chemicals to be carried.

The U.S. is signatory to MARPOL, and has implemented Annex I by regulations in 46 CFR Subchapter D and in its OPA 90 Rules found in 33 CFR 151. 46 CFR 153 was re-written in the late 1980's to implement MARPOL Annex II into U.S. Regulations. Prior to this, 46 CFR 151 pertained strictly to barges, while 46 CFR 153 pertained strictly to ships. After the U.S. became signatory to MARPOL, we implemented it by re-writing 46 CFR 153 to apply to Oceangoing vessels, and having certain parts apply to ships and some to barges. The original implementation of MARPOL had little effect on the U.S. fleet because of Annex II Regulation 14, which was implemented in 33 CFR Subchapter O. MARPOL Annex II, and 33 CFR Part 151 allowed for certain cargoes known as "oil-likes" to be carried as oils under. Therefore, oil tankers and barges could carry oil-like cargoes that were Category C and D NLS without complying with MARPOL Annex II and the IBC Code. This same regulation was incorporated into U.S. Regulations, and lists of oil-like NLS can be found in 33 CFR 151.47-49.

In 2006, MARPOL Annex II and the IBC Code were updated. In this update, several major changes were made. Under the new MARPOL, NLS are broken into Categories X, Y, and Z with Category X being the most hazardous. Also, the "oil-like" designation was done away with. Any vessel now wishing to carry an NLS of any category must comply with the IBC Code. The only exception to this is certain Category Z NLS that are listed in Chapter 18 of the IBC Code, because the IBC Code does not apply to those cargoes. In order to implement these changes, the Coast Guard created NVIC 03-06 which essentially states that all oceangoing barges built after January 1, 2007 must comply with the IBC Code and U.S. Regulations. Barges built before January 1, 2007 must meet the IBC Code if they wish to continue trading internationally. However, if they surrender all international certificates then existing barges may continue operation between U.S. ports under 46 CFR 153 as long as they do not pass through the waters of a foreign administration.

General Guidance:

- If the request for cargo authority involves the construction, alteration, or modification of a new or existing vessel, verify that MSC has received an approved Application for Inspection.

- Determine vessel route, operating subchapter and desired cargo authority:
  - If the vessel's route is rivers, lakes, bays, and sounds, this instruction does not apply. Refer to instruction C1-40.
  - If the barge will carry liquefied gas cargoes, refer to C1-41.
  - Using the Bulk Liquid Cargo Authority Flow Chart (attached) and the guidance below, determine what operating subchapter applies

- The MSC does not typically edit CAAs for either barge name changes or when the owner requests to remove cargoes that require a shortened inspection interval. The reason for this is that the vessel is still able to carry the cargo based on the vessel's construction, outfitting, and arrangement. The MSC typically only re-issues a CAA when there is a physical change to the vessel or erroneous information that would change the cargoes it can carry. If the vessel chooses not to carry a cargo, this is something that the OCMI can note on the COI and in MISLE under the "Conditions of Carriage" tab. The OCMI can also line out the offending cargoes on the CAA prior to attaching it to the COI to ensure that there is no confusion.

- Determine whether the vessel is going to carry NLS. If not, then the vessel is an Annex I Oil Barge and no Tank Group Characteristic Loading Form (TGCLF) is necessary. If the vessel is going to carry NLS, then you will need to create and submit a TGCLF.

- Determine if the vessel has any exemptions from COMDT (CG-5223). If so then submit copies of all exemption letters.

- If the vessel is reviewed and certificated to carry NLS and classed by ABS, you must submit the ABS stability letter.

- Submit a List of Cargoes Intended for Carriage in accordance with the guidance below.

