NFPA Technical Committee on Gas Hazards (GAS-AAA)

NFPA 306 First Draft Meeting Agenda A2018
NFPA Headquarters, Quincy, MA

Tuesday, November 1, and Wednesday, November 2, 2016
8:00 AM – 5:00 PM (EDT)

To Join the Meeting Remotely:

To Join the Meeting: http://nfpa.adobeconnect.com/nfpa306fdmeeting/

Telephone Conference Call-in Number: 1-855-747-8824
Teleconference Participant Pin Number: 377593

See separate email regarding the Adobe Connect/Teleconference information.

1. Call to order by Chair James Thornton at 8:00 AM (EDT).

2. Chairman's Remarks. James Thornton.

3. Self-introduction of Members and Guests. For a current committee roster, **page 3**.
Attachment:

- Committee Roster – Technical Committee on Gas Hazards

4. Approval of Prior Meeting Minutes.

- Approve the September 25, 2012 ROC Meeting Minutes, **page 6**.

5. Staff Liaison discussion of New Process and First Draft meeting procedures, See Power Point, **page 8**.
Attachment:

- NFPA 306 First Draft Meeting Power Point

6. NFPA 306 Public Inputs (145 Items), **page 41**.
    - Global Inputs – 2 items
    - Chapter 1, Administration – 13 items
    - Chapter 2, Referenced Publications – 6 items
    - Chapter 3, Definitions – 28 Items
    - Chapter 4, Vessels Required to Have Marine Chemist's Certificate – 8 items
    - Chapter 5, Preparing Vessels by the Vessel Owner, Operator or Repairer, for Issuance of a Marine Chemist's Certificate Involving Hot Work – 10 items
    - Chapter 6, Procedures for the Marine Chemist Prior to Issuance of a Certificate – 5 items
    - Chapter 7, Standard Safety Designations and Conditions Required – 17 items
    - Chapter 8, The Marine Chemist's Certificate – 23 items
    - Chapter 9, Additional Requirements for Flammable Cryogenic Liquid Carriers – 18 items
    - Annex A, Explanatory Material – 12 Items
    - Annex B, Examples of Safe Conditions – 1 item
    - Annex C, Samples of Marine Chemist's Certificates – 1 item
    - Annex E, Consider revision based on NFPA 69 TIA (14-1) (revised limiting oxidant concentrations).
    - Annex F, Informational References – 1 item

7. First Draft Balloting Information - refer to First Draft Power Point, **see page 28**.

8. Other Business.

9. Adjournment.

Address List

Gas Hazards

10/21/2016
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GAS-AAA

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Address List

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Lawrence Russell 1/6/2005

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NFPA Technical Committee on Gas Hazards (GAS-AAA)
NFPA 306 REPORT ON COMMENTS (ROC)
MEETING MINUTES

September 25, 2012
NFPA Headquarters, Quincy, Massachusetts

1. **Meeting Called to Order.** The Chairman called the meeting to order at 08:05 AM (EDT) on Tuesday, September 25, 2012.

2. **Introduction of Committee Members and Guests.**

TECHNICAL COMMITTEE MEMBERS PRESENT

NAME	COMPANY
James Thornton, Chair	Newport News Shipbuilding
Lawrence Russell, Staff Liaison	National Fire Protection Company
Robert Albert, Principal	US Department of the Navy
Leslie Blaize, Principal	Marine Chemist Association, Inc.
Donald Raffo, Principal	General Dynamics, Electric Boat
Richard Raksnis, Principal	CHEMTREC
Amy Wangdahl, Principal	US Department of Labor
Edward Willwerth, Principal	Marine Chemist Association, Inc.
John Bell, Alt. to E. Willwerth	Marine Chemist Association, Inc.
Gregory Grondin, Alt. to Leslie Blaize	Marine Chemist Association, Inc.

GUESTS

NAME	COMPANY
Guy R. Colonna	NFPA
Casey Grant	NFPA
Joshua Pennington	USCA Sector Boston, Inspections Division

TECHNICAL COMMITTEE MEMBERS NOT PRESENT

NAME	COMPANY
Thomas Cinko, Principal	US Coast Guard
Joseph Cox, Principal	Chamber of Shipping of America
Louis Donsbach, Principal	US Steel Corporation
Jason Fox, Principal	International Safety Equipment Association
Patrick Killeen, Principal	Shipbuilders Council of America

Paul Manzi, Principal	American Petroleum Institute
Joseph Riva, Principal	American Bureau of Shipping
John Sansing, Principal	American Waterways Operators

3. **Chair's Report.** The Chairman provided a brief explanation of the objectives for the Committee at this meeting and meeting ground rules. The Staff Liaison provided a safety briefing for the attendees. Mr. Grant explained the function of the Fire Protection Research Foundation. Mr. Colonna gave an overview of the new process for Codes and Standards development which will be used by the Committee in the next revision cycle for NFPA 306.

4. **Approval of Prior Meeting Minutes.** The minutes of the January 24-25, 2012 ROP meeting were unanimously approved as issued.

5. **Staff Liaison's Updates.** The Staff Liaison gave an update on advisory service and the Document Information page for NFPA 306. A request for Alternates for each Principle member was made.

6. **Public Comments.** The Committee took action on forty-eight (48) public comments. Details are found in the 2013 Annual Revision Cycle Report on Comments.

7. **Committee Comments.** The Committee generated two (2) Committee Comments. Details are found in the 2013 Annual Revision Cycle Report on Comments.

8. **ROC Balloting Information.** The Staff Liaison explained the balloting procedures.

9. **Other Business.** The Committee created a Task Group to review the Recommendation for Preparation of Marine Chemists Certificates that is jointly published by the Marine Chemist Qualification Board and the Marine Chemist Association, Inc. and then recommend to the Committee if the contents of this guide should be incorporated in a future edition of NFPA 306. Mr. Raffo volunteered to head the Task Group.

10. **Future Meetings**. There are no future Committee meetings scheduled for this revision cycle (Annual 2013).

11. **Adjournment.** The meeting adjourned at 4:40 PM (EDT) on Tuesday, September 25, 2012.

NFPA First Draft Meetings

Welcome Technical Committee on

Gas Hazards (GAS-AAA)

Call-in: 1-855-747-8824 (PIN# 377593)

Meeting & Webmeeting/Teleconference
November 01 and 02, 2016

NFPA First Draft Meeting

- Members, please verify/update your contact information. (See the roster provided with your agenda.)

- Use of recording devices or other means capable of reproducing verbatim transcriptions of this or any NFPA meeting is not permitted

NFPA First Draft Meeting

- Guests
  - All guests are required to sign in and identify their affiliations.
  - Participation is limited to TC members or those individuals who have previously requested time to address the committee. Other participation is granted at the discretion of the Chair.
  - Guest chairs are located around the room as a courtesy.

NFPA First Draft Meeting

Members categorized in ANY interest category who have been retained to represent the interests of ANOTHER interest category (with respect to a specific issue or issues that are to be addressed by a TC/CC) shall declare those interests to the committee and refrain from voting on any Public Input, Comment, or other matter relating to those issues throughout the process.

NFPA First Draft Meeting

- **General Procedures**
  - Follow Robert's Rules of Order.
  - Discussion requires a motion.

NFPA First Draft Meeting

- **Motions for Ending Debate Previous Question or "Call the Question"**
  - Not in order when another has the floor
  - Requires a second
  - This motion is not debatable and DOES NOT automatically stop debate
  - A 2/3 affirmative vote will immediately close debate and return to the original motion on the floor. Less then 2/3 will allow debate to continue.

NFPA First Draft Meeting

- **Committee member actions:**
  - Member addresses the chair.
  - Receives recognition from the chair.
  - Introduces the motion.
  - Another member seconds the motion.

NFPA First Draft Meeting

- **Committee chair actions:**
  - States the motion.
  - Calls for discussion.
  - Ensures all issues have been heard.
  - Takes the vote.
  - Announces the result of the vote.

NFPA First Draft Meeting

Technical Committee on Merchant Vessels

- Enforcers, 4 Members: 27%
- Manufacturers, 3 Members: 20%
- Users, 4 Members: 27% (1 Alternate)
- Special Experts, 4 Members: 27% (3 Alternate)

No Representation:

- Consumer, Installer/Maintainer, Insurance, Labor, and Research/Testing categories.

If you do not have an alternate please recruit someone. Application is on the Document Information Page.

NFPA First Draft Meetings

Timeline

- Public Input Stage (First Draft):
  - First Draft Meeting: TODAY
  - Posting of First Draft for Balloting Date: 01/25/17
  - Posting of First Draft for Public Comment: 03/01/16
- Comment Stage (Second Draft):
  - Public Comment Closing Date: 05/10/17
  - Second Draft Meeting Period: 5/11/17 to 11/08/17
  - Posting of Second Draft for Balloting Date: 12/20/17
  - Posting of Second Draft for NITMAM: 01/24/18
- Tech Session Preparation:
  - NITMAM Closing Date: 02/21/18
  - NITMAM /CAM Posting Date: 04/04/18
  - NFPA Annual Meeting: 6/04/18 to 6/07/18
- Standards Council Issuance:
  - Issuance of Consent Documents: 04/29/18
  - Issuance of Documents with CAM: 08/14/18

NFPA First Draft Meeting
New Process – What's New?

Changes in Terms:

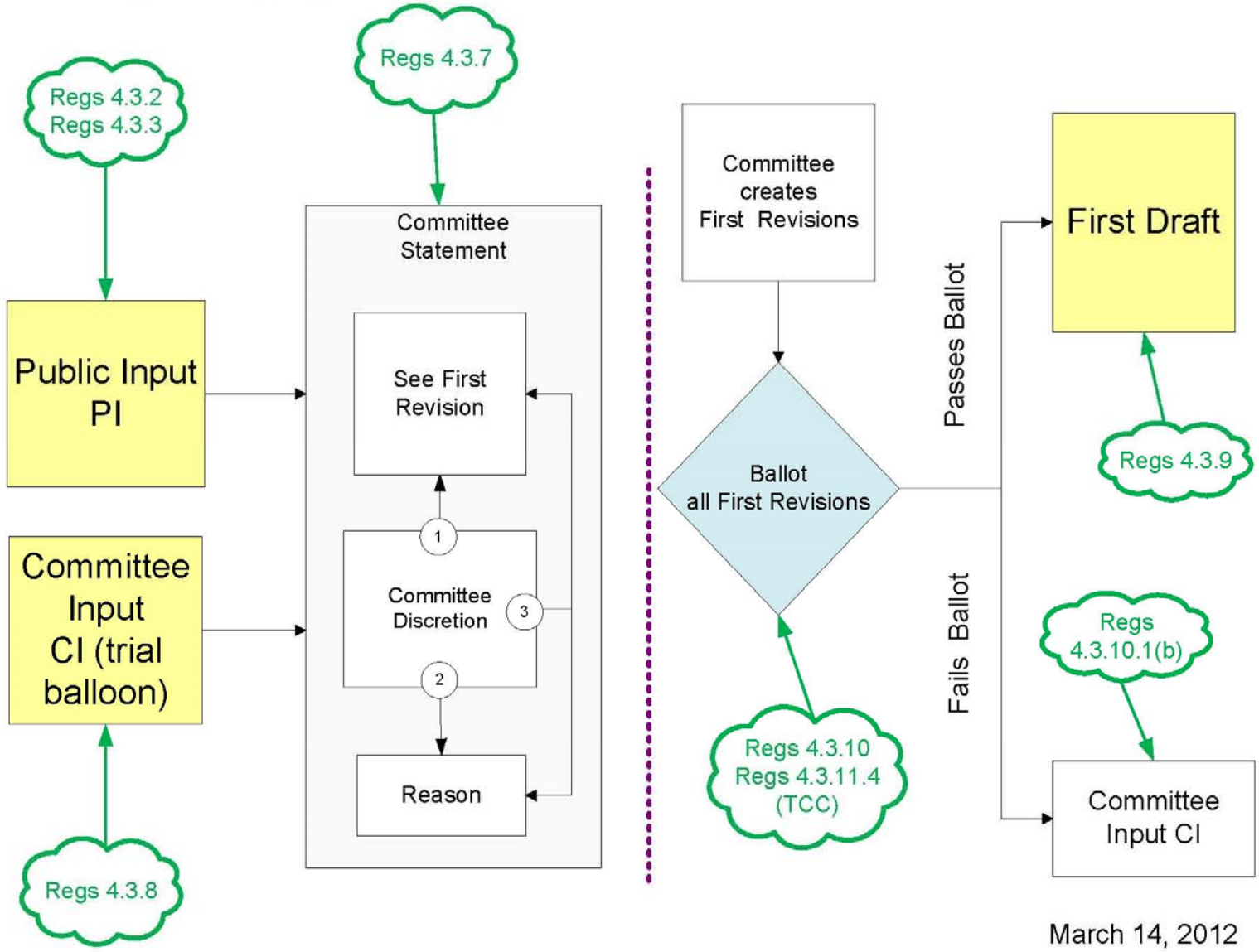
New Term	Old Term
Input Stage	ROP Stage
Public Input	Proposal
First Draft Meeting	ROP Meeting
Committee Input	"Trial Balloon" (or later, FR that fails ballot)
Committee Statement (CS)	Committee Statement
First Revision (FR)	Committee Proposal or Accepted Public Proposal
First Draft Report	ROP
First Draft	ROP Draft

NFPA First Draft Meeting
New Process – What's New?

Changes in Terms:

New Term	Old Term
Comment Stage	ROC Stage
Public Comment	Public Comment
Second Draft Meeting	ROC Meeting
Committee Comment	Comment that Failed Ballot (Second Revision that failed ballot)
Second Revision	Committee Comment or Accepted Public Comment
Second Draft Report	ROC
Second Draft	ROC Draft

The New NFPA Standards Development Process – Input Stage Regs §4.3

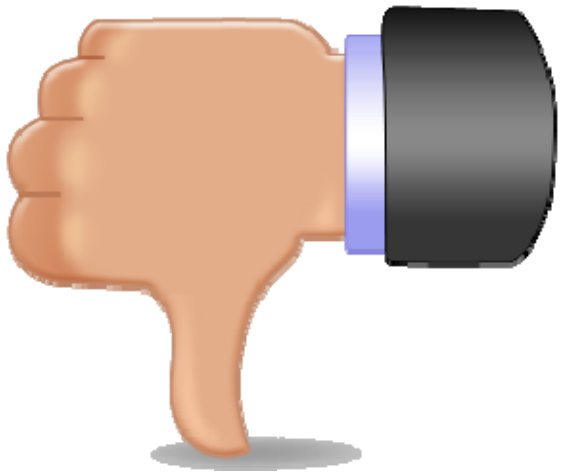


NFPA First Draft Meeting

- **NEW Committee Actions and Motions:**
  - Resolve Public Input
  - Create a First Revision
  - Create a Committee Input (Trial Balloon)

Resolve a Public Input (PI)

- Committee develops a Committee Statement (CS) to respond (resolve) a Public Input.
- Committee must clearly indicate reasons for not accepting the recommendation in CS and/or point to a relevant First Revision
- PI does not get balloted



Create a First Revision (FR)

Public input (PI) is accepted as is.

Public input (PI) is revised with <u>additions</u> and/or ~~deletions~~.

- Committee wants to make a change to a current section or add new text.
- Committee develops a Committee Statement (CS) substantiating the change. (do not refer to PI as the reason)
- Ensure any associated PIs get a committee response, often simply referring to the relevant FR.
- Each FR gets balloted

Committee Statements (Substantiation)

- All Public Input must have a Committee Statement
- Must include a valid technical reason
- No vague references to “intent”
- Explain how the submitter’s substantiation is inadequate
- Should reference the First Revision if it addresses the intent of the Submitter’s Public Input

Create a Committee Input (Trial Balloon)

- Committee wants to receive Public Comment on a topic, but not ready to incorporate it into the draft
- Need to have a Committee Statement
- Does not get balloted

NFPA First Draft Meeting New Process

- Initial ballot
- Circulation of negatives and comments
- First Revision that fails letter ballot becomes Committee Input (CI) – just like the trial balloon version of CI – so as to solicit Public Comment

NFPA First Draft Meeting

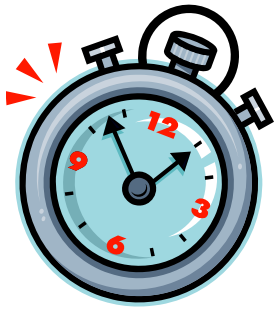
- **Formal voting**
  - Voting during meeting is used to establish a sense of agreement (simple majority)
  - Secured by letter ballot (2/3 agreement)
  - Only the results of the formal ballot determine the official position of the committee on the First Draft

NFPA First Draft Meeting New Process

- **Ballots are on the First Revisions (FR) ONLY**
  - Public Input and Committee Input not balloted
  - Reference materials are available:
    - First Draft, PI, CI, CS, etc
- **Ballot form allows you to vote:**
  - Affirmative on all FR
  - Affirmative on all FR with exceptions specifically noted
- **Ballot form provides a column for affirmative with comment**
  - Note: This box only needs to be checked if there is an accompanying comment.
- **Reject or abstain requires a reason.**

Electronic Balloting

- Balloting is done online.
- Alternates are <u>strongly encouraged</u> to return ballots



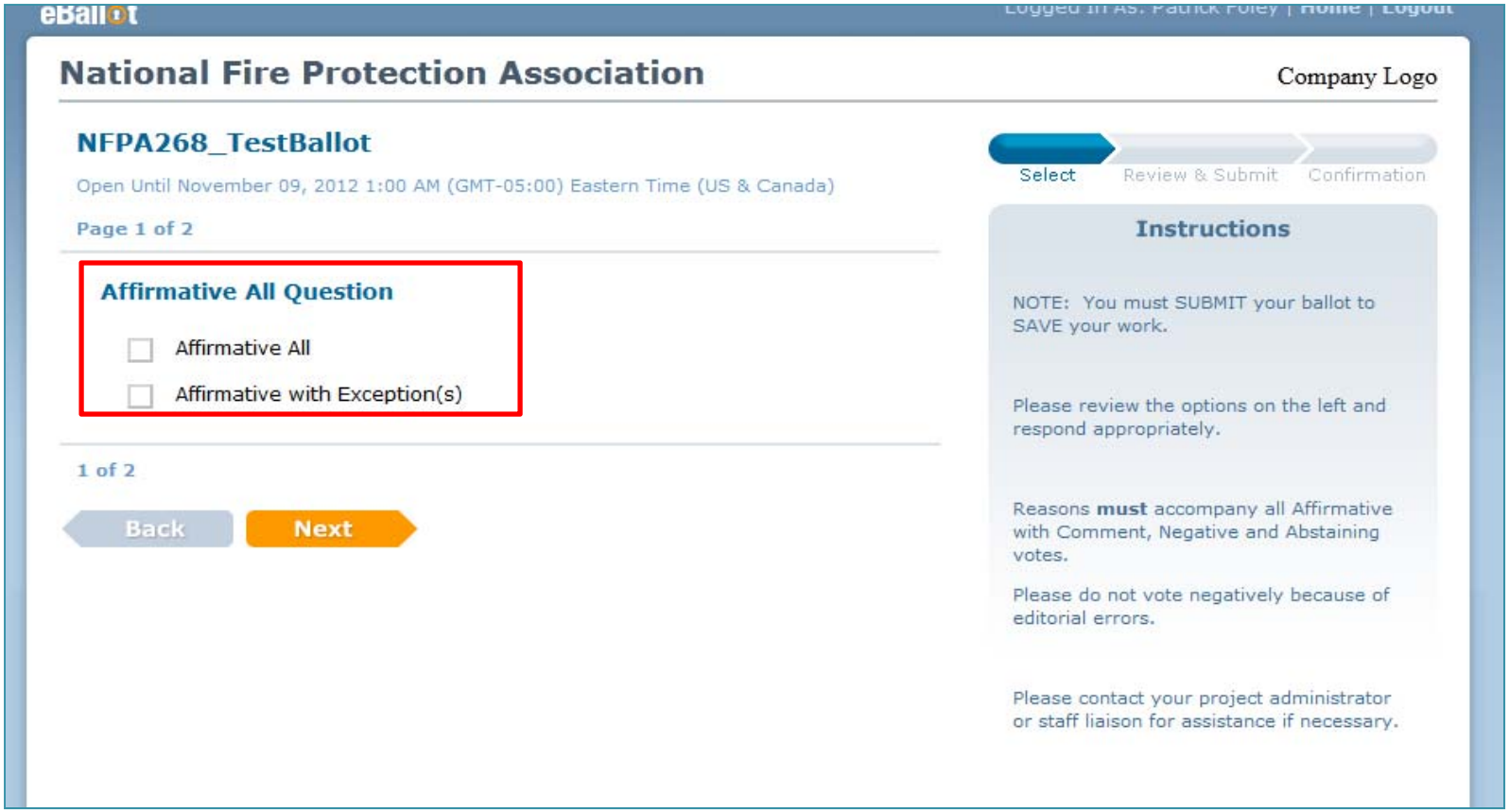
- Ballot session will time out after 90 minutes
- Use "submit" to save your work