Generating MARPOL Annex I Oil Tank Barge Cargo Authority:

Oil Tank Barges are allowed to carry those oils listed in Appendix I of MARPOL Annex I and 46 CFR Subchapter D. Many of these barges were built and certificated for international service prior to the implementation of NVIC 03-06. Prior to this NVIC 03-06, these barges were allowed to carry all of the cargoes listed in 46 CFR 30.25-1, including Toluene, Xylenes, and Fatty Acid Methyl Ester (FAME). This was based on Regulation 14 of MARPOL Annex II 73/78 (pre-2006) as implemented by 33 CFR Part 151. Once MARPOL Annex II and the IBC Code changed, and NVIC 03-06 took effect, cargoes previously considered "oil-likes" were now regulated as NLS and are no longer authorized for carried on a Subchapter D/Annex I barges. Because of this, many Subchapter D/Annex I oil barges have requested cargo exemptions from COMDT (CG-5223) to continue to carry certain oil-like cargoes that are now NLS. Annex I barges can carry all of the cargoes listed in MARPOL Annex I Appendix I. If they have an approved P&A Manual, see PRG C1-44, then they can also carry those cargoes Category Z NLS listed in the IBC Code Chapter 18 which are "Substances not subject to the IBC Code."

Tank Group Characteristics Loading Form (TGCLF):

The Tank Group Characteristics Loading Form (TGCLF) is available on the Cargo Authority Page of MSC's Homeport, located at http://homeport.uscg.mil. Select Marine Safety Center from the Featured Homeport Links on the right-hand side of the page. The Cargo Authority page can be found under Services.

The TGCLF may be submitted ahead of time if endorsed by ABS. If so, then verify the information provided. If not, then the staff engineer will use the TGCLF as guidance when reviewing the vessel's cargo authority. The TGCLF is not to be taken at face value and must be verified through plan review:

- Vessel Information: Ensure that the vessel name(s), official number(s), shipyard and hull number(s) match the information in the request and any vessel files.

- Cargo Tank Group Characteristics: The information in this section should reflect the vessel's design and construction. The items in this section should be verified by plan review as follows:
  - Tank group designation: This may be any single character label to identify a set of tanks with identical characteristics. Commonly, the designation "A" is used for barges with only one tank group. Additional groups ("B", "C", etc) may be included as needed. For

example, a vessel's centerline cargo tanks may comprise Tank Group A, and the wing cargo tanks may comprise tank group B.

- Tanks in group: All cargo and slop tanks should be accounted for. Tanks should be listed individually. For example, enter "#1P/S, #2P/S, #3P/S" vice "All Tanks."
- Flammability Grade: Only one grade may be selected and includes all lower grades. For example, a vessel authorized to carry Grade A cargoes can carry all grades, whereas a vessel authorized to carry Grade D cargoes can carry only Grades D and E cargoes.
- Maximum Cargo Density: The Maximum Cargo Density will be listed on the CAA and should be the Maximum Slack Load Cargo Density which is the heaviest cargo that can be carried in a partial load.
- NLS Category Authorized: Ships built after January 1, 2007 will likely ask to carry X, Y, and Z cargoes since the stripping and construction requirements are the same for all categories of cargo. Only the tank washing and pre-wash requirements vary between the cargoes. For vessels built prior to January 1, 2007, the stripping and construction requirements vary depending on the categories of NLS being carried.
- Procedures & Arrangements Manual Submitted to MSC: This means that a P&A Manual has been submitted **and** approved by the MSC, see PRG C1-44.
- Other MARPOL Authority: Does the vessel meet MARPOL Annex I?
- Ship Type: Only one type may be selected and includes all lower types. For example, a Type II vessel can carry cargoes requiring a Type II or Type III hull, but not those cargoes requiring a Type I hull.
- Cargo Tank Type: The most common type is "Integral Gravity," include the type verified by vessel plans.
- Cargo Tank Vent Type: If the vessel has a vapor control system, PV venting is required.
- Cargo Tank Vent Height: 46 CFR 153.350-.353 lists the special requirements for P/V vent heights. 153 requires that you either meet Breadth of the ship divided by three (B/3), 4 meter, or "NR". In turn, the IBC Code requires 6 meters. Both 153 and the IBC Code allow you to substitute a 3 meter high velocity P/V valve in lieu of a B/3 or 6 meter P/V valve. If the vessel has a VCS, they must either have a B/3 low velocity P/V valve, a 6 meter low velocity P/V valve, or a 3 meter high velocity P/V valve. If they have none of these, they will only be able to carry the "NR" cargoes from 153 and the open venting cargoes from the IBC Code.