Electronic Balloting

- Click link on the ballot email received
- Sign in with NFPA.org Committee Login and Password

Electronic Balloting

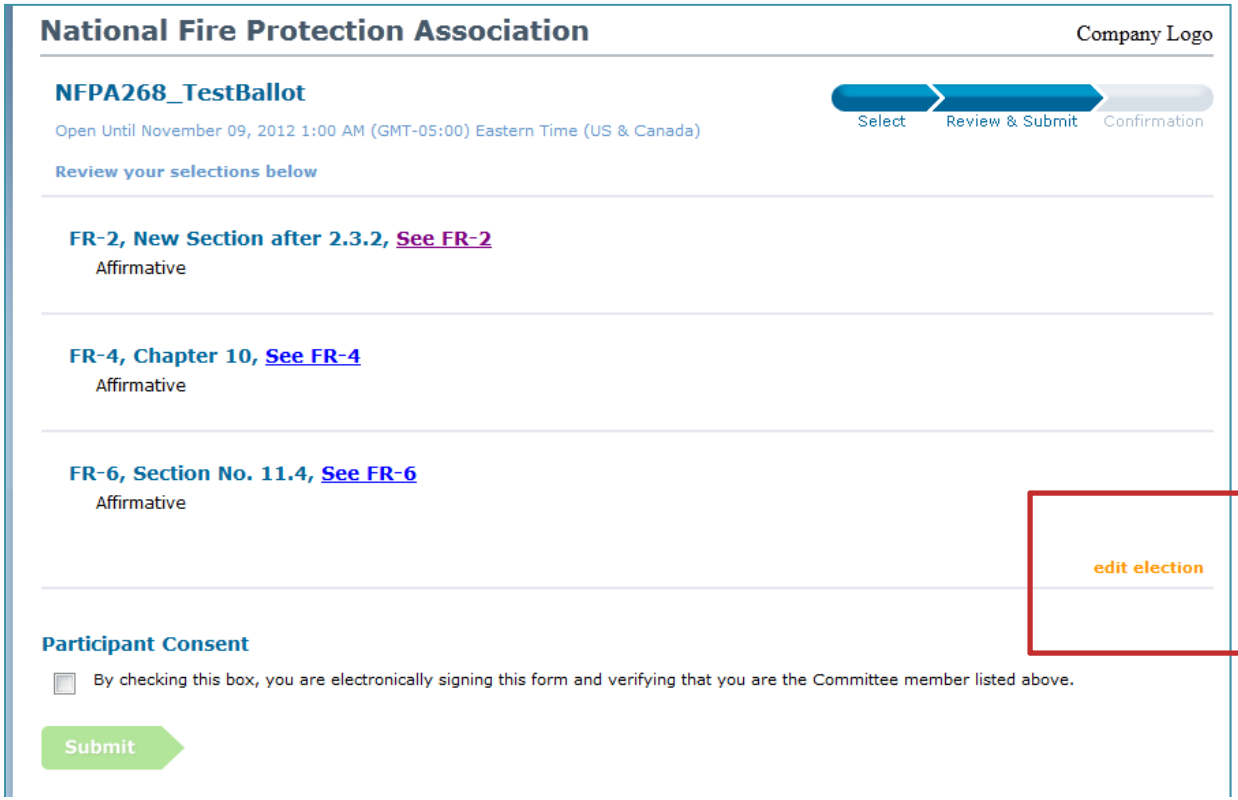
- Select either Affirmative on All or Affirmative with Exception(s)



Electronic Balloting

Choosing **AFFIRMATIVE ON ALL**

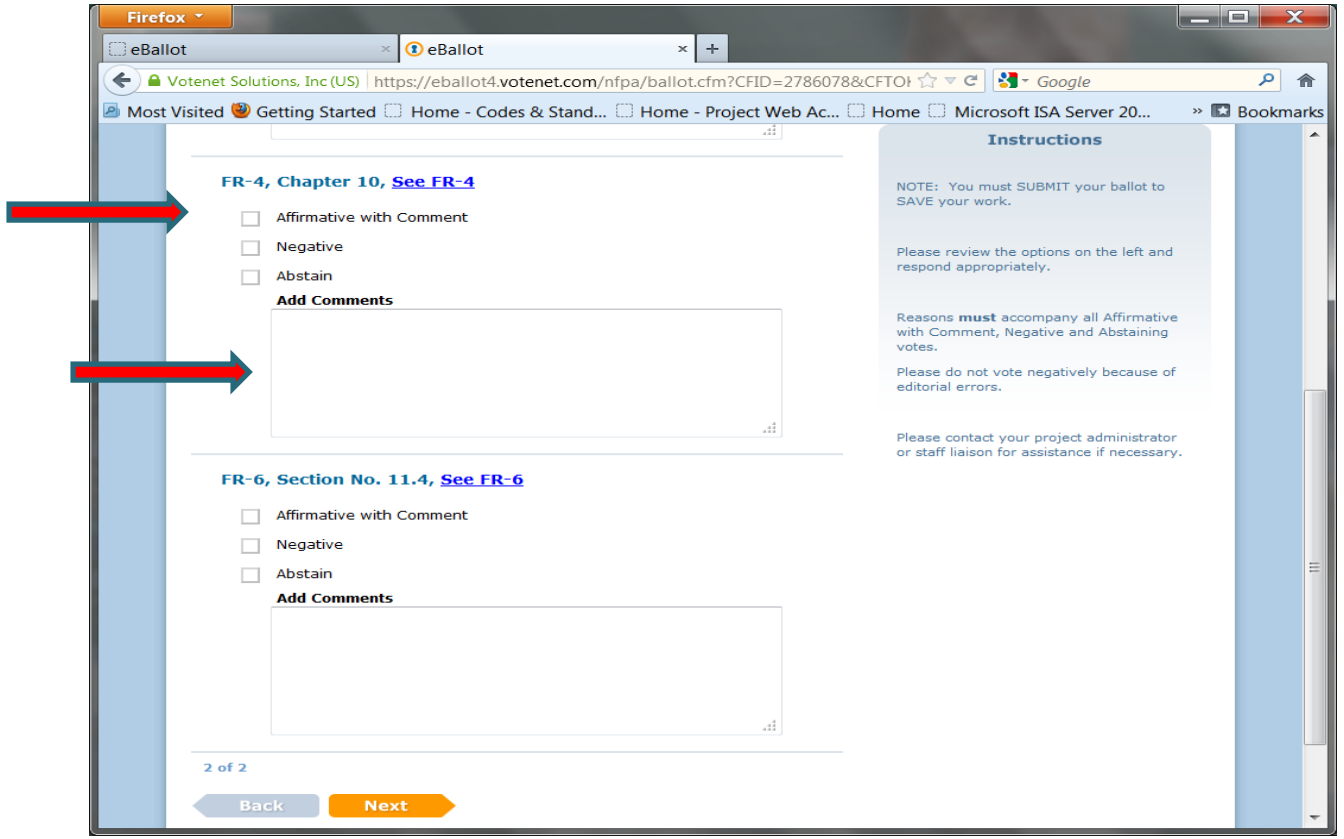
- Use "See FR - #" link to review all First Revisions
- Use "Edit election" to change individual votes or to modify vote after submitting ballot.



Electronic Balloting

Choosing AFFIRMATIVE WITH EXCEPTION(S)

- Make selection: Affirmative with Comment, Negative, or Abstain
- No selection made-defaults to affirmative
- Must include comment on each vote.



Electronic Balloting

- To complete ballot click Participant Consent and Submit
- Return and edit any votes before ballot due date.

Legal

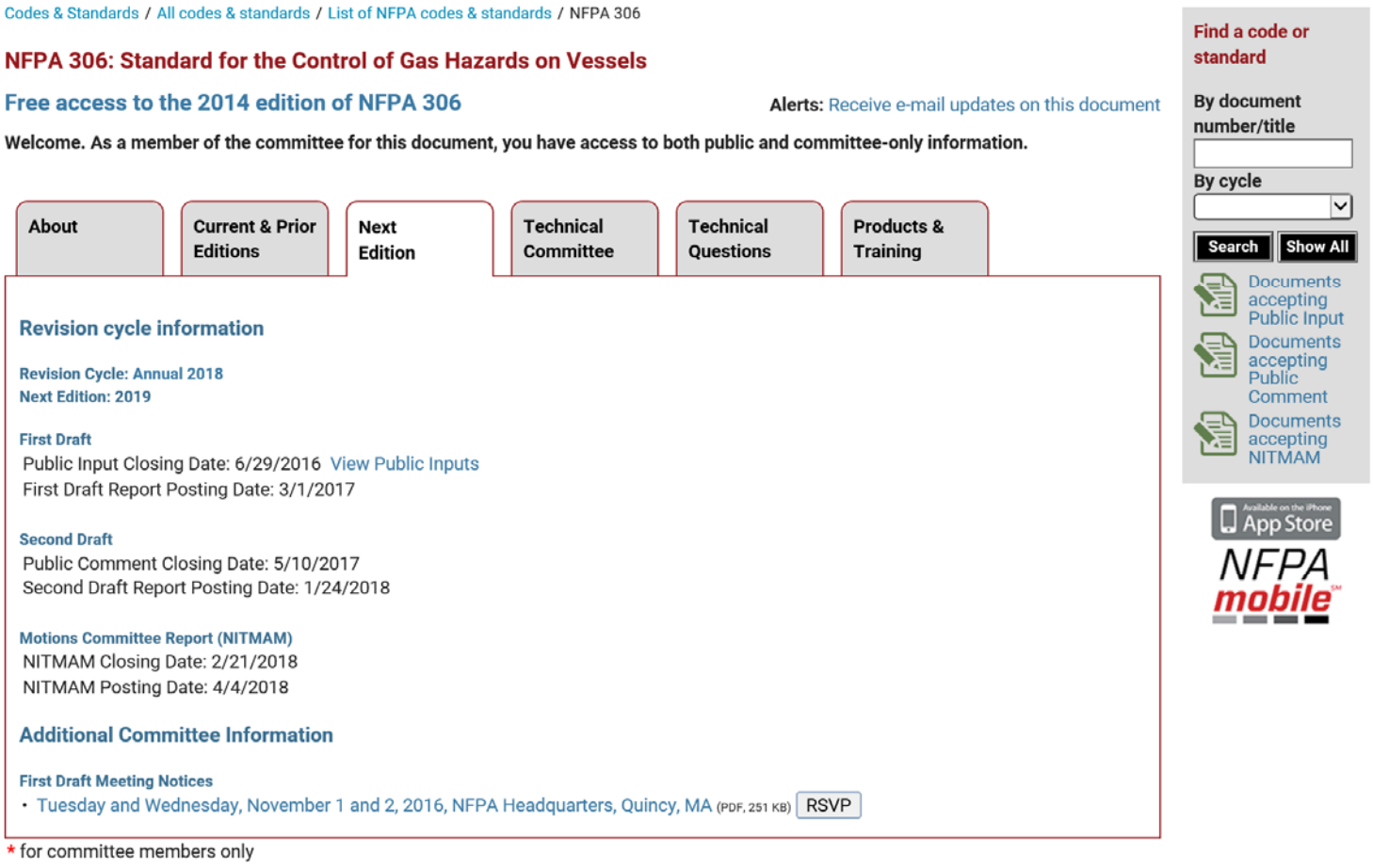
Antitrust: the single most important provision- Federal law prohibits contracts, combinations, or conspiracies which unreasonably restrain trade or commerce. *(Section 1 of the Sherman Act)*

Patent: Disclosures of essential patent claims should be made by the patent holder, but others may also notify NFPA if they believe that a proposed or existing NFPA standard includes an essential patent claim.

Legal

- Activities Disapproved by the Courts
  - Packing meetings
  - Hiding commercial interest throwing the committees out of balance
  - No final decision-making authority to unbalanced Task Groups; include all interested parties.
  - Hiding scientific or technical information from committees

Doc Info Pages



Doc Info Pages

Document Information

- Document scope
- Current/Previous Edition information
- Issued TIAs, FIs and Errata
- Archived revision information
- Standard Council Decisions
- Articles and Reports
- Read only document

Next Edition

- Submit Public Input/Comments via Electronic Submission System.
- Meetings and Ballots
- ROP/ROC or First Draft Report and Second Draft Report
- NITMAM and Standard Council Decisions
- Private TC info
  - Ballot circulations, informational ballots and other committee info

Technical Committee

- Committee name, responsibility and scope
- Staff liaison
- Committee list
  - Private committee contact information
  - Current committee documents in PDF format
- Committees seeking members and committee online application

NFPA First Draft Meeting

Any questions?

NFPA thanks you for all of your hard work and dedication as Committee Members!

Public Input No. 63-NFPA 306-2016 [Global Input]

Change "spaces involved in the scope of work" to "subject spaces."

Statement of Problem and Substantiation for Public Input

Both phrases, "spaces involved in the scope of work" and "subject spaces" are currently used in the Standard. They appear to be synonymous. Consolidating the two phrases into "subject spaces" would simplify the intent, leave no room or very little room for different interpretations because of any implied differences, and be consistent with OSHA and the USCG who both currently use "subject spaces" in their respective regulations.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sun Feb 28 12:45:52 EST 2016

Public Input No. 64-NFPA 306-2016 [Global Input]

Change "compartments" to "spaces," and delete "compartments or" when used in conjunction with "spaces," such as "compartments or spaces."

Statement of Problem and Substantiation for Public Input

"Spaces" is a well-defined term in OSHA 1915, and it includes all areas in shipyard employment, including "compartments." More specifically, a "confined space is a compartment," and an "enclosed space means any space, other than a confined space," according to OSHA. Further, "compartment" is not defined by either OSHA or NFPA. Therefore, in addition to "compartments" being redundant with "space," the inclusion of both "spaces" and "compartments" leads to confusion because it suggests the two terms represent two different meanings.

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Street Address:
City:
State:
Zip:
Submittal Date: Sun Feb 28 12:52:02 EST 2016

Public Input No. 105-NFPA 306-2016 [Section No. 1.1.1]

1.1.1

This standard applies to vessels that carry or burn as fuel, flammable or combustible liquids~~. It also applies to vessels that carry or have carried~~ , flammable compressed gases, flammable cryogenic liquids, chemicals in bulk, or other products capable of creating a hazardous condition.

Statement of Problem and Substantiation for Public Input

Given the use of various types of products being used as fuel (LNG, Methane, etc) the application of the Standard needs to be broadened to include other products "burned as fuel". By eliminating the language in the proposed change, it better clarifies the intended application of the standard.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 13:35:41 EDT 2016

Public Input No. 106-NFPA 306-2016 [Section No. 1.1.2]

1.1.2

This standard describes the conditions required , and procedures for determining such conditions, before a space can be entered or work can be started, continued, or started and continued on any vessel under construction, alteration, or repair, or on any vessel awaiting shipbreaking.

Statement of Problem and Substantiation for Public Input

Self explanatory. Chapter 6 for example states "Procedures for the Marine Chemist....". Chapter 8 is essentially is also considered a procedure.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 13:44:35 EDT 2016

Public Input No. 47-NFPA 306-2016 [Sections 1.1.2, 1.1.3, 1.1.4, 1.1.5]

Sections 1.1.2, 1.1.3, 1.1.4, 1.1.5

1.1.2 3

This standard describes the conditions required before a space can be entered or work can be started, continued, or started and continued on any vessel under construction, alteration, or repair, or on any vessel awaiting shipbreaking.

1.1.3 5

This standard applies to cold work, application or removal of protective coatings, and work involving riveting, welding, burning, or similar fire-producing operations.

1.1.4 2

This standard applies to vessels while in the United States, its territories and possessions, both within and outside of yards for ship construction, ship alteration, ship repair, or shipbreaking.

1.1.5 4

This standard applies specifically to those spaces on vessels that are subject to concentrations of combustible, flammable, and toxic liquids, vapors, gases, and chemicals as herein described. This standard is also applicable to those spaces on vessels that might not contain sufficient oxygen to permit safe entry.

1.1.5 4 .1

When requested, the Marine Chemist shall apply this standard to other spaces to ensure and promote safe working conditions.

Statement of Problem and Substantiation for Public Input

Five years ago, NFPA 306 was reorganized to better reflect actual work process. Even though the individual sections were not in error, the new changes added clarity. The same is true here. The first two proposed changes broadly groups "vessels" together. The next two proposed changes more specifically groups spaces within those vessels. Then the remainder of the section flows as originally written. The beginning of the current reading goes from vessels to space to cold work, back to vessels and then back to spaces.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sat Feb 27 16:11:19 EST 2016

Public Input No. 90-NFPA 306-2016 [Section No. 1.1.3]

1.1.3

This standard applies to cold work, application or removal of protective coatings, and hot work involving riveting, welding, burning, or similar fire-producing operations.

Statement of Problem and Substantiation for Public Input

Cold work is mentioned, and an example is given afterwards. Following that, work is mentioned and three specific and one general example are given. These latter examples are hot work. "Work," unqualified, can be either cold work or hot work.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Mon May 16 14:57:37 EDT 2016

Public Input No. 48-NFPA 306-2016 [Section No. 1.1.5]

1.1.5

This standard applies specifically to those spaces on vessels that are subject to concentrations of combustible, flammable, and toxic ~~liquids, vapors, gases, and~~ chemicals as herein described and vapors . This standard is also applicable to those spaces on vessels that might not contain sufficient oxygen to permit safe entry.

1.1.5.1

~~When requested, the~~ The Marine Chemist shall apply this standard to other spaces to ~~ensure and~~ promote safe working conditions.

Statement of Problem and Substantiation for Public Input

Chemicals "as herein described" is defined in paragraph 3.3.3: "Any compound, mixture, or solution in the form of a solid, liquid, or gas . . ." Thus, liquid and gas are already mentioned (as well as "solid," which is not in 1.1.5) and, with "chemicals," is redundant. Removing "liquids" and "gases" from this listing overcomes this. The proposed order of chemicals before vapors reads better.

Deleting "When requested" is necessary. First, all Marine Chemist inspections are "requested," as evidenced by both the definition of "Requester" found in para. 3.3.16 of the Standard as well as the required information on the upper left fill-in section of the Marine Chemist Certificate, "Survey Requested by." Second, "When requested" confuses the requirement to "apply this standard." In other words, consider the converse rendering, "When NOT requested." This incorrectly implies the Marine Chemist shall NOT apply this standard.

Regarding the deletion of "ensure," consider what is literally being stated. According to Webster (which NFPA uses for "ordinarily accepted meaning"), "ensure" means "to make (something) sure, certain, or safe." Marine Chemists definitely "promote safe working practices, but "ensuring" they will happen after he/she has left the vessel is not realistic. This can be further evidenced through Occurrence Reports submitted to NFPA.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sat Feb 27 16:29:22 EST 2016

Public Input No. 107-NFPA 306-2016 [Section No. 1.1.5 [Excluding any Sub-Sections]]

This standard applies specifically to those spaces on vessels that are subject to concentrations of combustible, flammable, and toxic liquids, vapors, gases, and chemicals ~~as~~ , including adjacent spaces, as herein described. This standard is also applicable to those spaces on vessels that might not contain sufficient oxygen to permit safe entry.

Statement of Problem and Substantiation for Public Input

It is recommended that adjacent spaces also be included within the application of the standard for purposes of consistency with other sections of the standard that address adjacent spaces.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 14:59:41 EDT 2016

Public Input No. 82-NFPA 306-2016 [New Section after 1.1.6]

1.1.6.1

This standard applies to Marine Chemist when they are requested to issue a Marine Chemist's Certificate on spaces listed in 1.1.6 that are outside of a shipyard or marine facility.

Statement of Problem and Substantiation for Public Input

MCs already are required by 1.1.6 to inspect land-side confined spaces if within the boundaries of a shipyard or marine facility.
A MC's Certificate, because it is considered the "Gold Standard" in confined space inspections is a requirement that is often written into contracts or is requested by many companies for their land based confined spaces, most of which are land storage tanks.
Some MCs follow NFPA 306 and use an unofficial certificate, others using 1.1.5.1 to make these inspections also follow NFPA 306. but use a NFPA MC's certificate. The argument could be made that both of these examples would/should be under the over sight of the MCQB because both are representing their selves as a NFPA Certified Marine Chemist. This is a gray area and by including 1.1.6.1 along with necessary explanation in the appendix, we would make it clear that when a MC is requested to issue a MC's Certificate they would follow NFPA 306 and use a NFPA MC's Certificate.

Submitter Information Verification

Submitter Full Name: Leslie Blaize
Organization: Belay Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 04 16:42:32 EDT 2016

Public Input No. 108-NFPA 306-2016 [Section No. 1.1.6]

1.1.6

This standard applies to land-side confined spaces, located within the boundaries of a shipyard or ship repair facility, whether stationary or mobile; underground and aboveground storage tanks; other hollow structures ~~throughout a shipyard~~ such as tank trucks, railroad tank cars, power plant fuel tanks, storage tanks, dip and laundry tanks, vaults, tunnels; or other spaces that could contain dangerous atmospheres. Spaces located ~~within~~ outside the boundaries of a shipyard or ship repair facility are not considered to fall within the scope of this standard .

Statement of Problem and Substantiation for Public Input

It is proposed that this section be revised for clarification purposes to ensure that 306 is not improperly applied to land-side spaces outside the boundaries of a shipyard.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 15:07:54 EDT 2016

Public Input No. 46-NFPA 306-2016 [Section No. 1.1.6]

1.1.6

This standard applies to land-side confined spaces, whether stationary or mobile; underground and aboveground storage tanks; other hollow structures throughout a shipyard such as tank trucks, railroad tank cars, power plant fuel tanks, storage tanks, dip and laundry tanks, vaults, tunnels; or other spaces that could contain dangerous atmospheres located within the boundaries of a shipyard ~~or~~ , ship repair ~~facility~~ or if requested at marine facilities .

Statement of Problem and Substantiation for Public Input

land storage tanks within marine facilities are often required by contract, insurance or requested to be inspected by CMCs and a "Marine Chemist Certificate" issued, these MCCs are usually in support of other regulations and are no different than those in shipyards. They should be noted in 306, written on CMC certs. and under the over site of the MCQB.

Submitter Information Verification

Submitter Full Name: Leslie Blaize
Organization: Belay Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Sat Feb 27 13:15:47 EST 2016

Public Input No. 28-NFPA 306-2016 [Section No. 1.1.8]

1.1.8*

This standard does not apply to physical, biological or radiological hazards of tanks and confined or enclosed spaces on a vessel or vessel sections, or in the shipyard. For the purposes of this standard, physical hazards do not include fire and explosion hazards.

Statement of Problem and Substantiation for Public Input

In previous discussions we acknowledge that 306 does not cover biological or radiological hazards so they should be included here so there is no doupt

Submitter Information Verification

Submitter Full Name: Leslie Blaize
Organization: Belay Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jan 12 17:41:11 EST 2016

Public Input No. 91-NFPA 306-2016 [Section No. 1.1.8]

1.1.8*

This standard does not apply to physical hazards of tanks and confined or enclosed spaces on a vessel or vessel sections, or in the shipyard. ~~For the purposes of this standard, physical hazards do not include fire and explosion hazards.~~

Statement of Problem and Substantiation for Public Input

First, as written, this paragraph contains a "double negative" (i.e. "not apply" and "not include"). Second, OSHA states that "flammability " IS a physical hazard. Therefore, the exclusion phrase to remove fire and explosions from physical hazards not only appears awkward (similar to stating, "for the purposes of this standard, the American flag is not red, white, and blue) but also conflicts with OSHA's Safety and Health Topics - Chemical Hazards and Toxic Substances (i.e. "physical hazards such as flammability . . ."), for example. Lastly, the middle two words represented in NFPA (i.e. Fire Protection) and the literal content and general impression of NFPA 306 to promote fire safety more than suggests the applicability of fire and explosion hazards. Nonetheless, if this level of "applicability" is still desired, it would be better to place it in one of the preceding "This standard applies to" paragraphs, such as the second part of 1.1.3, or 1.1.5

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Mon May 16 16:18:37 EDT 2016

Public Input No. 94-NFPA 306-2016 [Section No. 1.1.8]

1.1.8 *

This standard does not apply to physical hazards ~~of~~ , biological hazards, or radiological hazards of tanks and confined or enclosed spaces on a vessel or vessel sections, or in the shipyard. For the purposes of this standard, physical hazards do not include fire and explosion hazards.

Statement of Problem and Substantiation for Public Input

To clarify that the hazards of bacteria and radiation are not part of the marine chemist inspection process.

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 07:12:20 EDT 2016

Public Input No. 83-NFPA 306-2016 [Section No. 1.2]

1.2 Purpose.

The purpose of this standard is to provide minimum requirements and conditions for use in determining that a space or area on a vessel, or in a shipyard or ship repair facility ~~,~~ and if requested in a marine facility is safe for entry or work.

Statement of Problem and Substantiation for Public Input

Safe working conditions under 306 should be used at marine facilities

Submitter Information Verification

Submitter Full Name: Leslie Blaize
Organization: Belay Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Sun May 15 09:16:42 EDT 2016

Public Input No. 109-NFPA 306-2016 [Section No. 2.3.1]

2.3.1 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1915 ~~.7.~~ Subparts A, B, D, P and Z

Title ~~29~~ 46 , Code of Federal Regulations, ~~Part 1915.15~~ Chapter I, Part 35, “Operations,” Subpart 35.01 .

Title 46 ~~,~~ Code of Federal Regulations, ~~Chapter I~~ Chapter I , ~~Part 35~~ Part 91 , ~~“Operations~~ "Operations ,”~~–~~ ", Subpart ~~35~~ 91 ~~.01~~ 50 .

Statement of Problem and Substantiation for Public Input

Clarifies additional Government Publications that are associated with 306.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
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Submittal Date: Wed May 18 15:15:35 EDT 2016

Public Input No. 76-NFPA 306-2016 [Section No. 2.3.1]

2.3.1 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1915.7.

Title 29, Code of Federal Regulations, Part 1915.15.

Title 29, Code of Federal Regulations, Part 1915.501.

Title 29, Code of Federal Regulations, Part 1915.504.

Title 46, Code of Federal Regulations, Chapter I, Part 35, “Operations,” Subpart 35.01.

Statement of Problem and Substantiation for Public Input

1915.501 contains information on the Purpose for the entire Subpart P, Fire Protection in Shipyard Employment, which is directly applicable to NFPA 306. In addition, it also contains information relating to Multi-Employer Worksites, Host Employer, and Contract Employer; terms used in NFPA 306.

1915.504 contains information on when to use Fire Watches, how many to use, for how long after hot work is completed, etc. It also contains other fire protection methods. None of this information is in NFPA 306, even though it is vitally useful to the Marine Chemist. Lastly, this Part specifically mentions the Marine Chemist by name, and supports the Marine Chemists' professional judgement of requiring fire watches in addition to the scenarios presented in Subpart P.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
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Submittal Date: Thu Apr 07 20:19:13 EDT 2016

Public Input No. 84-NFPA 306-2016 [Section No. 2.3.1]

2.3.1 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1915.7.

Title 29, Code of Federal Regulations, Part 1915.15.

Title 46, Code of Federal Regulations, Chapter I, Part 35, “Operations,” Subpart 35.01.

Title 46, Code of Federal Regulations, Chapter I, Part 175, "General Provisions," Subpart 175.400.

Statement of Problem and Substantiation for Public Input

46 CFR 175.400 Definition of terms used in this subchapter, contains a definition for "machinery space." Neither NFPA 306 or OSHA 1915 has a definition for machinery space (or even machinery compartment). Section 4.3.4 of NFPA 306 contains the term "machinery compartments" and the USCG has used this section to determine when a Marine Chemist is required on its inspected vessels. This inclusion, whether with or without an applicable proposal for a definition for "machinery space", would bring clarity to others, as well as support the US Coast Guard's efforts.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sun May 15 09:30:50 EDT 2016

Public Input No. 95-NFPA 306-2016 [Section No. 2.3.1]

2.3.1 U.S. Government Publications.

U.S. Government Printing Office, Washington, DC 20402.

Title 29, Code of Federal Regulations, Part 1915.7.

Title 29, Code of Federal Regulations, Part 1915.15.

Title 46, Code of Federal Regulations, Chapter I, Part 35, “Operations,” Subpart 35.01.

Title 29, Code of Federal Regulations, Part 1915.501

Title 29, Code of Federal Regulations, Part 1915.504

Statement of Problem and Substantiation for Public Input

These OSHA sections explain that landsiide spaces within a shipyard are covered by 1915 and when a marine chemist certificate can be used to mandate that firewatches are required.

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
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Submittal Date: Wed May 18 07:20:18 EDT 2016

Public Input No. 97-NFPA 306-2016 [Section No. 2.3.2]

2.3.2 Other Publications.

Merriam-Webster's Collegiate Dictionary, 11th edition, Springfield, MA, 2003.

API 2207, Preparing Tank Bottoms for Hot Work

API 2015, Requirements for Safe Entry and Cleaning of Petroleum Storage Tanks

API 2016, Guidelines and Procedures for Entering and Cleaning Petroleum Storage Tanks

API 2009, Safe Welding, Cutting and Hot Work Practices in the Petroleum Industries

Statement of Problem and Substantiation for Public Input

These API publications provide guidance for safe inspection and hot work processes for above ground storage in shipyards.

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
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City:
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Submittal Date: Wed May 18 07:38:22 EDT 2016

Public Input No. 96-NFPA 306-2016 [Section No. 2.4]

2.4 References for Extracts in Mandatory Sections.

NFPA 55, *Compressed Gases and Cryogenic Fluids Code,* 2013 edition.

NFPA 69, Standard on Explosion Prevention Systems

NFPA 350, Guide for Safe Confined Space Entry and Work

Statement of Problem and Substantiation for Public Input

Marine Chemists and Competent Persons are required to inspect landside tanks in shipyards but there is no guidance on how the inspection process should occur. These standards will provide information for the inspection

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 07:30:50 EDT 2016

Public Input No. 49-NFPA 306-2016 [Section No. 3.2.1]

3.2.1* Authority Having Jurisdiction (AHJ).

An organization, office, or individual responsible for enforcing the requirements of a code or standard~~, or for approving equipment, materials, an installation, or a procedure~~ .

Statement of Problem and Substantiation for Public Input

The current phrase contains an "individual" . . . "for approving equipment, materials, an installation, or a procedure." This could be anyone from a group leader, foreman, supervisor, etc. and becomes a concern when considering paragraph 1.3 Emergency Exception . . . "This emergency exception shall be subject to the approval of ANY (for emphasis) authority having jurisdiction" (defined above). It is doubtful the intent of the emergency exception was to allow ANY "individual" who could "(approve) materials, equipment," etc.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
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Zip:
Submittal Date: Sat Feb 27 16:44:01 EST 2016

Public Input No. 110-NFPA 306-2016 [Section No. 3.3.1]

3.3.1 Adjacent Spaces.

Those spaces in all directions from subject space, including all points of contact, corners, diagonals, decks, tank tops, and bulkheads. Pipelines ~~are not adjacent spaces and are not~~ , heating coils, pump fittings or other appurtances connected to spaces that contain of have last contained products capable of creating a hazardous condition, are not classified as adjacent spaces and shall not be considered safe for hot work unless noted on the Marine Chemist's Certificate.

Statement of Problem and Substantiation for Public Input

The proposed change is intended to more clearly identify other types of equipment and appurtenances that could be mistakenly overlooked when certifying spaces.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 15:27:21 EDT 2016

Public Input No. 50-NFPA 306-2016 [Section No. 3.3.1]

3.3.1 Adjacent Spaces.

Those spaces in all directions from subject space, including all points of contact, corners, diagonals, decks, tank tops, and bulkheads. Pipelines and subject spaces are not adjacent spaces and are not considered safe for hot work unless noted on the Marine Chemist's Certificate.

Statement of Problem and Substantiation for Public Input

By the wording of the first sentence of this definition, Adjacent Spaces are "spaces in all directions FROM (for emphasis) subject space." Thus, Subject Spaces are not Adjacent Spaces, they are removed "from" the Adjacent Space. If work is conducted against a bulkhead between two tanks, both tanks are "subject" to hot work/heat transfer, and thus should be certified Safe for Hot Work. Both tanks should also have one fire watch each in order to comply with Subpart P. This past 5-year cycle had more than one incident in which hot work was performed against a bulkhead of a single (Subject) space and the second space also subject to the effects of hot work (i.e. opposite side) was never addressed.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
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Submittal Date: Sat Feb 27 16:55:45 EST 2016

Public Input No. 73-NFPA 306-2016 [Section No. 3.3.5]

3.3.5* Combustible Material.

Material made of or surfaced with wood, compressed paper, plant ~~fibers~~ fiber , ~~plastics~~ plastic , ~~liquids,~~ or other material that will ignite and burn, whether flame-proofed or not, or whether plastered or unplastered.

Statement of Problem and Substantiation for Public Input

Two of the words in the list are plural, and have been made singular in this proposal to conform with the majority.

The more substantial change is the deletion of "liquids." First, "combustible liquid" is already defined in this same section of NFPA 306. Also, and more importantly, the sentence reads "liquids . . . that will ignite or burn." Considering a flammable liquid, also defined in this section, is both a "liquid" that "ignites and burns," this causes confusion. Under the current definition, gasoline is both a combustible material and a flammable liquid.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 07 16:53:57 EDT 2016

Public Input No. 51-NFPA 306-2016 [Section No. 3.3.7]

3.3.7 Contract Employer.

An employer, such as a welder, burner, grinder, painter, or other subcontractor, who performs work under contract to the host employer or to another employer under contract to the host employer at ~~the host employer's work site~~ a multi-employer worksite .

Statement of Problem and Substantiation for Public Input

A Host Employer is defined in 3.3.11 as "An employer who is in charge . . ." A Host Employer does not necessarily have to be a shipyard. Many employers who are "in charge" of Contract Employers could be working on a USN or USCG base, which is not their own property.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
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Zip:
Submittal Date: Sat Feb 27 17:32:46 EST 2016

Public Input No. 98-NFPA 306-2016 [Section No. 3.3.10]

3.3.10 Hollow Structures.

Rudders, rudder stocks, skegs, castings, masts and booms, rails, lapped plates, and other ~~attachments to~~ hollow attachments on a vessel or in a shipyard that enclose a void space.

Statement of Problem and Substantiation for Public Input

Removing a hatch cover from a ship does not make the hollow structure safe for hot work. This change will help ensure that hollow structures throughout the shipyard are recognized as a hazard and addressed.

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 07:45:56 EDT 2016

Public Input No. 85-NFPA 306-2016 [Section No. 3.3.11]

3.3.11 Host Employer.

An employer who is in charge of coordinating work or who hires other employers to perform work at a multi-employer ~~workplace~~ worksite .

Statement of Problem and Substantiation for Public Input

"Worksite" is the proper terminology found in OSHA, not "workplace."

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sun May 15 10:20:21 EDT 2016

Public Input No. 111-NFPA 306-2016 [Section No. 3.3.12.2]

3.3.12.2 Cryogenic Liquid.

~~See~~ ~~3.5.3~~ A fluid with a boiling point lower than -130°F (-90°C) at an absolute pressure of 14.7 psi (101.3 kPa) .

Statement of Problem and Substantiation for Public Input

The proposed change is intended to place all definitions in one section for ease of reference.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 15:40:26 EDT 2016

Public Input No. 53-NFPA 306-2016 [New Section after 3.3.13]

Machinery Space.

A space including a trunk, alleyway, stairway, or duct to such a space, that contains:

3.3.13.1 Propulsion machinery of any type;

3.3.13.2 Steam or internal combustion machinery:

3.3.13.3 Oil transfer equipment;

3.3.13.4 Electrical motors of more than 10 hp;

3.3.13.5 Refrigeration equipment;

3.3.13.6 One or more oil-fired boilers or heaters; or

3.3.13.7 Electrical generating machinery.

Statement of Problem and Substantiation for Public Input

Section 4.3.4 of NFPA 306 contains the term "machinery compartments," and the USCG has used this section to determine when a Marine Chemist is required on its inspected vessels. However, neither NFPA 306 or OSHA 1915 contains a definition for either "machinery compartments" or "machinery spaces." The USCG, however, does have its own definition of Machinery Space (which, except for NFPA 306 formatting, is the current proposal; verbatim from 46 CFR 175.400). Considering the difficulty in finding the definition of this term, especially for work outside the USCG, it is important to include a definition in NFPA 306. It is also important that NFPA 306's definition be in accord with the USCG's. This will also require changing Machinery Compartment of paragraph 4.3.4 to Machinery Space, in order to promote clarification of meaning.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
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Zip:
Submittal Date: Sat Feb 27 19:06:09 EST 2016

Public Input No. 77-NFPA 306-2016 [Section No. 3.3.15]

3.3.15 Multi-Employer ~~Workplace~~ Worksite .

A workplace where there is a host employer and at least one contract employer.

Statement of Problem and Substantiation for Public Input

Since the current term (multi-employer workplace) closely resembles the very similar OSHA term (multi-employer worksite), and especially since both terms contain the Host Employer and Contract Employer, and finally since Subpart P (where OSHA's "multi-employer worksite" is found) is referenced in Annex F.1.2.8, it is best to more precisely match the OSHA term, who first came up with it; unless the intent is to mean something different (which does not appear to be the case). Because the two terms are not literally the same, they are subject to different interpretations and, thus, confusion.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 07 20:41:55 EDT 2016

Public Input No. 32-NFPA 306-2016 [Section No. 3.3.16]

3.3.16* Requester.

~~A company or entity that requests the survey by the Marine Chemist and is listed~~ New text defining "Requester": As noted at the top of the Marine Chemist Certificate in the space ~~, *Survey Requested by*~~ *Survey Requested By,* the Requester is either The Host Employer or Contract Employer of workers entering or doing hot work in or on spaces the Marine Chemist has listed on the Certificate .

Statement of Problem and Substantiation for Public Input

#1: 29cfr1915, OSHA's Maritime Standard is incorporated by reference (2.1 ..."and shall be considered part...of this document." The entire legal structure of 29cfr1915 rests on "The Employer" as in 1915.14 (a) "The Employer shall ensure that hot work is not performed...until the work area ha been tested and certified by a Marine Chemist..." This is but one of dozens of such duties OSHA assigns "The Employer." And every OSHA enforcement Citation and penalty, whether fines or imprisonment, aims directly at "The Employer"

#2: For decades NFPA 306 followed OSHA's lead, stating that the Marine Chemist's services were to be requested by the "Ship Repairer", who was obviously the Employer responsible for the safety of those doing the repairs.

#3: In spite of referencing OSHA as part of NFPA 306, 2 revisions back NFPA 306 went directly against the essential legal structure of OSHA by saying an "owner" or some indefinite "entity" had standing to request the Chemist's services. This has 2 things wrong with it:
a) It invites "Chemist-shopping" because the vessel owner, who has no legal responsibility for worker safety, has instead a possible conflict of interest because he pays the bill and is impelled to "request" the cheapest, least professional and above all least demanding Marine Chemist he knows of or can find. Such is precisely the reason why OSHA has traditionally and wisely limited responsibility to "The Employer" of the workers being protected.
b) OSHA says by law the Employer has the duty to "maintain" safe conditions. (1915.15) But NFPA's pursuit of "owner" or "entity" as the Certificate Maintainer creates an obvious conflict within 306: The "entity" requesting the Certificate may have no immediate knowledge of workplace conditions in Puget Sound when they are a purchasing agent or functionary in Virginia Beach. At least an employer has people on site, whereas the owner or "entity" need not. In truth, the Chemist's Certificate cannot be maintained without a Shipyard Competent Person. And there is no requirement that an owner or "entity" have any such resource. (Of course, the employer lives with that regulation every day.)

#4. The reason for "owner/entity" was an attempt to deal with the multi-employer workplace. But that difficulty is easily and more specifically addressed by the changed wording I suggest.

#5. At times more than one "requester" has been involved with some Certificates. The "either" I suggest in the definition will make the singular requester more definite.

Submitter Information Verification

Submitter Full Name: don sly

Organization:	sound testing
Affilliation:	does not apply
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Thu Feb 11 23:36:40 EST 2016

Public Input No. 112-NFPA 306-2016 [Section No. 3.3.17]

3.3.17 * Secured.

Closed ~~in~~ and tagged in a manner to prevent opening or operation.

Statement of Problem and Substantiation for Public Input

The additional language is proposed to more closely align with OSHA Shipyard lockout / tagout requirements. The use of a "tag" adds an additional measure of safety designed to prevent a "system" from being inadvertently opened.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 15:48:15 EDT 2016

Public Input No. 20-NFPA 306-2015 [New Section after 3.3.18]

TITLE OF NEW COMMENTS

Special endorsement for Flammable Cryogenic Carriers. A Marine Chemist that during or after their initial certification training, has passed the module test for the "FLAMMABLE CRYOGENIC LIQUID CARRIERS".