- Tanks-Gauging Devices: If the vessel has a vapor control system, closed gauging is required.
- Electrical Hazard Group: "NA" means that the hazardous area contains a piece of electrical equipment with no assigned hazard group. If this criterion is selected, the vessel will only be authorized to carry those cargoes with an "NA" listed in column (j) of 46 CFR 153 Table 1. If the hazardous area contains equipment that has been assigned a hazard group, and the hazard group has been verified by the MSC electrical branch, enter the appropriate rating ("I-A", "I-B", "I-C", or "I-D"). This Electrical Hazard group is based on the "Maximum Experimental Safe Gap (MESG)" meaning that the electrical component may cause an explosion, but that it would be contained within the housing of the electrical equipment, and that the housing would not have any openings larger than the MESG. (The MESG is the largest opening that can exist and still prevent an explosion from moving from the one side of a barrier to the other. The size of the gap is dependent on the amount of energy release by the explosion which is dependent on the physical properties of the gas). Some equipment is "intrinsically safe", meaning that it does not generate enough energy to create an explosion. Intrinsically safe equipment is treated as not existing in the hazardous area. If no electrical hazard exists in the hazardous area, enter "NR". Refer to details of the hazardous area plan review. If no hazardous area plan has been submitted, select "NA" or the request may be held in abeyance pending submittal of the hazardous area plan.
- Fire Protection/Firefighting: If a firefighting system is installed, then include that information on the TGCLF.

- Special 46 CFR 153 Design and Material Requirements: Select those rules which the vessel meets.
  - 153.236 Special Material Requirements: Any materials identified as prohibited shall not be used in components that contact the cargo or its vapor during routine operation. Refer to the bill of materials for the cargo piping systems.
  - 153.238 Required Materials of Construction: Select those rules referring to materials which are used in the construction of the cargo containment system or other components contact the cargo or its vapor during routine operation. Note that to receive credit for a tank lining, the submitter must provide the manufacturer's specification indicating the cargoes the lining is compatible. If no specification is provided, do not indicate that a lining is installed.

- Special 46 CFR Part 153 and IBC Code Requirements. Select those rules which the vessel meets.
  - 153.252 Independent Cargo Tank: Select this if the cargo tank is independent from the hull structure.
  - 153.266 Tank Linings: Tank linings are a requirement for most acids and similarly corrosive cargoes. However, many tanks have a lining to prevent corrosion, but that does not meet the requirements to carry an acid or highly corrosive cargo. The submitter must provide the manufacturer's specifications for the lining stating what cargoes the lining will protect against. Since most vessels are built without the intention of carrying acids, it is optional for the submitter to provide this information. The submitter should only be required to provide it if they have specifically requested to carry a cargo that lists this special requirement.
  - 153.316/IBC 15.17 Pump Room Ventilation: Many tank barges have cargo pumps that are inside the cargo tank and are driven by an external cargo pump engine. This arrangement ensures that all cargo piping and pumps are either internal to the cargo tank or on the weather deck and avoids necessitating having an actual cargo pump room. **If the tank barge does not have a cargo pump room, it should automatically be credited for this section** and be allowed to carry cargoes listing this special requirement.
  - 153.336/IBC 15.18 Pump Room Requirement: **Vessels without a cargo pump room should be credited for this special requirement**.
  - 153.355 PV Venting System: This section requires that any tank vessel carrying cargoes that require PV venting must have a PV valve on the vapor header. Protecting the individual tanks with PV valves is not sufficient if two or more tanks are connected by a header or vent riser. The vapor header or vent riser must also have PV protection.
  - 153.370-.372/IBC 15.14 High Vapor Pressure Requirement: Both the CFR and the IBC code require that for high vapor pressure cargoes, the PV valve setting must be equal to or greater than the vapor pressure of the cargo at 45°C. This restriction is relaxed if the vessel is refrigerated. There are very few cargoes that this applies to; however, Pentane is an example of a high vapor pressure cargo that is highly desired for carriage. If a vessel is Oceans Int'l, then it must meet the IBC Code requirement in 15.14. However, if the vessel is domestic oceans only, then under 33 CFR 151 it can carry Pentane under Subchapter D as a Cat. C Oil-like NLS, and does not need to meet the requirement in 153.