Statement of Problem and Substantiation for Public Input

the special endorsement is not defined in 306. There are discussions that the special endorsement training has out lived it's usefulness and that all trainees and CMCs should take the module/test with no additional training requirements the result through attrition is that all CMCs will have the endorsement. Questions on FCLCs would be included on the re-cert exam

Submitter Information Verification

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Submittal Date: Thu Dec 17 19:58:50 EST 2015

Public Input No. 113-NFPA 306-2016 [New Section after 3.3.19]

3.3.19 Space

An area on a vessel or vessel section or within a shipyard such as, but not limited to: cargo tanks or holds; pump or engine rooms; storage lockers; tanks containing flammable or combustible liquids, gases, or solids; rooms within buildings; crawl spaces; tunnels; or access ways. The atmosphere within a space is the entire area within its bounds and contains or has a potential to contain a hazardous atmosphere; ***or*** contains a material that has the potential for engulfing an entrant; ***or*** has an internal configuration that could trap or asphyxiate an entrant by inwardly converging walls or a floor which slopes downward and tapers to a small cross section; ***or*** contains any other recognized serious safety or health hazard.

Statement of Problem and Substantiation for Public Input

It is proposed that a "space" be defined within 306 to conform with definitions provided in 29 CFR 1915 as it could be interpreted to mean simply an enclosed or confined space and not open areas such as the main deck of a tank vessel..

Note: Existing section 3.3.19 Toxic is to remain the same. The new proposed section 3.3.19 has simply been placed here to follow the alphabetical order.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
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Submittal Date: Wed May 18 15:57:22 EDT 2016

Public Input No. 60-NFPA 306-2016 [New Section after 3.3.19]

SUBJECT SPACE:

Any space subject to work. Any space involved in the scope of work, including both entry and hot work. A subject space is not an adjacent space.

Statement of Problem and Substantiation for Public Input

The term "subject space" is used in NFPA 306, OSHA 1915, and, at a minimum, USCG COMMANDANT CHANGE NOTICE 16000 Subj: CH-14 TO MARINE SAFETY MANUAL (MSM), VOLUME I, ADMINISTRATION AND MANAGEMENT, COMDTINST M16000.6. However, to the best of this submitter's findings, "subject space" is not defined in any of these documents. Defining this term is necessary, especially when welding on bulkheads, overheads, and decks. In addition, NFPA 306 would take the lead in defining this term for everybody else.

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Submittal Date: Sun Feb 28 12:04:11 EST 2016

Public Input No. 114-NFPA 306-2016 [Section No. 3.3.19]

3.3.19 Toxic.

A property of any chemical that has the capacity to produce adverse health effects or injury to workers, which is dependent on concentration, rate, and method and site of absorption.

Statement of Problem and Substantiation for Public Input

From an industrial hygiene perspective, a "Toxic" also has the capacity to produce adverse health effects, not just an "injury".

Submitter Information Verification

Submitter Full Name: John Doran
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Submittal Date: Wed May 18 16:06:25 EDT 2016

Public Input No. 86-NFPA 306-2016 [Section No. 3.3.21]

3.3.21 Visual Inspection.

The physical survey of ~~the~~ a space ~~or compartment~~ and ~~surroundings~~ adjacent spaces in order to identify potential ~~atmospheric and~~ fire hazards.

Statement of Problem and Substantiation for Public Input

An "a" is general, whereas "the" is emphatic. This definition is for all spaces, not a specific space.
"Space" and "adjacent space" are defined in OSHA 1915 and, thus, are proper terms.
"Compartments" and "surroundings" are not defined.
Atmospheric hazards are typically identified by instrumentation, not visual inspection. This could be confusing.

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Street Address:
City:
State:
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Submittal Date: Sun May 15 10:24:24 EDT 2016

Public Input No. 115-NFPA 306-2016 [Section No. 3.4.1]

3.4.1 Cold Work.

Any construction, alteration, repair, or shipbreaking that does not involve heat- , fire- , or spark-producing operations.

Statement of Problem and Substantiation for Public Input

Typo correction to remove the hyphen after the words heat and fire.

Submitter Information Verification

Submitter Full Name: John Doran
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Submittal Date: Wed May 18 16:09:02 EDT 2016

Public Input No. 116-NFPA 306-2016 [Section No. 3.4.2]

3.4.2 * Hot Work.

Any activity involving any of the following: riveting, welding, burning, the use of powder-actuated tools or similar fire-producing operations; any operation that raises the temperature of the work piece equal to or greater than 204°C (400°F); or grinding, drilling, abrasive blasting, or similar operations in the presence of or against the accumulations of readily combustible materials ~~or~~ , flammable or combustible liquids ~~or~~ , cryogenic liquids, gasses, or vapors when the atmosphere exceeds 10 percent of the LEL.

Statement of Problem and Substantiation for Public Input

The additional language is proposed to include cryogenic liquids and gasses under the scope of hot work.

Submitter Information Verification

Submitter Full Name: John Doran
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Street Address:
City:
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Submittal Date: Wed May 18 16:10:34 EDT 2016

Public Input No. 55-NFPA 306-2016 [Section No. 3.4.2]

3.4.2* Hot Work.

Any activity involving any of the following: riveting, welding, burning, the use of powder-actuated tools or similar fire-producing operations; any operation that raises the temperature of the work piece equal to or greater than 204°C (400°F)~~; or grinding,~~ . Grinding, drilling, abrasive blasting, or similar spark-producing operations are also considered hot work, except when such operations are isolated physically from any atmosphere containing more than 10 percent of the lower explosive limit of a flammable or combustible substance. Grinding, drilling, abrasive blasting, or similar spark-producing operations are considered hot work in the presence of ~~or against~~ the accumulations of readily combustible materials ~~or flammable or combustible liquids or vapors when the atmosphere exceeds 10 percent of the LEL~~ within 35 feet .

Statement of Problem and Substantiation for Public Input

The OSHA definition of Hot Work in Subpart B better explains what to do with grinding, etc.; and there was a potential error of including the word "against" in the definition. The OSHA definition of Hot Work, however, does not address "readily combustible materials." This new definition combines the best of both documents.

Submitter Information Verification

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Submittal Date: Sat Feb 27 19:37:22 EST 2016

Public Input No. 150-NFPA 306-2016 [Section No. 3.5]

3.5 Flammable Cryogenic Liquid ~~Carriers.~~ (FCL) Vessels

3.5.1* Cargo Area.

That part of the ship that contains the cargo containment system, cargo pump room, and compressor room and that includes the deck areas over both the full beam and the length of the ship located above the aforementioned.

3.5.2* Cargo Containment System.

The arrangement for containment of cargo including, where applicable, a primary and secondary barrier, associated insulation, and any intervening spaces and adjacent structures if necessary for the support of these elements.

3.5.3 Cryogenic Fluid.

A fluid with a boiling point lower than -130°F (-90°C) at an absolute pressure of 14.7 psi (101.3 kPa). [**55,** 2013]

3.5.4 Hold Space.

The space enclosed by the ship's structure in which a cargo containment system is situated.

3.5.5 Interbarrier Space.

That space between a primary and secondary barrier, whether or not completely or partially occupied by insulation or other material.

3.5.6 Primary Barrier.

The inner element designed to contain the cargo when the cargo containment system includes two boundaries.

3.5.7 Secondary Barrier.

The liquid-resisting outer element of a cargo containment system designed to afford temporary containment of any envisaged leakage of liquid cargo through the primary barrier and to prevent the lowering of the temperature of the ship's structure to an unsafe level.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel. Refer to each individual definition for comments.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
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Submittal Date: Wed Jun 15 13:53:27 EDT 2016

Public Input No. 143-NFPA 306-2016 [Section No. 3.5.1]

3.5.1* ~~Cargo~~ Cryogenic Liquid Area.

That part of the ~~ship~~ vessel that contains the ~~cargo~~ cryogenic liquid containment system, ~~cargo~~ pump room, and compressor room and that includes the deck areas over both the full beam and the length of the ~~ship~~ vessel located above the aforementioned.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel.

Submitter Information Verification

Submitter Full Name: John Doran
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Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 13:42:15 EDT 2016

Public Input No. 144-NFPA 306-2016 [Section No. 3.5.2]

3.5.2* ~~Cargo~~ Containment System.

The arrangement for containment of cargo or fuel including, where applicable, a primary and secondary barrier, associated insulation, and any intervening spaces and adjacent structures if necessary for the support of these elements.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel.

Submitter Information Verification

Submitter Full Name: John Doran
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Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 13:43:51 EDT 2016

Public Input No. 149-NFPA 306-2016 [Section No. 3.5.3]

~~3.5.3 – Cryogenic Fluid.~~

~~A fluid with a boiling point lower than -130°F (-90°C) at an absolute pressure of 14.7 psi (101.3 kPa). [**55,** 2013]~~

Statement of Problem and Substantiation for Public Input

Deleted as this definition is proposed to be inserted under 3.3.12.2. Note that 3.3.12.2 refer to it as a Cryogenic Liquid while 3.5.3 calls it a Cryogenic Fluid. For the sake of consistency cryogenic products throughout the Standard are referred to as liquids.

Submitter Information Verification

Submitter Full Name: John Doran
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Street Address:
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Submittal Date: Wed Jun 15 13:49:49 EDT 2016

Public Input No. 145-NFPA 306-2016 [Section No. 3.5.4]

3.5.4 Hold Space.

The space enclosed by the ~~ship's~~ vessel's structure in which a cargo or fuel containment system is situated.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel.

Submitter Information Verification

Submitter Full Name: John Doran
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Submittal Date: Wed Jun 15 13:45:11 EDT 2016

Public Input No. 146-NFPA 306-2016 [Section No. 3.5.5]

3.5.5 Interbarrier Space.

That space associated with a FCL tank, between a primary and secondary barrier, whether or not completely or partially occupied by insulation or other material.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel.

Submitter Information Verification

Submitter Full Name: John Doran
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City:
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Submittal Date: Wed Jun 15 13:46:06 EDT 2016

Public Input No. 147-NFPA 306-2016 [Section No. 3.5.6]

3.5.6 Primary Barrier.

The inner element of an FCL tank designed to contain the ~~cargo~~ cryogenic liquid when the ~~cargo~~ containment system includes two boundaries.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel.

Submitter Information Verification

Submitter Full Name: John Doran
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City:
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Submittal Date: Wed Jun 15 13:47:07 EDT 2016

Public Input No. 148-NFPA 306-2016 [Section No. 3.5.7]

3.5.7 Secondary Barrier.

The liquid-resisting outer element of a ~~cargo~~ cryogenic liquid containment system designed to afford temporary containment of any envisaged leakage of cryogenic liquid ~~cargo~~ through the primary barrier and to prevent the lowering of the temperature of the ~~ship's~~ vessel's structure to an unsafe level.

Statement of Problem and Substantiation for Public Input

The proposed revisions are intended to address cryogenic liquids both as cargo and fuel.

Submitter Information Verification

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Submittal Date: Wed Jun 15 13:47:59 EDT 2016

Public Input No. 118-NFPA 306-2016 [Section No. 4.2]

4.2 Vessels Other Than Tank Vessels.

On any vessels that have carried flammable or combustible liquid or cryogenic liquids in bulk as fuel or cargo, or that have carried cargoes that can produce hazardous atmospheres (including, but not limited to, those caused by decomposition or reaction with oxygen from the atmosphere), no repairs involving hot work shall be made in or on the external boundaries (shell, tank top, or deck) of cargo tanks, fuel tanks, oil pipelines, heating coils, pump fittings or other appurtenances connected to spaces that contain or have last contained fuel, or hollow structures, and machinery spaces, unless such compartments and pipelines, as deemed necessary by the Marine Chemist, have been inerted or cleaned to meet the appropriate designation requirements of 7.1.4, 7.1.6, or 7.1.8, and for spaces that will be entered, the requirements of 7.1.1. Repairs and alterations shall not be undertaken until a Certificate is obtained.

Statement of Problem and Substantiation for Public Input

The proposed change is intended to address cryogenic liquids being used as fuel, as well as including items such as pump fittings and other appurtenances that could contain hazardous atmospheres.

Submitter Information Verification

Submitter Full Name: John Doran
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City:
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Zip:
Submittal Date: Wed May 18 16:30:07 EDT 2016

Public Input No. 152-NFPA 306-2016 [Section No. 4.2]

4.2 Vessels Other Than Tank Vessels.

On ~~any~~ vessels that have carried flammable or combustible liquid in bulk as fuel or cargo, or that have carried cargoes that can produce hazardous atmospheres (including, but not limited to, those caused by decomposition or reaction with oxygen from the atmosphere), no repairs involving hot work shall be made in or on the external boundaries (shell, tank top, or deck) of cargo tanks, fuel tanks, oil pipelines, heating coils or hollow structures, and machinery spaces, unless such compartments and pipelines, as deemed necessary by the Marine Chemist, have been inerted or cleaned to meet the appropriate designation requirements of 7.1.4, 7.1.6, or 7.1.8, and for spaces that will be entered, the requirements of 7.1.1. Repairs and alterations shall not be undertaken until a Certificate is obtained.

Statement of Problem and Substantiation for Public Input

"any" is superfluous. Moreover, its use i a regulatory context mplies exceptions to the statement itself, meaning the statement is incomplete until whatever inspired the "any" is dealt with

Submitter Information Verification

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Submittal Date: Fri Jun 24 18:40:20 EDT 2016

Public Input No. 153-NFPA 306-2016 [Section No. 4.2]

4.2 Vessels Other Than Tank Vessels.

On any vessels ~~that~~ which have carried flammable or combustible ~~liquid in bulk as fuel or cargo, or that have carried cargoes that can produce hazardous atmospheres (including, but not limited to, those caused by decomposition or reaction with oxygen from the atmosphere),~~ liquids in service tanks for use in the vessel's own systems (fuel, hydraulic, lubrication, etc.,) no repairs involving hot work shall be ~~made in or on the external boundaries (shell, tank top, or deck) of cargo tanks, fuel tanks, oil~~ done on or within such service tanks, or their associated pipelines, heating coils ~~or hollow structures~~ , and machinery spaces, ~~unless such compartments and pipelines, as deemed necessary by the Marine Chemist, have been inerted or cleaned to meet the appropriate designation requirements of 7.1.4 , 7.1.6 , or 7.1.8 , and for spaces that will be entered, the requirements of 7.1.1 . Repairs and alterations shall not be undertaken until a Certificate is obtained.~~ until a Marine Chemist has certified such spaces "Safe for Hot Work," "Safe for LImited Hot Work," or "lnerted: Safe for Limited Hot Work."

4.2 Should read simply: On vessels which have carried flammable or combustible liquids in service tanks for use in the vessel's own systems (fuel, hydraulic, lubrication, etc.) no repairs involving hot work shall be done on or within such service tanks, or their associated pipelines, heating coils, or machinery spaces, until a Marine Chemist has certified such spaces "Safe for Hot Work," "Safe for LImited Hot Work," or "lnerted: Safe for Limited Hot Work."

Statement of Problem and Substantiation for Public Input

Members: Please be patient with me: there are so many problems with existing takes me a long time to list them.

The big problem is the confusion caused by mixing up "cargo" and other tanks by using "cargo" indiscriminately. For instance, " or that have carried cargoes that can produce" obviously refers to a tank vessel, but includes it in "vessels other than tank vessels..."

The changes make clear the essential difference between "cargo tanks" and non-cargo tanks. Without this 4.2 makes very little sense.

I changed "in boundaries" which is without meaning (a "boundary" has no 3rd dimension) to "within boundaries"

I explicitly noted "machinery spaces" in harmony with OSHA. It is certain that such spaces have been contaminated by "flammable or combustible" fluids and so demand a Marine Chemist's Certificate.

The Chemist does not "deem" anything; that is done by the standard itself. The Chemist JUDGES and CERTIFIES whether space conditions meet the Standard Designations. I clarify this misuse of "deems" Now NFPA 306, not the Chemist, demands a certificate in specific cases. Absent this, hot work on NON-tank vessels simply demands not certified cleanliness, but a mere opinion (verbal? written?)

The necessity of a certificate need only be stated once: not twice.

"ENTRY" should be dealt with under "Entry", not under "Hot Work." It is already dealt with so I cut it out.

Submitter Information Verification

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Submittal Date: Fri Jun 24 19:12:02 EDT 2016

Public Input No. 57-NFPA 306-2016 [Section No. 4.3.2]

4.3.2

All ammunition shall be removed from any space requiring hot work. Adjacent spaces containing ammunition shall be treated in accordance with the Marine Chemist's requirements. ~~Adjacent spaces containing flammable or combustible liquids shall be treated in accordance with the Marine Chemist's requirements and acknowledged on the Certificate.~~

Statement of Problem and Substantiation for Public Input

This paragraph starts off by addressing ammunition, but then adds the proposed deletion of "adjacent spaces containing flammable and combustible liquids shall be treated in accordance with the Marine Chemist's requirements." In addition to the proposed deletion not fitting in this section (ammunition vs liquids), adjacent spaces of both types are already contained in 4.3.4 (internal repairs) and 4.3.5 (external repairs). In both cases, "in accordance with Marine Chemist's requirements" is used, too.

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Submittal Date: Sat Feb 27 20:17:58 EST 2016

Public Input No. 69-NFPA 306-2016 [Section No. 4.3.2]

4.3.2

All ammunition shall be removed from ~~any space requiring~~ the compartment where hot work is conducted or isolated from hot work . ~~Adjacent~~ Adjacent spaces containing ammunition shall be treated in accordance with the Marine Chemist's requirements. Adjacent spaces containing flammable or combustible liquids shall be treated in accordance with the Marine Chemist's requirements and acknowledged on the Certificate.

Statement of Problem and Substantiation for Public Input

Recently, a request to conduct specific hot work was initiated by the Navy is a space with weapons. The Navy submitted a waiver from the Commander of the fleet saying the specific hot work was approved and cited precautions outlined in Navy safety manuals. However, based on the current wording of NFPA 306, the Marine Chemist could not approve this work. (Although a competent person could) The experts on the weapons systems reviewed and approved the specific hot work based on their knowledge of the weapons (with precautions and requirements). Their knowledge of the weapon system is much better than almost all chemists and if the expert governing authority approves the work, then the chemist should be able to review and cite the letter providing approval and permit the work with appropriate restrictions/requirements. The intent of this wording is to allow this work. As an alternate to the proposed wording the committee may insert language permitting specific work upon approval of from governing experts.

Submitter Information Verification

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Submittal Date: Tue Mar 08 05:36:43 EST 2016

Public Input No. 54-NFPA 306-2016 [Section No. 4.3.4]

4.3.4

All tanks, confined spaces, and machinery ~~compartments~~ spaces in which internal repairs or alterations are to be undertaken shall be cleaned to comply with the requirements of either 7.1.1 or 7.1.3. For repair or alteration involving hot work, these spaces shall meet the requirements of 7.1.4, 7.1.6, or 5.1.3, and adjacent compartments shall be cleaned to meet the requirements of 7.1.4, 7.1.6, or 5.1.3, or shall be permitted to be inerted to meet the requirements of 7.1.8. The adjacent spaces shall be permitted to be secured in accordance with the Marine Chemist's requirements and acknowledged on the Certificate.

Statement of Problem and Substantiation for Public Input

Changing the term "machinery compartments" to "machinery spaces" accords with the USCG regulation 46 CFR 175.400 and, hence, it practice. Neither NFPA 306 nor OSHA 1915 has a definition for either term (i.e. machinery compartment or machinery space). In addition, changing "compartment" to space" also accords with OSHA 1915. OSHA has a definition for "space," but not "compartment."

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Submittal Date: Sat Feb 27 19:29:44 EST 2016

Public Input No. 119-NFPA 306-2016 [Section No. 4.3.5]

4.3.5

All tanks, confined spaces, ~~and machinery compartments~~ hollow structures, machinery compartments, oil pipelines, heating coils, pump fittings or other appurtenances connected to spaces that contain or have last contained fuel, in which external repairs or alterations are to be undertaken shall be either cleaned to comply with the requirements of 7.1.4 or 7.1.6 or shall be inerted to comply with the requirements of 7.1.8. All adjacent compartments shall be cleaned to meet the requirements of 7.1.4, 7.1.6, or 5.1.3, or shall be permitted to be inerted to meet the requirements of 7.1.8. The adjacent spaces shall be permitted to be secured in accordance with the Marine Chemist's requirements and acknowledged on the Certificate.

Statement of Problem and Substantiation for Public Input

The proposed change is intended to further clarify existing practice, avoid ambiguities and apply consistency of application in the standard.

Submitter Information Verification

Submitter Full Name: John Doran
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Street Address:
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Submittal Date: Wed May 18 16:36:26 EDT 2016

Public Input No. 56-NFPA 306-2016 [Section No. 4.3.5]

4.3.5

All tanks, confined spaces, and machinery compartments in which external repairs or alterations are to be undertaken shall be either cleaned to comply with the requirements of 7.1.4 or 7.1.6 or shall be inerted to comply with the requirements of 7.1.8. All adjacent compartments shall be cleaned to meet the requirements of 7.1.4 , or 7.1.6 , but not be designated as such, or 5.1.3 , or shall be permitted to be inerted to meet the requirements of 7.1.8. The adjacent spaces shall be permitted to be secured in accordance with the Marine Chemist's requirements and acknowledged on the Certificate.

Statement of Problem and Substantiation for Public Input

Note, the underlined 7.1.4, 7.1.6, or 5.1.3 is an artifact, not a proposed change.

This will help clarify the intent to clean the adjacent spaces well enough for hot work or limited hot work (whether partially cleaned or fully cleaned), but not designate those spaces as Safe for Hot Work or Safe for Limited Hot Work, which is reserved for Subject Spaces.

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Street Address:
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Submittal Date: Sat Feb 27 20:12:04 EST 2016

Public Input No. 122-NFPA 306-2016 [Section No. 5.1.1]

5.1.1

All cargo pumps ~~, cargo~~ and FCL transfer pumps, associated transfer lines, inert gas lines, crude oil wash lines, piped cargo fire-extinguishing lines, vapor control and recovery lines, and vent lines to the spaces involved in the scope of work, shall have been flushed with water, blown with steam or air, or inerted.

Statement of Problem and Substantiation for Public Input

As currently written, the safe condition to be obtained by cleaning, only references cargo lines and other associated lines. By clarifying types transfer pumps and transfer lines vs using the term “cargo” it also makes this section more applicable to vessels carrying FCL's as fuel.

Submitter Information Verification

Submitter Full Name: John Doran
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Submittal Date: Wed Jun 15 09:12:05 EDT 2016

Public Input No. 121-NFPA 306-2016 [Section No. 5.1.2]

5.1.2

Compartments concerned shall be cleaned so that the atmosphere in all cargo compartments ~~and adjacent spaces, including those diagonally adjacent to the cargo compartments,~~ is in accordance with 7.1.1, 7.1.4, or 7.1.6, or with both 7.1.1 and 7.1.6, or with both 7.1.1 and 7.1.4, as applicable.

Statement of Problem and Substantiation for Public Input

many adjacent spaces have coatings which emit paint solvent vapors in excess of exposures allowed by 7.1.1(3).

But the combustible gas and oxygen levels in the spaces are permissible for spaces adjacent to cargo tank hot work.

Moreover, they are already regulated by 7.1.4(4)

The toxic levels of paint solvent vapor in adjacent voids have no effect on hot work in the subject cargo space.

A Marine Chemist may already treat such adjacent spaces as he/she deems fit for safe entry. Therefore, they may be easily inspected as adjacent spaces.

Including 7.1.1(3) as an adjacent space requirement is unworkably burdensome and has no benefit. It should be deleted.

Submitter Information Verification

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Organization: sound testing
Street Address:
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Submittal Date: Sun Jun 12 03:54:39 EDT 2016

Public Input No. 58-NFPA 306-2016 [Section No. 5.1.3]

5.1.3 Partial Cleaning for Limited Hot Work.

Tanks or compartments containing combustible residues or preservative coatings shall be permitted to be partially cleaned for limited hot work as described by 5.1.3 (A), (B), and (C). Areas to be cleaned shall be cleaned a sufficient distance from the hot work to prevent the spread of fire and shall be cleaned in such a manner as to prevent sparks or slag from the hot work operations from being thrown or dropped into ~~the other portions of the space~~ combustible residues or preservative coatings . A fire watch shall not be used in lieu of cleaning to establish a safe condition. The ~~nature,~~ specific location ~~,~~ and ~~extent~~ type of ~~the~~ hot work shall be listed on the Marine Chemist's Certificate.

(A)

Tanks or compartments that have not been washed or steamed and have residues or preservative coatings whose flash point is 82.2°C (180°F) or above, and are free of flowing residues or coatings shall be permitted to be partially cleaned for limited hot work. The area to be cleaned shall meet the requirements of 7.1.4. The flash point of the residues or preservative coatings shall be verified by the Marine Chemist prior to issuing a Certificate.

(B)*

Tanks or compartments that have been washed or steamed as thoroughly as practicable and are free of flowing residues or preservative coatings shall be permitted to be partially cleaned for limited hot work. The area to be cleaned shall meet the requirements of 7.1.4. An ignitibility test shall be performed on the residues or preservative coatings prior to issuing a Certificate.

(C)

When subject spaces are cleaned to meet 5.1.3 (A) and 5.1.3 (B), adjacent spaces shall be permitted to be cleaned to meet the requirements of 5.1.3 (A) and (B), provided the residues or preservative coatings meet the requirements of 5.1.3 (A).

Statement of Problem and Substantiation for Public Input

The area needing partially cleaning may ONLY have been the area directly underneath the proposed hot work, for example. The rest of the space, or portions of the space, may already be clean. The more specific concern is to prevent sparks and slag from being thrown or dropped into combustible residues or preservative coatings. There may not be any problem with "sparks or slag from the hot work operations from being thrown or dropped into the other portions of the space" as the current wording suggests.

Also, the current wording in this paragraph is for the Marine Chemist to list the "nature, location, and extent of the hot work" on his/her Certificate. This, however, is not the precise wording for using the Safe for Limited Hot Work designation. The use of Safe for Limited Hot Work requires to Marine Chemist to "include a statement describing the specific location and type of the hot work;" wording that has been quoted in this proposed change. In addition, it is unclear what the difference is between the current "nature" of hot work and "extent" of hot work. If "nature" and "extent," with "location," are three separate listing requirements, this requirement conflicts with the two listing requirements under the Safe for Limited Hot Work designation. If "nature" and "extent" are combined into one listing, it would be less wordy and it would borrow the exact language in Safe For Limited Hot Work thereby avoiding confusion.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sat Feb 27 20:27:48 EST 2016

Public Input No. 81-NFPA 306-2016 [Section No. 5.1.3(A)]

(A)

Tanks or compartments that have not been washed or steamed and have residues or preservative coatings whose open cup flash point is 82.2°C (180°F) or above, and are free of flowing residues or coatings shall be permitted to be partially cleaned for limited hot work. The area to be cleaned shall meet the requirements of 7.1.4. The flash point of the residues or preservative coatings shall be verified by the Marine Chemist prior to issuing a Certificate.

Statement of Problem and Substantiation for Public Input

This method of flash point determination has long been identified by Marine Chemists as the most accurate depiction of the hazard faced in local cleaning for hotwork in areas of residues that are combustible, but safe to work around if properly cleaned a safe distance from spark producing operations. This spells out the method to be used to applying this to the standard.
This addition also brings the standard into sync with the other mention of flash point in section 3.3.12.1, and 3.3.12.3 where the method of flash point determination is spelled out.

Submitter Information Verification

Submitter Full Name: George Blair
Organization: Northwest Marine Chemist, Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 28 09:18:11 EDT 2016

Public Input No. 18-NFPA 306-2015 [Section No. 5.1.3(C)]

(C)

When subject spaces are cleaned to meet 5.1.3 (A) ~~and~~ or 5.1.3 (B), adjacent spaces shall be permitted to be cleaned to meet the requirements of 5.1.3 (A) ~~and~~ or (B), provided the residues or preservative coatings meet the requirements of 5.1.3 (A).

Statement of Problem and Substantiation for Public Input

In the 2014 edition of 306 this wording was changed and I believe an error was made. The space should not need to meet both requirements and it should be either one or the other. The change from and to or clarifies this requirement.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boa
Street Address:
City:
State:
Zip:
Submittal Date: Fri Oct 23 05:16:40 EDT 2015

Public Input No. 67-NFPA 306-2016 [Section No. 5.1.3(C)]

(C)

When subject spaces are cleaned to meet 5.1.3 (A) and 5.1.3 (B), spaces adjacent ~~spaces shall be permitted to be cleaned to meet the requirements of 5.1.3 (A) and (B), provided the residues or preservative coatings meet the requirements of 5.1.3 (A).~~ to hot work have combustible gas readings less than 10% L.E.L and have been cleaned sufficiently of residues to prevent the spread of fire, or have been inerted.

Statement of Problem and Substantiation for Public Input

The Standard is inconsistent when adjacent spaces are required to be as clean as the subject space. In the case of 5.1.3(c) substituting the provisions of 7.1.1(4) to treat adjacent spaces is sufficient and consistent.

Applying to adjacent spaces the same conditions as subject space is illogical. For instance, prohibiting "free-flowing materials" doesn't apply if the space has been cleaned "so as to prevent the spread of fire..."

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing 2992 s.w. Avalon Way Seattle 98126
Street Address:
City:
State:
Zip:
Submittal Date: Sat Mar 05 14:58:54 EST 2016

Public Input No. 61-NFPA 306-2016 [Section No. 5.2.1]

5.2.1

The Marine Chemist shall approve the use of the inerting medium and shall personally supervise introduction of the inerting medium into the space to be inerted, except in situations where an inerting medium has been introduced prior to the vessel's arrival at the repair facility. A Marine Chemist, in all cases, shall personally conduct tests to determine that the oxygen content of the inerted space is at or below 6 percent or 50 percent of the amount required to support combustion, whichever is less. The Marine Chemist shall be readily available during the entire period of work and shall determine that the oxygen level in the inerted space is ~~maintained~~ at or below 6 percent or 50 percent of the amount required to support combustion, whichever is lower. On vessels not utilizing cargo space–inerting systems, a Marine Chemist shall specify the safe disposal and securing of the inerting medium following completion of the repair work on the inerted space and adjacent spaces.

Statement of Problem and Substantiation for Public Input

The Marine Chemist is responsible for determining the initial oxygen content of inerted spaces, pipelines, etc. Maintenance of these spaces, whether inerted or simply cleaned, is not normally the Marine Chemist's responsibility. Maintenance of the Certificate (8.3.4) and of Conditions (8.4) are the responsibilities of the host employer and Certificate requester respectively. Further, deleting "maintained" does not change the meaning of this paragraph, but does more precisely focus attention on the required oxygen level. Keeping the word "maintained" offers no added value.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sun Feb 28 12:19:27 EST 2016

Public Input No. 66-NFPA 306-2016 [Section No. 5.2.2 [Excluding any Sub-Sections]]

~~All~~ cargo pumps ~~and~~ , cargo lines ~~, inert gas lines,~~ and crude oil wash lines involved in the scope of the work shall have been flushed with water, blown with steam or air, or inerted.____

Statement of Problem and Substantiation for Public Input

Substantiation:

"All" is superfluous and inconsistent with "involved in the scope of the work." Also, no Chemist will travel hundreds of feet to find cargo pumps he's not dealing with and whose interior he has no access to anyhow.

"involved in the scope of the work" is the established verbiage of similar nearby paragraphs and it is inconsistent not to include it here.

Delete “inert gas lines” because where a space has been safe by inerting, the space’s “inert gas lines” have by definition been flushed with inert gas and are dangerous to test.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing 2992 S.W. Avalon Way Seattle 98126
Street Address:
City:
State:
Zip:
Submittal Date: Sat Mar 05 03:19:37 EST 2016

Public Input No. 99-NFPA 306-2016 [Section No. 5.3.1]

5.3.1

Nonadjacent spaces containing atmospheres exceeding 10 percent of the LEL shall be closed and secured in a manner to prevent or , by written notice, restrict opening or operation, and those spaces shall be noted on the Certificate.

Statement of Problem and Substantiation for Public Input

The language in 5.3.1 and 5.4.2 should be consistent as they adress the same spaces

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 07:51:43 EDT 2016

Public Input No. 62-NFPA 306-2016 [Section No. 5.8]

5.8* Vessel Fuel Oil Tanks.

No hot work shall be permitted ~~immediately~~ adjacent to any vessel's fuel oil tanks unless the work has been authorized by the Marine Chemist, except as provided in 1915 .14(a)(4).

Statement of Problem and Substantiation for Public Input

Inclusion of the word "immediately" is subjective, and has been subject to differing interpretations, resulting in confusion. Conversely, OSHA has a definitive way of handling this confusion. Thus, the inclusion of the specific OSHA reference should be incorporated in the Standard, which is not unprecedented. Other references outside NFPA 306 are already specifically incorporated in the body of the Standard, even when already referenced in Chapter 2 of NFPA 306 (i.e. 4.4, 7.1.10.1, 8.3.4).

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sun Feb 28 12:27:53 EST 2016

Public Input No. 92-NFPA 306-2016 [Section No. 6.1.1]

6.1.1

Calibration of sensors shall be verified using a known concentration of test gas or in a manner consistent with the manufacturers instructions .

Statement of Problem and Substantiation for Public Input

Makes it consistent with Public input 11 for meters which do not require calibration with test gas.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boa
Street Address:
City:
State:
Zip:
Submittal Date: Mon May 16 17:25:53 EDT 2016

Public Input No. 156-NFPA 306-2016 [Section No. 6.2 [Excluding any Sub-Sections]]

The Marine Chemist shall personally determine conditions, and shall be permitted to issue a Marine Chemist's Certificate setting forth in writing that the prescribed work to a vessel can be undertaken with safety, at the time of inspection . The Marine Chemist shall, whenever possible, physically enter each compartment or space and conduct a visual inspection to the extent necessary to determine the atmospheric or fire hazards that exist. The Marine Chemist shall carry out tests within each compartment or space, ensuring compliance with the minimum applicable requirements prior to issuing a Certificate.

Statement of Problem and Substantiation for Public Input

Removes confusion concerning if a safe condition must exist at the time of the inspection or if additional cleaning/procedures must be accomplished prior to work. This language is consistent with statement above signature on Marine Chemist Certificate (ANNEX C).

Submitter Information Verification

Submitter Full Name: Alan Bonds
Organization: Channel Shipyard
Affilliation: A Bonds Marine Chemist Inc.
Street Address:
City:
State:
Zip:
Submittal Date: Tue Jun 28 15:57:05 EDT 2016

Public Input No. 12-NFPA 306-2015 [Section No. 6.2.1]

6.2.1

The Marine Chemist's determinations shall include a visual inspection and tests of the spaces to be certified, and for repair or alterations involving hot work, all adjacent spaces and other spaces/areas that can be affected by the hot work shall be treated in accordance with 7.1.4 (4) and 7.1.4 (5). The inspection shall include spaces or areas where products of hot work such as sparks, slag, or embers can act as ignition sources. The determinations also shall include the following:

(1) The three previous loadings

(2) Nature and extent of the work

(3) ~~Starting time and duration of the work~~

(4)

(5) Tests of cargo and vent lines at manifolds and accessible openings associated with the scope of work on or in the compartments concerned

(6) Verification that pipelines that could release hazardous materials into spaces that will be certified for entry and/or hot work are either disconnected, blanked off, or otherwise blocked by a positive method, or the valves are positioned and tagged in such a manner to prevent, or by written notice restrict, operation

(7) Tests of cargo heating coils

Statement of Problem and Substantiation for Public Input

We Chemists work hard on our inspections to deal in the world of certainty. But "starting time" and "duration of work" are plainly anything but certain and, in fact, impossible to be "determined." We can make inquiries (and do) about these items, but saying the Chemist "shall" determine such items is plainly unworkable.

LIkewise, the Certificate reflects conditions only at the time of the inspection. Maintaining such conditions is the job of the workers' Employer, who does indeed have some control over "starting time" and "duration of work." But this control is exercised by production authority and the Shipyard Competent Person, neither of which directly involve the Marine Chemist as the job proceeds. Referencing their OSHA duties in NFPA 306 and tying them to the Marine Chemist is beyond the stated scope of the document.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Mon Oct 12 08:47:47 EDT 2015

Public Input No. 120-NFPA 306-2016 [Section No. 6.2.1]

6.2.1

The Marine Chemist's determinations shall include a visual inspection and tests of the spaces to be certified, and for repair or alterations involving hot work, all adjacent spaces and other spaces/areas that can be affected by the hot work shall be treated in accordance with 7.1.4 (4) and 7.1.4 (5). The inspection shall include spaces or areas where products of hot work such as sparks, slag, or embers can act as ignition sources. The determinations ~~also shall~~ , which shall be noted on the Certificate, also shall include the following:

(1) The three previous loadings

(2) ~~Nature and extent~~ Scope of the work

(3) Starting time and duration of the work

(4) Tests of cargo ~~and~~ , fuel, and vent lines at manifolds and accessible openings associated with the scope of work on or in the compartments concerned

(5) Verification that pipelines that could release hazardous materials into spaces that will be certified for entry and/or hot work are either disconnected, blanked off, or otherwise blocked by a positive method, or the valves are positioned and tagged in such a manner to prevent, or by written notice restrict, operation. The means of isolation and method to restrict operation are to be acknowledged on the Certificate.

(6) Tests of cargo or fuel tank heating coils

Statement of Problem and Substantiation for Public Input

The proposed changes are intended to provide improved guidance for Marine Chemists in the preparation of certificates, as being a bit more prescriptive will not only help the end user of the Certificate but will also better protect the Marine Chemist if the vessel or shipyard performs a task outside the scope of work which results in an incident. Changes also address fuel systems not simply cargo systems.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 16:42:02 EDT 2016

Public Input No. 123-NFPA 306-2016 [Section No. 6.2.2]

6.2.2

In spaces that are not cargo or fuel tanks or are not adjacent to cargo or fuel tanks, the Marine Chemist shall carry out tests to determine the atmospheric or fire hazards that could exist within each affected compartment, hollow structure or space, and any adjacent spaces that could be affected by hot work, ensuring compliance with the minimum applicable requirements prior to issuing a Certificate.

Statement of Problem and Substantiation for Public Input

As currently written, this section only references cargo tanks. As a result, it can be interpreted that some hazardous spaces may not need to be tested. This proposed language also helps clarify proposed language in 6.2.1

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 09:34:05 EDT 2016

Public Input No. 14-NFPA 306-2015 [Section No. 7.1.1 [Excluding any Sub-Sections]]

The designation ATMOSPHERE SAFE FOR WORKERS requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is at least 19.5 percent and not greater than 22 percent by volume.

(2) * The concentration of flammable materials is below 10 percent of the lower explosive limit (LEL).

(3) * Any toxic chemicals in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, adjacent spaces, fumigants or ~~fumigants are~~ other contents are within permissible concentrations at the time of the inspection.

Exception: Exception: Further testing for toxic materials shall not be required if previous testing indicates that these materials have been eliminated or are not capable of regeneration to hazardous levels while maintained as directed on the Marine Chemist's Certificate.

(4) * The residues or chemicals remaining in a certified space are not capable of producing toxic materials that exceed permissible concentrations under existing atmospheric conditions while maintained as directed on the certificate.

Statement of Problem and Substantiation for Public Input

Some vessels have tanks with contents that may have toxic properties, but are not associated with cargo, fuel, tank coatings, inerting mediums, adjacent spaces or fumigants. This states that any product/content in a tank with a toxic component must be evaluated in order for the space to be safe for workers.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boa
Street Address:
City:
State:
Zip:
Submittal Date: Thu Oct 22 07:40:55 EDT 2015

Public Input No. 151-NFPA 306-2016 [Section No. 7.1.3.1]

7.1.3.1

The Certificate shall include a statement describing the specific conditions of personal protection equipment, clothing, time, or any or all of the aforementioned. These areas shall be listed on the Certificate under the heading ~~"Restrictions~~ "RESTRICTIONS ."

Statement of Problem and Substantiation for Public Input

It is recommended that the word "Restrictions" noted in large cap letters to alert the certificate user as well as act as a reminder to certain Marine Chemists that this heading is required.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 14:13:32 EDT 2016

Public Input No. 100-NFPA 306-2016 [Section No. 7.1.4]

7.1.4

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

~~Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK”~~

(1) Spaces, including a vessel's fuel tanks, lube oil tanks, engine room or fire room bilges, or machinery spaces certified "Safe For Hot Work' are treated in accordance with

~~Marine Chemist requirements~~

(1) marine chemist instructions and acknowledged on the

~~Certificate~~

(1) certificate .

(2) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces,

~~along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be~~

(1) are free of

~~material~~

(1) materials that could ignite under conditions of work , or be protected with barriers to prevent the spread of fire.

~~Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are~~

(1) Adjacent spaces shall be treated in accordance with the

~~Marine Chemist’s requirements~~

(1) marine chemist instructions .

7.1.4.1

If any of the conditions of 7.1.4 (1), (2), (3), or (4) do not exist, the designation NOT SAFE FOR HOT WORK shall be used.

Statement of Problem and Substantiation for Public Input

The current language did not address a vessel's fuel tanks which we believe were inadvertently ommitted in the last rev cycle. The new language incorporates fuel tanks and shortens the section by including machinery space bilges

Paragraph 6 was revised to allow the marine chemist latitude on how adjacent spaces should be dealt with.

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 07:56:06 EDT 2016

Public Input No. 124-NFPA 306-2016 [Section No. 7.1.4]

7.1.4

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, combustible materials, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to ~~cargo tanks~~ spaces certified “SAFE FOR HOT WORK,” ~~as well as all cargo tanks adjacent to a hot work site,~~ have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, combustible materials, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

~~Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are~~

(5) These adjacent spaces, including test results and/or measures taken to prevent the spread of fire, are to be treated in accordance with the requirements of the Marine Chemist

~~requirements~~

(6) and acknowledged on the Certificate.