Therefore, a barge carrying Oceans Domestic under 153 does not need to meet 153.370 to carry Pentane, but would to carry Pentadiene, which is not listed in 33 CFR 151.47 or 49.

- 153.400 General Gauging Requirement: Gauging submission must demonstrate compliance with this section.
- 153.408/ IBC 15.19 Overflow Control: Gauging submission must demonstrate compliance with this section. Vessels with VCS installed should meet this section.
- 153.409/IBC 15.19.6 High Level Alarms: Gauging submission must demonstrate compliance with this section. Vessels with VCS installed should meet this section.

- 153.440 Temperature Sensors: There are two parts to this section; a heated cargo tank must have a sensor at the bottom of the tank, and a refrigerated tank must have a sensor at both the top and bottom of the tank. Note that cargoes requiring this section, but that do not require refrigeration, will only require one temperature sensor.
- 153.465 Flammable Vapor Detection: If this section is selected, it will need to be verified by the OCMI that the required vapor detectors are on board.
- 153.488 High Melting Point NLS: This requires a heating system and double sides/bottoms.
- 153.500 Inert Gas System: IG system meets these requirements.
- 153.501 Dry Inert Gas: IG must contain no more than 100 ppm water.
- 153.515 Flammable Cargoes: This requires the **cargo tank relief valve be set at no less than 3 PSI**. It also requires inerting of the void spaces.
- 153.602 Cargoes Reactive with Water: This requires that the P/V valve be at least 6.6 ft from the deck. Since the vent height requirements for a high velocity P/V valve is 3 meters, most barges should meet this.
- 153.525/IBC 15.12 Toxic Cargoes: These sections contain several requirements. The most important of which is that the **P/V valve setting be not less than 3PSI**. The cargo pumps should be operable from the weather deck and any heat transfer systems must be external from the cargo system. Also check to make sure that fuel tanks and cargo tanks are not adjacent to each other.
- 153. 526 Toxic Vapor Detectors: If this section is selected, it will need to be verified by the OCMI that the required vapor detectors are on board.

- 153.527 Toxic Vapor Protection: If this section is selected, it will need to be verified by the OCMI that the required protection is kept and maintained on board.

- Specific Cargo Requirements listed in 46 CFR 153 and the IBC Code: These requirements listed in the last portion of the TGCLF apply to a small specific group of cargoes. The submitter should request these cargoes in their List of Cargoes Intended for Carriage and provide you with specific evidence of compliance. Consult the relevant sections in the CFR & IBC Code for descriptions.

Attachments: Bulk Liquid Cargo Authority Flow Chart (with notes)

Disclaimer: This guidance is not a substitute for applicable legal requirements, nor is it itself a rule. It is not intended to nor does it impose legally-binding requirements on any party. It represents the Coast Guard's current thinking on this topic and may assist industry, mariners, the general public, and the Coast Guard, as well as other federal and state regulators, in applying statutory and regulatory requirements. You can use an alternative approach for complying with these requirements if the approach satisfies the requirements of the applicable statutes and regulations. If you want to discuss an alternative, you may contact the MSC, the unit responsible for implementing this guidance.