(7) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo and fuel tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire. The conditions noted and measures taken to prevent the spread of fire in these spaces are to be acknowledged on the Certificate.

(8) Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements and acknowledged on the Certificate .

7.1.4.1

If any of the conditions of 7.1.4 (1), (2), (3), or (4) do not exist, the designation NOT SAFE FOR HOT WORK shall be used.

Statement of Problem and Substantiation for Public Input

The proposed changes in this section are intended to address a number of language interpretation issues associated with preparation of Certificates and to protect the interests of Marine Chemists namely:

7.1.4(3) - Ensuring combustible materials are being properly addressed such as insulation, not simply

cargo residues, scale and preservative coatings.

7.1.4(4) - As written, this section is often interpreted to only address spaces adjacent to cargo tanks. As we all know, there are and will be other adjacent spaces that require the same level of testing and inspection that are not specifically adjacent to cargo tanks. Ensuring combustible materials are also being properly addressed, not simply cargo residues, scale and preservative coatings. Given the importance of adjacent spaces. It is my opinion that test results and measures to prevent the spread of fire should be noted on the Certificate. In today's work environment, risk management and the identification of control measures is an expectation, by acknowledging them on the Certificate it not only helps workers but also helps protect the interests of the Marine Chemist in the event of an incident if the control measures acknowledged on the Certificate were not followed.
7.1.4(5) - By revising (4) as proposed, section (5) essentially becomes redundant.
7.1.4(6) - This section would become section 7.1.4(5). Refer to comments above regarding acknowledging measures on the Certificate.
7.1.4(7) - This section would become section 7.1.4(6). Refer to comments above regarding acknowledging measures on the Certificate.

Note that the software would not allow "clean" entry of proposed language in a manner that would properly number and arrange the proposed changes.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 09:56:18 EDT 2016

Public Input No. 155-NFPA 306-2016 [Section No. 7.1.4]

7.1.4

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

~~* The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.~~

(3) The affected space contains no fire hazards that could be affected by hot work

(1) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(2) Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(3) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.

(4) Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.

7.1.4.1

If any of the conditions of 7.1.4 (1), (2), (3), or (4) do not exist, the designation NOT SAFE FOR HOT WORK shall be used.

Statement of Problem and Substantiation for Public Input

The current 7.1.4(3) verbiage is unsatisfactory because a) it is an example of a "certificate of convenience" in that the chemist assumes favorable behavior of "residues" in the presence of "hotwork" the nature of which he cannot predict. b) it is impossible to convey the details of this verbiage to workmen; no one understands it c) it refers (oxygen and combustible gas readings) to the title "Gas Hazards" Artificially, therefore, workers are told to prevent fires by measuring gas readings; In practical terms, preventing fires by measuring gases is obviously unworkable.
d) the replacement language I suggest is already in the Standard: 6.2.2 ...The Marine Chemist shall carry out tests to detect..fire hazards that could be affected by hot work..."

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Mon Jun 27 11:12:01 EDT 2016

Public Input No. 27-NFPA 306-2015 [Section No. 7.1.4]

7.1.4

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2).~~ These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.~~

(7) Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.

7.1.4.1

If any of the conditions of 7.1.4 (1), (2), (3), or (4) do not exist, the designation NOT SAFE FOR HOT WORK shall be used.

Statement of Problem and Substantiation for Public Input

."These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire."

In fact, "these spaces" SHALL NOT be treated in accordance with the Marine Chemist's instructions: It is most probable that they are not the subject of the Marine Chemist's inspections at all because in the commercial yards they will be the responsibility of the Shipyard Competent Person. Since they SHALL NOT be the Chemist's subject, it is not suitable or appropriate that NFPA 306 declare that they "SHALL" be maintained according to his wishes.

Also, since this designation is "Safe for Hot Work" and not "Safe for Limited Hot Work" the "conditions of work" are by definition UNKNOWN. Since the "conditions of work" are unknown, it is clearly

impossible for the Chemist to write on paper that materials will not catch fire under unknown "conditions of work." To do so would be to assume a positive result of tests which were impossible to do. This is, of course, a Certificate of Convenience.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Mon Dec 28 16:40:26 EST 2015

Public Input No. 19-NFPA 306-2015 [Section No. 7.1.4 [Excluding any Sub-Sections]]

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.

(7) Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.

(8) Ships fuel, lube oil, hydraulic oil, slop or other similar tanks along with associated piping systems which are not adjacent to cargo tanks have been cleaned to the requirements of 7.14 (1), 7.14 (2) and 7.14 (3) (piping systems may be isolated) and adjacent spaces are to be treated in accordance with the Marine Chemist requirements.

Statement of Problem and Substantiation for Public Input

The Safe for Hot Work designation does not specifically address spaces such as fuel, lube and hydraulic oil or slop tanks which are not adjacent to cargo tanks. Addition of this wording to SFHW will clarify the requirements for work on these spaces which are not specifically addressed.

Submitter Information Verification

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Submittal Date: Fri Oct 23 05:27:29 EDT 2015

Public Input No. 24-NFPA 306-2015 [Section No. 7.1.4 [Excluding any Sub-Sections]]

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) Non - cargo tank spaces including vessel's fuel tanks, lube tanks, engine room or fire room bilges or machinery spaces adjacent to non- cargo spaces certified ~~“SAFE~~ "SAFE FOR HOT ~~WORK” are~~ WORK" are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.

(7) ~~- Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.~~

Statement of Problem and Substantiation for Public Input

There were changes made to the last two editions that made this section un clear for instance in 7.1.4 (4) states that "All spaces adjacent to cargo tanks certified SAFE FOR HOT WORK" Than in 7.1.4 (5) it says "non-cargo tank spaces adjacent to cargo tanks....." So much for the meaning of ALL. I think some type of change like I suggested will clarify and also clarify the CCMC's discretion with regards to fuel tanks and machy spaces. I have attempted to make the change in 7.1.4 (5) and remove 7.1.4 (7)

Submitter Information Verification

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Submittal Date: Sun Dec 20 18:42:01 EST 2015

Public Input No. 26-NFPA 306-2015 [Section No. 7.1.4 [Excluding any Sub-Sections]]

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.

(7) ~~Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.~~

(8)

Statement of Problem and Substantiation for Public Input

"engine room bilges" should not be in the same paragraph as "spaces that have not contained flammable or combustible fuels" because all engine room bilges contain or have contained oil; it is the default position of OSHA, USCG, sensible fire departments and Marine Chemists that every bilge contains or contained oil. By listing "bilges" in the same category as "spaces that have not contained..." the standard goes 180° against those who are trying to enforce it. Also, if a Chemist can convince himself that diesel in an engine room bilge won't give a meter test of more than 10% L.E.L. "in the presence of hotwork (which is undetermined, as the bilge is safe for hot work, not safe for limited hot work; and no Chemist returns to test the hot work anyhow,) the Chemist can direct that the bilge need not be cleaned, thus treating the bilge "in accordance with the Marine Chemist's requirements." Is this the position of the Technical Committee on Gas Hazards?

Submitter Information Verification

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Submittal Date:	Mon Dec 28 03:24:28 EST 2015

Public Input No. 40-NFPA 306-2016 [Section No. 7.1.4 [Excluding any Sub-Sections]]

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues ~~, scale, or soft and greasy preservative coatings in the entire space~~ of combustible materials are cleaned sufficiently to prevent the spread of fire~~ and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.~~ .

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.

(7) Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.

Statement of Problem and Substantiation for Public Input

Fires from superoxygenation, as well as explosions from combustible gases and vapors were dealt with in the two previous paragraphs.

Plainly, it is the purpose of this paragraph to deal with fires: the ignition of combustible materials. I think it should be straightforwardly dealt with, without reference to generating greater than 22% oxygen, or more than 10% LEL.. "...To prevent the spread of fire" is sufficient in itself.

"residues , scale, or soft and greasy preservative coatings in the entire space" does not properly describe fire danger, as it doesn't address such hazards as thick paint or hydrocarbon insulation (foam). Better to be sufficiently detailed, or sufficiently general; these items are neither.

Because no Chemist knows with any certainty the "hot work" that will ultimately be necessary on a repair project, referencing such future "hot work" in the definition of Safe for Hot Work amounts to a Certificate of Convenience, in that the Chemist is forced to assume friendly test results (which are never done in real hot work time anyway) to comply with terms of the definition. And, what is the purpose of the referencing 7.1.4 (1) and (2) anyhow? It is never explained, and the details are

virtually impossible to communicate when training the workforce to understand the designation.

"in the entire space" has no application if, indeed, combustible materials are cleaned "to prevent the spread of fire" from the start. The words are superfluous.

Submitter Information Verification

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Submittal Date: Fri Feb 12 12:02:09 EST 2016

Public Input No. 41-NFPA 306-2016 [Section No. 7.1.4 [Excluding any Sub-Sections]]

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) Non-cargo tank spaces adjacent to cargo spaces certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) ~~Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.~~

(7) ~~Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.~~

Statement of Problem and Substantiation for Public Input

Delete these two paragraphs for the following reasons:

1. In the introduction history (p.306-2): Because Marine Chemists are recognized experts in preventing fires, "...repair contractors" have been calling Chemists for services even when OSHA and USCG don't tell them they have to. This increased work for Chemists seems to have caused someone in the NFPA administration or the Technical Committee on Gas Hazards such worry that they added to the 2014 revision "new provisions" to "address" Chemists' additional work. Paragraphs (6) and (7) are the "new provisions." They should be deleted, for 5 reasons:

1. Their addition has made "Safe for Hot Work" very unwieldy and totally unfit for communicating to ship repair workers.
2. No information demonstrating any bad effect of the Marine Chemist doing work not specifically required by OSHA or the USCG has been proffered; It is certainly not an industry concern in commercial ship repair nor among Marine Chemists. Before putting paragraphs 6 and 7 in the revised standard, perhaps someone might explain what problem Chemists' increased work causes, and how paragraphs 6 and 7 solve that problem.
3. The paragraphs are poorly-written and duplicate each other. Please note that "spaces that have

not contained flammable or combustible cargo" (the substance of paragraph 7) includes "passageways, living spaces, storerooms" (the substance of paragraph 6).
4. There are no "fire room" bilges any more because there are virtually no steam-driven vessels. Even if there were, fire room bilges would not be generically different from engine room bilges.
5. Paragraphs 6 and 7 are meant to deal with hot work in spaces not near the cargo block on tank vessels. But such spaces can be easily dealt with by the suggested change in paragraph 3 above: "Residues of combustible materials have been sufficiently cleaned to prevent the spread of fire." This verbiage makes "Safe for Hot Work" apply to all spaces, including non-cargo block spaces, and including those listed in paragraphs 6 and 7. Therefore those paragraphs are unnecessary and should be deleted..

Submitter Information Verification

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Submittal Date: Sat Feb 13 00:26:58 EST 2016

Public Input No. 75-NFPA 306-2016 [Section No. 7.1.4 [Excluding any Sub-Sections]]

The designation SAFE FOR HOT WORK requires that in the compartment or space so designated, the following criteria shall be met at the time the Certificate is issued:

(1) * The oxygen content of the atmosphere is not greater than 22 percent by volume.

(2) * The concentration of flammable materials in the atmosphere is less than 10 percent of the LEL.

(3) * The residues, scale, or soft and greasy preservative coatings in the entire space are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by 7.1.4 (1) or (2) under existing atmospheric conditions in the presence of hot work and while maintained as directed on the Certificate.

(4) * All spaces adjacent to cargo tanks certified “SAFE FOR HOT WORK,” as well as all cargo tanks adjacent to a hot work site, have combustible gas readings less than 10 percent of the LEL and have been cleaned sufficiently of residues, scale, or preservative coatings to prevent the spread of fire, or have been inerted.

(5) ~~Non-cargo tank spaces~~ All spaces that are not cargo tanks, that are adjacent to cargo spaces (other than cargo tanks) certified “SAFE FOR HOT WORK” are treated in accordance with Marine Chemist requirements and acknowledged on the Certificate.

(6) Spaces such as passageways, living spaces, or store rooms that are not adjacent to cargo tanks, and are undergoing hot work, meet the requirements of 7.1.4 (1) and 7.1.4 (2). These spaces, along with any adjacent spaces, shall be treated in accordance with the Marine Chemist's instructions and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire.

(7) Engine room or fire room bilges, or other machinery spaces, or spaces that have not contained flammable or combustible cargo, fuels, or oils are treated in accordance with the Marine Chemist’s requirements.

Statement of Problem and Substantiation for Public Input

This paragraph had been difficult to interpret because "spaces," according to OSHA includes confined spaces (e.g. tanks) as well as enclosed spaces. Thus, "adjacent to cargo spaces" could include cargo tanks, which is not the intent. However, using enclosed spaces alone limits the intent, and adding confined spaces would again include cargo tanks which are to be excluded. The proposed language clarifies this.

Submitter Information Verification

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Submittal Date: Thu Apr 07 19:57:52 EDT 2016

Public Input No. 101-NFPA 306-2016 [Section No. 7.1.6]

7.1.6

The designation SAFE FOR LIMITED HOT WORK indicates that all of the following criteria shall be met at the time the Certificate is issued:

(1) Any compartment or space so designated meets the requirements of 7.1.4 (1) and 7.1.4 (2), unless inerted in accordance with 7.1.8.

(2) The Certificate shall include a statement describing the specific location and type of the hot work ~~. The~~ or the Marine Chemist shall also be permitted to list any areas to be excluded from hot work. These areas shall be listed on the Certificate under the heading "Limitations."

(3) The space meets one of the following conditions:

(4) The space or compartment is inerted in accordance with 7.1.8 , and the hot work is limited to the specific location or locations described in the "Limitations" in 7.1.6 (2). At the time of the inspection, the Marine Chemist verifies that the atmosphere of the adjacent space(s) meets the requirements of 7.1.4 (4) or 7.1.4 (5) or is inerted.

(5) The space or compartment meets the requirements of 7.1.4 (1), 7.1.4 (2), and 7.1.4 (3); adjacent spaces meet 7.1.4 (4) or 7.1.4 (5); and the hot work is not allowed on pipelines. The hot work restrictions shall be listed under "Limitations" in accordance with 7.1.6 (2). The marine chemist verifies that the concentration of flammable materials in the atmosphere is less than 10 percent of the LEL or that the space is inerted in accordance with 7.1.8 .

(6) Portions of the space or compartment meet the requirements of 7.1.4 (3) and 7.1.4 (4), or 7.1.4 (5), as well as the applicable portions of 5.1.3 , and the hot work is limited to the location or locations described in the "Limitations" in 7.1.6 (2).

(7) In compartments or spaces on vessels that are not considered cargo or fuel tanks and have not contained and are not subject to concentrations of combustible, flammable, or toxic liquids, vapors, or gases, the Marine Chemist shall survey the spaces and the adjacent spaces in accordance with 6.2.1 . The Certificate shall include a statement under the heading "Limitations" that describes the locations and type of hot work, and instructions for the competent person to maintain safe work conditions.

Statement of Problem and Substantiation for Public Input

8.1.4 allows a marine chemist to restrict areas for hot work. This is frequently the most clear way to issue a certificate rather than to itemize all the locations on the certificate where hot work is to be performed.

Submitter Information Verification

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Submittal Date: Wed May 18 08:14:08 EDT 2016

Public Input No. 125-NFPA 306-2016 [Section No. 7.1.6]

7.1.6

~~The~~ Unless hot work can be performed on all boundaries of the space(s) where hot work is to be performed, the designation SAFE FOR LIMITED HOT WORK ~~indicates~~ shall be used indicating that all of the following criteria shall be met at the time the Certificate is issued:

(1) Any compartment or space so designated meets the requirements of 7.1.4 (1) and 7.1.4 (2), unless inerted in accordance with 7.1.8.

(2) The Certificate shall include a statement, under the heading "LIMITATIONS", describing the specific location and type of the hot work. The Marine Chemist shall also be permitted to list any areas to be excluded from hot work. These areas shall be listed on the Certificate under the heading ~~"Limitations~~ "LIMITATIONS ."

(3) The space meets one of the following conditions:

(4) The space or compartment is inerted in accordance with 7.1.8 , and the hot work is limited to the specific location or locations described

~~in~~

(a) under the

~~"Limitations"~~

(a) heading "LIMITATIONS" in 7.1.6 (2). At the time of the inspection, the Marine Chemist

~~verifies~~

(a) shall verify that the atmosphere of the adjacent space(s) meets the requirements of 7.1.4 (4) or 7.1.4 (5) or is inerted.

(b) The space or compartment meets the requirements of 7.1.4 (1), 7.1.4 (2), and 7.1.4 (3); adjacent spaces meet 7.1.4 (4) or 7.1.4 (5); and the hot work is not allowed on pipelines. The hot work restrictions shall be listed under

~~"Limitations"~~

(a) the heading "LIMITATIONS" in accordance with 7.1.6 (2). The

~~marine chemist verifies~~

(a) Marine Chemist shall verify that the concentration of flammable materials in the atmosphere is less than 10 percent of the LEL or that the space is inerted in accordance with 7.1.8 .

(b) Portions of the space or compartment meet the requirements of 7.1.4 (3) and 7.1.4 (4), or 7.1.4 (5), as well as the applicable portions of 5.1.3 , and the hot work is limited to the location or locations described

~~in~~

(a) under the heading "Limitations" in 7.1.6 (2).

(b) In compartments or spaces on vessels that are not considered cargo or fuel tanks and have not contained and are not subject to concentrations of combustible, flammable, or toxic liquids, vapors, or gases, the Marine Chemist shall survey the spaces and the adjacent spaces in accordance with 6.2.1 . The Certificate shall include a statement under the heading

~~"Limitations"~~

(a) "LIMITATIONS" that describes the locations and type of hot work, and explicit instructions for the competent person to maintain safe work conditions.

Statement of Problem and Substantiation for Public Input

Again the software would not allow "clean" entry of proposed language in a manner that would properly number and arrange the proposed changes. Other than some minor grammatical changes to ensure consistency of terms, the primary proposal is associated with reducing the number of open ended certificates that are often issued with no limitations. For example, if no hot work is to be done within 6" of a bulkhead, it is my opinion that the certificate be issued as SAFE FOR LIMITED HOT WORK and not SAFE FOR HOT WORK..

Limitations
- No hot work shall be performed within 6" of xyz bulkhead.
- etc

Issuing Certificates with Limitations significantly increases awareness and serves to better identify control measures. It also helps protect the interests of workers and the Marine Chemist in an effort to help prevent hot work directly on a bulkhead by misinterpreting the Certificate.

Furthermore, it is recommended that the word “Limitations” noted in large cap letters to alert the certificate user as well as act as a reminder to certain Marine Chemists that this heading is required.

Submitter Information Verification

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Submittal Date: Wed Jun 15 10:30:26 EDT 2016

Public Input No. 31-NFPA 306-2016 [Section No. 7.1.6]

7.1.6

The designation SAFE FOR LIMITED HOT WORK indicates that all of the following criteria shall be met at the time the Certificate is issued:

(1) Any compartment or space so designated meets the requirements of 7.1.4 (1) and 7.1.4 (2), unless inerted in accordance with 7.1.8.

(2) The Certificate shall include a statement describing the specific location and type of the hot work. The Marine Chemist shall also be permitted to list any areas to be excluded from hot work. These areas shall be listed on the Certificate under the heading “Limitations.”

(3) The space meets one of the following conditions:

(4) The space or compartment is inerted in accordance with 7.1.8 , and the hot work is limited to the specific location or locations described in the “Limitations” in 7.1.6 (2). At the time of the inspection, the Marine Chemist verifies that the atmosphere of the adjacent space(s) meets the requirements of 7.1.4 (4) or 7.1.4 (5) or is inerted.

(5) The space or compartment meets the requirements of 7.1.4 (1), 7.1.4 (2), and 7.1.4 (3); adjacent spaces meet 7.1.4 (4) or 7.1.4 (5); and the hot work is not allowed on pipelines. The hot work restrictions shall be listed under “Limitations” in accordance with 7.1.6 (2). The marine chemist verifies that the concentration of flammable materials in the atmosphere is less than 10 percent of the LEL or that the space is inerted in accordance with 7.1.8 .

(6) Portions of the space or compartment meet the requirements of 7.1.4 (3) and 7.1.4 (4), or 7.1.4 (5), as well as the applicable portions of 5.1.3 , and the hot work is limited to the location or locations described in the “Limitations” in 7.1.6 (2).

(7) In compartments or spaces on vessels that are not considered cargo or fuel tanks and have not contained and are not subject to concentrations of combustible, flammable, or toxic liquids, vapors, or gases, the Marine Chemist shall survey the spaces and the adjacent spaces in accordance with 6.2.1 . The Certificate shall include a statement under the heading “Limitations” that describes the locations and type of hot work, and instructions for the competent person to

~~maintain safe~~

(a) facilitate safe work conditions according to requirements of 8 . 1.3 and 8.1.4.

Statement of Problem and Substantiation for Public Input

In the last revision 306 was opened up to be used on spaces that do not require a Marine Chemist Certificate, it was the intent at that time to give the CMCs the discretion to consult and list precautions on the Cert. 306 was originally written to cover the cargo block and fuel systems on vessels not normally occupied locations away from cargo/fuel areas

Submitter Information Verification

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Submittal Date:	Fri Feb 05 12:08:45 EST 2016

Public Input No. 30-NFPA 306-2016 [Section No. 7.1.8]

7.1.8

The designation INERTED ~~requires~~ - SAFE FOR HOT WORK requires that one of the following procedures shall have been completed in the compartment or space so designated:

(1) * Carbon dioxide or other nonflammable gas acceptable to the Marine Chemist shall have been introduced into the space in sufficient volume to maintain the oxygen content of the atmosphere of the space at or below 6 percent or 50 percent of the amount required to support combustion, whichever is less. *(See Annex E.)* The Marine Chemist shall note on the Certificate the kind of inert gas, the methods for maintaining safe conditions, and the measures for safe disposal of the inert gas upon completion of repairs in accordance with 5.2.1. Closing and securing of hatches and other openings, except vents, shall be permitted to be used as “safe disposal” methods by the Marine Chemist.

(2) Spaces other than cargo tanks and fuel tanks shall have been filled to overflow with water, and the water level shall be maintained throughout the intended work. Valves shall be tagged or by written notice positioned to restrict operation to maintain the water level. If any headspace remains in the tank, it shall meet the requirements of 7.1.4 (2).

(3) The space shall have been filled with water so that the water level is a minimum of 0.9 m (3 ft) above the intended exterior hot work and the atmosphere of the headspace meets the requirements of 7.1.4 (2). The water level shall be maintained throughout the intended work by tagging valves in a position to maintain the water level. Any such procedure shall be approved by the Marine Chemist.

(4) * All valves, vent lines, and other openings to the inerted spaces shall be positioned in such a manner and tagged as to prevent or, by written notice, restrict operation.

Statement of Problem and Substantiation for Public Input

You cannot use the standard safety designation INERTED as a stand alone safety designation. You must use it in conjunction with SAFE FOR HOT WORK. However, this is not stated anywhere and is imposed by the Marine Chemist Qualification Board. In order to make it clear and uniform, the designation should be modified. If the tank is inerted, but not for hot work, the designation, Not Safe For Workers, Not Safe for Hot Work should be used. If necessary a definition for inerted can be added to make it clear. (Inerted; The introduction of a non-reactive gas such as nitrogen, carbon dioxide or argon into the atmosphere of a space with the intent of removing oxygen from the space. Filling a space with water to remove oxygen will also meet the definition of inerted.

Submitter Information Verification

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Submittal Date: Tue Feb 02 09:03:50 EST 2016

Public Input No. 68-NFPA 306-2016 [Section No. 7.1.8]

7.1.8

The designation INERTED ~~requires~~ -SAFE FOR LIMITED HOT WORK requires that one of the following procedures shall have been completed in the compartment or space so designated:

(1) * Carbon dioxide or other nonflammable gas acceptable to the Marine Chemist shall have been introduced into the space in sufficient volume to maintain the oxygen content of the atmosphere of the space at or below 6 percent or 50 percent of the amount required to support combustion, whichever is less. *(See Annex E.)* The Marine Chemist shall note on the Certificate the kind of inert gas, the methods for maintaining safe conditions, and the measures for safe disposal of the inert gas upon completion of repairs in accordance with 5.2.1. Closing and securing of hatches and other openings, except vents, shall be permitted to be used as “safe disposal” methods by the Marine Chemist.

(2) Spaces other than cargo tanks and fuel tanks shall have been filled to overflow with water, and the water level shall be maintained throughout the intended work. Valves shall be tagged or by written notice positioned to restrict operation to maintain the water level. If any headspace remains in the tank, it shall meet the requirements of 7.1.4 (2).

(3) The space shall have been filled with water so that the water level is a minimum of 0.9 m (3 ft) above the intended exterior hot work and the atmosphere of the headspace meets the requirements of 7.1.4 (2). The water level shall be maintained throughout the intended work by tagging valves in a position to maintain the water level. Any such procedure shall be approved by the Marine Chemist.

(4) * All valves, vent lines, and other openings to the inerted spaces shall be positioned in such a manner and tagged as to prevent or, by written notice, restrict operation.

Statement of Problem and Substantiation for Public Input

You cannot use the standard safety designation INERTED as a stand alone safety designation. You must use it in conjunction with SAFE FOR LIMITED HOT WORK. However, this is not stated anywhere and is imposed by the Marine Chemist Qualification Board. In order to make it clear and uniform, the designation should be modified. If the tank is inerted, but not for hot work, the designation, Not Safe For Workers, Not Safe for Hot Work should be used. If necessary a definition for inerted can be added to make it clear. (Inerted; The introduction of a non-reactive gas such as nitrogen, carbon dioxide or argon into the atmosphere of a space with the intent of removing oxygen from the space. Filling a space with water to remove oxygen will also meet the definition of inerted)

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boa
Street Address:
City:
State:
Zip:

Submittal Date: Tue Mar 08 05:34:37 EST 2016

Public Input No. 126-NFPA 306-2016 [Section No. 8.1 [Excluding any Sub-Sections]]

When the Marine Chemist is satisfied that the related requirements necessary for the safe conduct of the work have or have not been met, a Certificate shall contain a brief statement(s) describing the scope of work to be performed, and be prepared in accordance with this standard.

Statement of Problem and Substantiation for Public Input

As per Section 6.2.1(2) a Marine Chemist is required to determine the "Nature and extent of work". A Certificate is however currently not required to contain a statement describing the scope of work being performed however some Marine Chemist do as a best practice. It is my opinion that this is an area of significant improvement for the profession, as it provides better guidance for workers while also helping to protect the interests of the Marine Chemist. All too often, Certificates are prepared with very little information as to what specific work the Certificate is intended to address. In the event of an incident, this could lead to a misinterpretation of what the "verbal" understanding was at the time the certificate was written. All too often the people that had the "verbal" discussion are not the ones executing the work, and by having a brief statement in the body of the Certificate, it helps to better clarify what type of work the Certificate authorizes.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 10:47:22 EDT 2016

Public Input No. 93-NFPA 306-2016 [Section No. 8.1.1]

8.1.1

The Certificate shall be written legibly. The Marine Chemist shall write his name or company name and phone number at the top left of the certificate. If ink stamps are used, all copies of the Certificate shall be stamped and legible.

Statement of Problem and Substantiation for Public Input

This change would make the paper Marine Chemist Certificate consistent with the EMCC type as it already has this information at the top left of the EMCC. The need for any and all person(s) to quickly and easily contact the Marine Chemist in question is vital to avoiding misunderstandings concerning his or her Certificate. The Certificate already says , "....or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist". Without this change the burden to read the signature, look up in a directory, and find the phone number is unnecessarily cumbersome.

Submitter Information Verification

Submitter Full Name: James Bruff
Organization: Atlantic Coast Marine Chemist, LLC
Street Address:
City:
State:
Zip:
Submittal Date: Mon May 16 20:12:31 EDT 2016

Public Input No. 17-NFPA 306-2015 [Section No. 8.1.3]

8.1.3 –

Any additional requirements or qualifications issued by the Marine Chemist shall be specified on the Certificate, such as the following:

(1) Frequency and type of such additional tests, inspections, qualifications, and other instructions to be carried out by the competent person as the Marine Chemist specifies

(2) Conditions under which the Marine Chemist shall be consulted or recalled

Statement of Problem and Substantiation for Public Input

Typically these instructions are given to the competent person, this clearly states that.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boa
Street Address:
City:
State:
Zip:
Submittal Date: Thu Oct 22 08:16:40 EDT 2015

Public Input No. 71-NFPA 306-2016 [Section No. 8.1.3]

8.1.3

Any additional qualifications or requirements ~~or qualifications~~ issued by the Marine Chemist shall be specified on the Certificate, such as the following:

(1) Frequency and type of such additional tests, inspections, qualifications, and other instructions as the Marine Chemist specifies

(2) Conditions under which the Marine Chemist shall be consulted or recalled

Statement of Problem and Substantiation for Public Input

Simply to maintain consistency with the more proper order found in 8.1.4.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 07 16:17:55 EDT 2016

Public Input No. 157-NFPA 306-2016 [New Section after 8.1.4]

8.1.5

For spaces that are "Not Safe fo Hot Work" or "Not Safe for Workers", the certificate may state instructions on how to achieve a safe condition. These instructions are a consulting service only and are not a statement of safe conditions at the time of inspection.

Statement of Problem and Substantiation for Public Input

Marine chemist are frequently asked for recommendations on how to achieve a safe condition. This language permits this and is in compliance with 1.1.7

Submitter Information Verification

Submitter Full Name: John Bell
Organization: Marine Inspection Services
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 29 12:22:24 EDT 2016

Public Input No. 127-NFPA 306-2016 [Section No. 8.1.4]

8.1.4

Such qualifications and requirements shall include precautions, including protective equipment and devices, necessary to eliminate or minimize hazards that could be present from ~~combustibles~~ residues , ~~protective coatings~~ combustible materials , ~~or residues from cargoes~~ scale, or preservative coatings . These qualifications shall include limitations or restrictions, if any, on the areas where work is to be done and shall be listed on the Certificate.

Statement of Problem and Substantiation for Public Input

This language is intended to provide consistency with similar language used throughout the standard and OSHA with regard to examples of the types of hazards that could be present.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 10:58:59 EDT 2016

Public Input No. 72-NFPA 306-2016 [Section No. 8.1.4]

8.1.4

Such qualifications and requirements shall include precautions, including protective devises and equipment- ~~and devices~~ , necessary to minimize or eliminate ~~or minimize~~ hazards that could be present from ~~combustibles~~ combustible materials , protective coatings, or residues from cargoes. These qualifications and requirements shall include instructions, limitations or restrictions, if any, on the areas where work is to be done and shall be listed on the Certificate.

Statement of Problem and Substantiation for Public Input

The first two edits are simply conventional ordering, and read better.

"Combustible materials" is already defined in the Standard, and its literal use eliminates any potential confusion from varying interpretations. "Combustibles" is not defined.

"Qualifications and Requirements" is specifically referred to earlier in this section, as well as in 8.1.3. Leaving out "requirements" in the next line is confusion; subject to contemplating an unintended purpose instead of brevity or oversight.

Including "instructions" with "limitations" and "restrictions" is necessary They are not the same. Also, "instructions" is found in other sections of NFPA 306, such as 7.1.4(6) "These spaces, along with adjacent spaces, shall be treated in accordance with Marine Chemist's INSTRUCTIONS and be free of material that could ignite under conditions of work or be protected with barriers to prevent the spread of fire" ("treated in accordance with Marine Chemist's instructions" is a very common phrase; used many times), and 7.1.6(d) "The Certificate shall include a statement under the heading "Limitations" that describes the locations and type of hot work, and INSTRUCTIONS for the competent person to maintain safe work conditions." Note, capitalization of INSTRUCTIONS is mine, for emphasis.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 07 16:19:51 EDT 2016

Public Input No. 74-NFPA 306-2016 [Section No. 8.2 [Excluding any Sub-Sections]]

The Certificate shall be completed, and a signature for receipt of the Certificate shall be obtained, signifying the understanding of the conditions ~~and~~ , limitations and the requirements for maintaining conditions, and instructions under which it is issued. Any additions to or deletions from such a Certificate after obtaining a signature for receipt shall void the Certificate and require reissuance.

Statement of Problem and Substantiation for Public Input

As already substantiated in the proposal for revising paragraph 8.1.4, the inclusion of "instructions" is necessary for the same reasons.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Thu Apr 07 17:06:52 EDT 2016

Public Input No. 128-NFPA 306-2016 [New Section after 8.2.2]

TITLE OF NEW CONTENT

8.2.3 The Certificate shall have a maximum validity of 30 days or completion of scope of work, whichever comes first, unless otherwise noted on the Certificate. Upon expiration, if a Marine Chemist shall be required to determine if the conditions under which the Certificate was issued have been maintained by the Certificate requester, vessel owner, or their representative. Upon verification of conditions in accordance with the requirements of 6.2 and 8.4, a new Certificate will be issued.

Statement of Problem and Substantiation for Public Input

Though this could be considered a controversial proposal, it is well known in the industry that the conditions under which the Certificate was initially issued can change significantly shortly afterwards if supervisory oversight and general housekeeping is not up to par with industry standards. The longer the time period between the issuance of the Certificate and the completion of the job, the higher the risk of a fire. This concern at least merits some discussion.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:02:48 EDT 2016

Public Input No. 102-NFPA 306-2016 [Section No. 8.3]

8.3 – Responsibility for Obtaining the Marine Chemist's Certificate.

It shall be the responsibility of the Certificate requester to retain the services of the Marine Chemist and to obtain copies of the Marine Chemist's Certificate in accordance with the provisions of this section.

8.3.1

It shall be the responsibility of the Certificate requester to provide the master of the vessel and the representatives of the vessel owner with copies of such Certificate. Receipt and understanding of the Certificate shall be acknowledged by signature of the person designated in 8.2.1 or 8.2.2, as applicable.

8.3.2

It shall be the responsibility of the person signing for receipt of the Certificate to securely post the Certificate in a conspicuous place aboard the vessel before a space is entered or work is started.

8.3.3

It shall be the responsibility of the Certificate requester, vessel owner, or their representative to ensure that all access openings to spaces designated NOT SAFE FOR WORKERS, including inerted spaces, shall be appropriately labeled with a warning sign, which shall read "NOT SAFE FOR WORKERS" and which shall remain in place unless recertified.

8.3.4

Only one requester shall be listed on the certificate. The requester shall be responsible for providing a statement of the scope of the work at the time of the Marine Chemist's inspection. The requester listed on the Certificate shall be responsible for maintaining the Certificate in accordance with Section 8.4 and with 29 CFR 1915.15. If the requester is a host employer in a multi-employer workplace, then the host employer shall be responsible for maintaining the Certificate for all contract employers unless the host employer requires contract employers to obtain and maintain their own Certificate.

Statement of Problem and Substantiation for Public Input

Title was inadvertently changed during last revision and the word "responsibility" is a key word

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 08:22:01 EDT 2016

Public Input No. 88-NFPA 306-2016 [New Section after 8.3.3]

8.3.4

It shall be the responsibility of the Certificate requester, vessel owner, or their representative to ensure that all access openings to spaces designated NOT SAFE FOR HOT WORK shall be appropriately labeled with the Certificate that reads "NOT SAFE FOR HOT WORK."

Statement of Problem and Substantiation for Public Input

Considering the paragraph above has similar language regarding NOT SAFE FOR WORKERS, this same rationale here should be applicable here.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:
Submittal Date: Sun May 15 11:01:06 EDT 2016

Public Input No. 33-NFPA 306-2016 [Section No. 8.3.3]

8.3.3

It shall be the responsibility of the Certificate requester ~~, vessel owner, or their representative~~ to ensure that all access openings to spaces designated NOT SAFE FOR WORKERS, including inerted spaces, shall be appropriately labeled with a warning sign, which shall read “NOT SAFE FOR WORKERS” and which shall remain in place unless recertified.

Statement of Problem and Substantiation for Public Input

1. Posting unsafe spaces is clearly based on the OSHA law :1915.16 Warning Signs. The Vessel Owner has no duty to comply with this law. An "entity" has even less. It is squarely the duty of the Employer of workers who might be endangered. To even mention the "owner" muddies that OSHA requirement, to no obvious benefit.

2. Furthermore, this duty automatically involves the Shipyard Competent Person, who is often the person the Marine Chemist deals with directly and has the legal responsibility to Maintain the Chemist's Certificate. But the vessel owner has absolutely no obligation to select, train, designate, support or employ any Shipyard Competent Person. In commercial ship repair the vessel owner will not have a Competent Person onsite.

These two items show that the NFPA and OSHA legal duty to maintain the Certificate cannot be accomplished by a vessel owner. So, why give that duty to a "vessel owner" when it is clear he is not equipped to accomplish it?

Submitter Information Verification

Submitter Full Name:	don sly
Organization:	sound testing 2992 S.W. Avalon Way Seattle, WA 98126 206 406 1441
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Fri Feb 12 01:16:38 EST 2016

Public Input No. 43-NFPA 306-2016 [Section No. 8.3.4]

8.3.4

Only one requester shall be listed on the certificate. The requester shall be responsible for providing a statement of the scope of the work at the time of the Marine Chemist's inspection. The requester listed on the Certificate shall be responsible for maintaining the Certificate in accordance with Section 8.4 and with 29 CFR 1915.15. If the requester is a host employer in a multi-employer workplace, then the host employer shall be responsible for maintaining the Certificate for all contract employers unless the host employer requires each contract ~~employers~~ employer to obtain and maintain their own Certificate.

Statement of Problem and Substantiation for Public Input

Inserting "each" keeps the "employer" singular so it agrees with the singular "certificate" at the end of the page.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Sat Feb 13 16:56:44 EST 2016

Public Input No. 103-NFPA 306-2016 [Section No. 8.4]

8.4 ~~Maintaining the Responsibility for Conditions~~ Responsibility for Maintaining the Conditions .

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Title was inadvertently changed during last revision. The word "responsility" is a key word

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Association
Street Address:
City:
State:
Zip:
Submittal Date: Wed May 18 08:24:24 EDT 2016

Public Input No. 11-NFPA 306-2015 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas ~~in~~ or in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

New instrumentation is becoming available which does not require the use of gas to verify the accuracy of the sensors. Insertion of the word or, will permit the instrument to be calibrated/verified as accurate in accordance with the manufacturer's instructions without requiring the use of calibration gas.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:

Submittal Date: Tue Aug 11 05:56:36 EDT 2015

Public Input No. 129-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the ~~shipyard competent person~~ Shipyard Competent Person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the ~~shipyard competent person~~ Shipyard Competent Person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Grammatical change only.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:09:40 EDT 2016

Public Input No. 34-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester~~, vessel owner, or their representative~~ :

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester ~~or vessel owner, or the requester's or owner's representative,~~ to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Posting unsafe spaces is clearly based on the OSHA law :1915.16 Warning Signs. The Vessel Owner has no duty to comply with this law. An "entity" has even less. Posting unsafe spaces is squarely the duty of the Employer of workers who might be endangered. To even mention the "owner" muddies that OSHA requirement, to no obvious benefit. Incidentally, this duty automatically involves the Shipyard Competent Person, who works with, alongside, or in place of the Marine Chemist. The vessel owner has no obligation to select, train, designate, support and employ a Shipyard Competent Person. As a rule the vessel owner has no Competent Person onsite.

LIkewise, the "owner" has no legal duty (an in fact has a conflict of interest impelling him not to...) to monitor the vessel berth, as he will have to pay for another Chemist's Certificate if he abides by OSHA and NFPA details. And any mention of "representatives" does not change the fact that the Employer plainly has these duties, whether or not a "representative" is involved. Thus, mention of "representative" is clearly superfluous and in fact clouds the chain of responsibility.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Fri Feb 12 01:26:39 EST 2016

Public Input No. 36-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester ~~or vessel owner, or the requester's or owner's representative,~~ to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Any reference to "owner" or "representatives" confuses the issue of who has the legal responsibiliity to maintain a safe workplace: In legal, OSHA terms the job (and penalties plus injuries to his employees if the duty is not done) plainly lands on The Employer of the workers.

The "owner" or a nebulous "representative" has no legal duty to monitor vessel location. They need not even be onsite to monitor vessel location. That is most likely done by the Employer or his Shipyard Competent Person, who do have the legal duty to be onsite "as often as necessary." The owner obviously has a conflict of interest and will tend NOT to recall the Chemist because he will have to pay for a new Certificate. Besides, it's not HIS employees being kept safe and there is no legal repercussion to him if there is an OSHA citation involved.

For all these reasons, delete any such reference to the "owner" or "representatives".

Submitter Information Verification

Submitter Full Name:	don sly
Organization:	Sound Testing Inc. 2992 s. w. Avalon Way Seattle, WA 98126 206 406 1451
Affilliation:	Myself: Don Sly Please note that the "submitter name" space above could not be modified.
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Fri Feb 12 10:00:54 EST 2016

Public Input No. 39-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) ~~The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.~~

(6)

(7) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Best to delete this section because in many circumstances it will not be honored. It would plainly be nonsensical for a shipyard to void 5-6 Chemist's Certificates if 2nd shift the night before failed to turn off the calibration gas valve and it all leaked out so that no calibration of the shipyard competent person's meter could be accomplished the next day before work began. The ship repair activities, involving workers for whom the customer is paying $80-$100/hr each, are plainly not going to grind to a halt because the specialty gas office does not open until 9:30 am.

Besides, maintaining safe conditions is the duty of the workers' employer. Telling him the details of how he should accomplish this task is not within the NFPA 306's scope.

Submitter Information Verification

Submitter Full Name: don sly

Organization:	sound testing
Street Address:	
City:	
State:	
Zip:	
Submittal Date:	Fri Feb 12 11:23:11 EST 2016

Public Input No. 78-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) ~~The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.~~

(2)

(3) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(4) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(5) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(6) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(7) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

1. The duty to "Maintain" the Certificate is plainly imposed by OSHA, wherein the employer is ordered to maintain safe conditions by seeing that his designated Shipyard Competent Person tests worksite conditions "As often As Needed." Therefore, the sentence I have deleted is superfluous and beyond the scope of the Standard.

2. Any mention of "day" or "24 hours" is an artificial standard, inserted in sympathy with the USCG view of controlling repair dangers. But the USCG view is not the view of commercial ship repairers, who note the progress of repairs, not the passage of time. Plainly, no ship repair project will artificially arrange a Saturday morning Competent Person inspection because that will be within "a day" of the time noted by the Chemist as he writes his Certificate on a Friday.

Since the "within a day" language is both artificial and superfluous, it should be deleted.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Sun Apr 24 12:49:56 EDT 2016

Public Input No. 79-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) ~~Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.~~

(3)

(4) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(5) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(6) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(7) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Delete this paragraph because it is superfluous and plainly conflicts with the paragraph immediately after it. ("Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.")

The conflict is that the next paragraph refers to spaces where work is being done, whereas the deleted paragraph references ALL spaces, whether or not they are being repaired. This inconsistency will be fixed by deleting as I recommend.

This fix is functional. Suppose the Chemist certifies 40 spaces, but only 1 or 2 involve repairs. Why demand the Competent Person inspect ALL listed spaces? There is no danger if there are no repairs.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:
Zip:
Submittal Date: Sun Apr 24 13:06:23 EDT 2016

Public Input No. 80-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces, including spaces adjacent to hot work, where work is being done shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester ~~or vessel owner, or the requester's or owner's representative,~~ to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

OSHA's requirement to provide a safe work place for ship repair workers is the legal responsibility of their Employer. So, listing the "vessel owner" as someone who must provide and continue safe repair activities by monitoring the vessel's berth is plainly not very logical.

Vessel owners do not control the shipyard's berths. They can try, if they wish. But ordering them to do so by statute is beyond the scope of the Standard.

Submitter Information Verification

Submitter Full Name: don sly
Organization: sound testing
Street Address:
City:
State:

Zip:

Submittal Date: Sun Apr 24 13:16:17 EDT 2016

Public Input No. 89-NFPA 306-2016 [Section No. 8.4]

8.4 Maintaining the Responsibility for Conditions.

In order for the Certificate to be maintained, the following conditions and instructions shall be met by the Certificate requester, vessel owner, or their representative:

(1) The conditions documented on the Certificate shall be inspected by the shipyard competent person within 1 day unless otherwise noted on the Certificate.

(2) Throughout the course of repairs or alterations, conditions on the Certificate shall be maintained on the vessel by testing and visually inspecting all certified spaces, including all adjacent spaces, accessory piping, valves, coils, and so on, that were part of the original inspection.

(3) * Unless otherwise stated on the Certificate, certified spaces ~~, including spaces~~ where work is being done, as well as spaces adjacent to hot work,~~ where work is being done shall~~ shall be reinspected daily, or more often as necessary, by the shipyard competent person prior to entry or hot work.

(4) It is the responsibility of the Certificate requester or vessel owner, or the requester's or owner's representative, to ensure that the prescribed work is carried out at the original location within the facility for which the Certificate was issued, unless movement is authorized within that facility by the Marine Chemist on the Certificate. If movement is authorized within the facility, a reinspection shall be performed by a competent person. The Marine Chemist shall include on the Certificate the nature of any tests to be performed after the move is complete and prior to beginning work.

(5) The calibration of all instruments used by a competent person to maintain a Marine Chemist's Certificate shall be verified by either the competent person, another qualified individual, or metrology laboratory, before each day's use by using a known concentration of test gas in a manner consistent with the manufacturer's recommendations. A record shall be maintained for at least 3 months.

(6) Certificates not maintained according to the requirements in 8.4 (1) through (5) shall be void.

Statement of Problem and Substantiation for Public Input

Written and oral instructions are permitted in OSHA 1915. Written instructions, in particular, are vitally important to maintaining the Certificate. Its inclusion at the top, basically the heading, further highlights its importance.

Submitter Information Verification

Submitter Full Name: Robbie Walker
Organization: Marine Chemist Service
Street Address:
City:
State:
Zip:

Submittal Date: Sun May 15 11:09:12 EDT 2016

Public Input No. 2-NFPA 306-2015 [Chapter 9 [Title Only]]

Additional Requirements for Vessels having Flammable Cryogenic ~~Liquid Carriers~~ Liquid Fuel or Cargo

Statement of Problem and Substantiation for Public Input

Currently, the special endorsement excludes vessels carrying liquid cryogenic liquids as fuel. Therefore a chemist without the special endorsement could inspect and issue a certificate for a tug boat using LNG as fuel, but without the special endorsement they could not inspect and certify a LNG bunker barge that the tug may be towing/pushing. This creates a dilemma within the industry where two chemists may be required to certify these vessels if one does not have the special endorsement. This proposal will unite the endorsement and allow only those chemists with the special training in accordance with the rules (Section V.A and B) to certify these vessels.
Additionally, I would suggest that the 306 committee request the Marine Chemist Qualification Board have all future chemists undergo the training for LNG prior to certification and once certified they would automatically have the endorsement. This would enable the special endorsement to eventually be eliminated as all chemists would be qualified and certified to conduct inspections on all types of vessels using liquid cryogenic materials as cargo or fuel. Section V.A of the rules would need to be amended to permit this. Another reason for this is that current chemists who believe that they will never see a vessel using cryogenic liquids as fuel/cargo will not be required to get the endorsement. As they retire and new chemists get certified with the endorsement it will eventually eliminate the endorsement through attrition.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 09:52:00 EDT 2015

Public Input No. 130-NFPA 306-2016 [Section No. 9.1.1]

9.1.1*

The design and operational characteristics of ~~tank~~ tanks , ~~cargo-handling,~~ and ~~related~~ systems on vessels carrying or consuming flammable cryogenic ~~liquid cargoes~~ liquids shall be fully appreciated by the Marine Chemist in making the determinations required by Section 6.2 of this standard. This chapter describes the conditions required before repairs can be made in spaces that have ~~carried or have~~ been exposed to flammable cryogenic ~~liquid cargoes~~ liquids in their liquid or vapor form.

Statement of Problem and Substantiation for Public Input

Proposed changes are intended to address vessels that are also using FCL's as fuel, not just carrying cargo.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:14:43 EDT 2016

Public Input No. 141-NFPA 306-2016 [Section No. 9.1.3]

9.1.3

Only those Marine Chemists who have evidenced the required additional experience, training, and knowledge shall be authorized to issue Certificates under the requirements of Chapter 9. Such Marine Chemists shall receive a special endorsement on the Marine Chemist's Certificate issued them by the National Fire Protection Association.

Statement of Problem and Substantiation for Public Input

It is recommended that this section be reviewed in its entirety to determine if a special endorsement will be required going forward given the fact that the vast majority of Marine Chemists possess the special endorsement. Based on the MCQB Rules for Certification, this requirement could possibly become another aspect of the training prior to becoming a certificated Marine Chemist.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 13:20:09 EDT 2016

Public Input No. 131-NFPA 306-2016 [Section No. 9.2]

~~9.2 – Definitions.~~

~~The following terms related to flammable cryogenic liquid carriers and defined in Chapter 3 shall apply to this chapter:~~

(1) ~~Cargo Area (3.5.1)~~

(2) ~~Cargo Containment System (3.5.2)~~

(3) ~~Cryogenic Liquid (3.5.3)~~

(4) ~~Hold Space (3.5.4)~~

(5) ~~Interbarrier Space (3.5.5)~~

(6) ~~Primary Barrier (3.5.6)~~

(7) ~~Secondary Barrier (3.5.7)~~

Statement of Problem and Substantiation for Public Input

It is recommended that this section be removed as the Definitions are already listed in Section 3.5.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:39:30 EDT 2016

Public Input No. 132-NFPA 306-2016 [Section No. 9.3.2]

9.3.2

The special safety designation SAFE FOR REPAIR YARD ENTRY shall apply only to flammable cryogenic liquid carriers or vessels consuming flammable cryogenic liquids as fuel, and describes vessels whose compartments and spaces either have been tested by sampling at remote sampling stations, with results indicating that the atmosphere tested is above 19.5 percent oxygen and less than 10 percent of the lower explosive limit (LEL), or have been inerted in accordance with 7.1.8.

Statement of Problem and Substantiation for Public Input

This change is proposed to address the current gap that exists in the Standard associated with vessels carrying cryogenic liquids as fuel.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:42:24 EDT 2016

Public Input No. 3-NFPA 306-2015 [Section No. 9.3.2]

9.3.2

The special safety designation SAFE FOR REPAIR YARD ENTRY shall apply only to flammable cryogenic liquid ~~carriers and describes~~ vessels whose compartments and spaces either have been tested by sampling at remote sampling stations, with results indicating that the atmosphere tested is above 19.5 percent oxygen and less than 10 percent of the lower explosive limit (LEL), or have been inerted in accordance with 7.1.8.

Statement of Problem and Substantiation for Public Input

This change makes the wording consistent with a previous proposal to permit chemists with the special endorsement to certify vessels carrying or using liquid cryogenic material as fuel or cargo. Currently, the special endorsement excludes vessels carrying liquid cryogenic liquids as fuel. Therefore a chemist without the special endorsement could inspect and issue a certificate for a tug boat using LNG as fuel, but without the special endorsement they could not inspect and certify a LNG bunker barge that the tug may be towing/pushing. This creates a dilemma within the industry where two chemists may be required to certify these vessels if one does not have the special endorsement. This proposal will unite the endorsement and allow only those chemists with the special training in accordance with the rules (Section V.A and B) to certify these vessels.
Additionally, I would suggest that the 306 committee request the Marine Chemist Qualification Board have all future chemists undergo the training for LNG prior to certification and once certified they would automatically have the endorsement. This would enable the special endorsement to eventually be eliminated as all chemists would be qualified and certified to conduct inspections on all types of vessels using liquid cryogenic materials as cargo or fuel. Section V.A of the rules would need to be amended to permit this. Another reason for this is that current chemists who believe that they will never see a vessel using cryogenic liquids as fuel/cargo will not be required to get the endorsement. As they retire and new chemists get certified with the endorsement it will eventually eliminate the endorsement through attrition.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 10:15:10 EDT 2015

Public Input No. 133-NFPA 306-2016 [Section No. 9.3.3]

9.3.3

Vessels whose ~~cargo~~ containment systems have not met the criteria of 9.3.2 shall be permitted to undergo specific limited repairs in locations outside those spaces. However, such repairs or alterations shall not be undertaken until a Certificate is obtained. When undergoing such repairs, the vessel shall be berthed in a special location selected with due regard to the hazards of the location and to hazards to adjacent property. Should the Marine Chemist have reason to question the safety of any aspect of the site selection, he or she shall consult the proper governmental authorities.

Statement of Problem and Substantiation for Public Input

Remove the word "cargo" to allow section to be applicable to other types of vessels carrying cryogenic liquids as fuel.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:47:39 EDT 2016

Public Input No. 4-NFPA 306-2015 [Section No. 9.3.3]

9.3.3

Vessels ~~whose cargo containment~~ whose containment systems have not met the criteria of 9.3.2 shall be permitted to undergo specific limited repairs in locations outside those spaces. However, such repairs or alterations shall not be undertaken until a Certificate is obtained. When undergoing such repairs, the vessel shall be berthed in a special location selected with due regard to the hazards of the location and to hazards to adjacent property. Should the Marine Chemist have reason to question the safety of any aspect of the site selection, he or she shall consult the proper governmental authorities.

Statement of Problem and Substantiation for Public Input

Makes wording consistent with proposal other proposals to combine the special endorsement to cover both LNG fuel and cargo vessels. Currently, the special endorsement excludes vessels carrying liquid cryogenic liquids as fuel. Therefore a chemist without the special endorsement could inspect and issue a certificate for a tug boat using LNG as fuel, but without the special endorsement they could not inspect and certify a LNG bunker barge that the tug may be towing/pushing. This creates a dilemma within the industry where two chemists may be required to certify these vessels if one does not have the special endorsement. This proposal will unite the endorsement and allow only those chemists with the special training in accordance with the rules (Section V.A and B) to certify these vessels. Additionally, I would suggest that the 306 committee request the Marine Chemist Qualification Board have all future chemists undergo the training for LNG prior to certification and once certified they would automatically have the endorsement. This would enable the special endorsement to eventually be eliminated as all chemists would be qualified and certified to conduct inspections on all types of vessels using liquid cryogenic materials as cargo or fuel. Section V.A of the rules would need to be amended to permit this. Another reason for this is that current chemists who believe that they will never see a vessel using cryogenic liquids as fuel/cargo will not be required to get the endorsement. As they retire and new chemists get certified with the endorsement it will eventually eliminate the endorsement through attrition.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 10:21:01 EDT 2015

Public Input No. 5-NFPA 306-2015 [Section No. 9.3.3]

9.3.3

Vessels whose cargo ~~containment~~ or fuel containment systems have not met the criteria of 9.3.2 shall be permitted to undergo specific limited repairs in locations outside those spaces. However, such repairs or alterations shall not be undertaken until a Certificate is obtained. When undergoing such repairs, the vessel shall be berthed in a special location selected with due regard to the hazards of the location and to hazards to adjacent property. Should the Marine Chemist have reason to question the safety of any aspect of the site selection, he or she shall consult the proper governmental authorities.

Statement of Problem and Substantiation for Public Input

Makes wording consistent with proposals for the special endorsement to combine LNG vessels which carry LNG as fuel or cargo. Currently, the special endorsement excludes vessels carrying liquid cryogenic liquids as fuel. Therefore a chemist without the special endorsement could inspect and issue a certificate for a tug boat using LNG as fuel, but without the special endorsement they could not inspect and certify a LNG bunker barge that the tug may be towing/pushing. This creates a dilemma within the industry where two chemists may be required to certify these vessels if one does not have the special endorsement. This proposal will unite the endorsement and allow only those chemists with the special training in accordance with the rules (Section V.A and B) to certify these vessels. Additionally, I would suggest that the 306 committee request the Marine Chemist Qualification Board have all future chemists undergo the training for LNG prior to certification and once certified they would automatically have the endorsement. This would enable the special endorsement to eventually be eliminated as all chemists would be qualified and certified to conduct inspections on all types of vessels using liquid cryogenic materials as cargo or fuel. Section V.A of the rules would need to be amended to permit this. Another reason for this is that current chemists who believe that they will never see a vessel using cryogenic liquids as fuel/cargo will not be required to get the endorsement. As they retire and new chemists get certified with the endorsement it will eventually eliminate the endorsement through attrition.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 10:21:02 EDT 2015

Public Input No. 134-NFPA 306-2016 [Section No. 9.3.4]

9.3.4

Because interbarrier spaces or insulation could contain pockets of ~~cargo~~ flammable cryogenic liquid vapors that can be released over varying time periods, the Marine Chemist shall inspect for gas concentration and combustible materials before work in or on the boundaries of such places is begun.

Statement of Problem and Substantiation for Public Input

This change is proposed to address vessel carrying cryogenic liquids as fuel, not just cargo.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:56:19 EDT 2016

Public Input No. 6-NFPA 306-2015 [Section No. 9.3.4]

9.3.4

Because interbarrier spaces or insulation could contain pockets ~~of cargo vapors~~ of vapors that can be released over varying time periods, the Marine Chemist shall inspect for gas concentration and combustible materials before work in or on the boundaries of such places is begun.

Statement of Problem and Substantiation for Public Input

Makes wording consistent with proposal 2-NFPA 306-2015.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 10:24:11 EDT 2015

Public Input No. 135-NFPA 306-2016 [Section No. 9.3.5]

9.3.5

The following information shall be used by the Marine Chemist as a guide for making his or her inspection:

(1) Description and schematic arrangement of provisions for inerting ~~cargo tanks~~ cryogenic liquid tanks , hold spaces, or interbarrier spaces, as applicable

(2) Description and instruction manual for calibration of the ~~cargo leak~~ cryogenic liquid leak detector equipment

(3) Schematic plan showing locations of leak detector(s) and sampling points

(4) Schematic plan(s) of cryogenic liquid and vapor ~~cargo~~ piping

(5) U.S. Coast Guard Letter of Compliance and Certificate of Fitness for foreign flag vessels, or the Certificate of Inspection and Certificate of Fitness for U.S. flag vessels

(6) The recent history of cargoes handled with special reference to outturn and any pertinent unusual incidents encountered

Statement of Problem and Substantiation for Public Input

Proposed changes are intended to allow this section to be used for vessels carrying cryogenic liquids as fuel, not just cargo.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 11:58:21 EDT 2016

Public Input No. 7-NFPA 306-2015 [Section No. 9.3.5]

9.3.5

The following information shall be used by the Marine Chemist as a guide for making his or her inspection:

(1) Description and schematic arrangement of provisions for inerting cargo ~~tanks~~ or fuel tanks , hold spaces, or interbarrier spaces, as applicable

(2) Description and instruction manual for calibration of the cargo leak detector equipment

(3) Schematic plan showing locations of leak detector(s) and sampling points

(4) Schematic plan(s) of liquid and vapor cargo piping

(5) U.S. Coast Guard Letter of Compliance and Certificate of Fitness for foreign flag vessels, or the Certificate of Inspection and Certificate of Fitness for U.S. flag vessels

(6) The recent history of cargoes handled with special reference to outturn and any pertinent unusual incidents encountered

Statement of Problem and Substantiation for Public Input

Makes wording consistent with proposals for the special endorsement to cover LNG vessels which carry LNG as a cargo or as fuel. Currently, the special endorsement excludes vessels carrying liquid cryogenic liquids as fuel. Therefore a chemist without the special endorsement could inspect and issue a certificate for a tug boat using LNG as fuel, but without the special endorsement they could not inspect and certify a LNG bunker barge that the tug may be towing/pushing. This creates a dilemma within the industry where two chemists may be required to certify these vessels if one does not have the special endorsement. This proposal will unite the endorsement and allow only those chemists with the special training in accordance with the rules (Section V.A and B) to certify these vessels. Additionally, I would suggest that the 306 committee request the Marine Chemist Qualification Board have all future chemists undergo the training for LNG prior to certification and once certified they would automatically have the endorsement. This would enable the special endorsement to eventually be eliminated as all chemists would be qualified and certified to conduct inspections on all types of vessels using liquid cryogenic materials as cargo or fuel. Section V.A of the rules would need to be amended to permit this. Another reason for this is that current chemists who believe that they will never see a vessel using cryogenic liquids as fuel/cargo will not be required to get the endorsement. As they retire and new chemists get certified with the endorsement it will eventually eliminate the endorsement through attrition.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 10:28:16 EDT 2015

Public Input No. 136-NFPA 306-2016 [Section No. 9.4.2]

9.4.2

When vessels are undergoing repairs, no venting of ~~cargo~~ flammable cryogenic liquid tanks, systems, or other spaces that could contain inert gas or flammable vapors shall take place without approval of the Marine Chemist. Any other activity that could similarly alter the atmosphere in the vicinity of the repair work shall be permitted to be undertaken only with such approval.

Statement of Problem and Substantiation for Public Input

Proposed changes are intended to allow this section to be used for vessels carrying cryogenic liquids as fuel, not just cargo.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 12:01:48 EDT 2016

Public Input No. 8-NFPA 306-2015 [Section No. 9.4.2]

9.4.2

When vessels are undergoing repairs, no venting of cargo ~~tanks~~ or fuel tanks , systems, or other spaces that could contain inert gas or flammable vapors shall take place without approval of the Marine Chemist. Any other activity that could similarly alter the atmosphere in the vicinity of the repair work shall be permitted to be undertaken only with such approval.

Statement of Problem and Substantiation for Public Input

Makes wording consistent with proposal 2-NFPA 306-2015.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 10:31:19 EDT 2015

Public Input No. 9-NFPA 306-2015 [Section No. 9.4.3]

9.4.3

Vessels that are capable of burning cargo boil-off as a fuel for their main propulsion system or for other purposes shall be inspected to ensure that gas supply lines to the ~~fire~~ engine room or other spaces have been properly secured, inerted, or otherwise properly treated prior to repairs to this system.

Statement of Problem and Substantiation for Public Input

Fire room is not a common term, engine room would be more appropriate wording.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 11:24:25 EDT 2015

Public Input No. 10-NFPA 306-2015 [Section No. 9.4.4]

9.4.4

Prior to the opening of cargo machinery ~~or~~ or fuel systems for repairs, such equipment shall have been purged and ventilated to remove cargo vapor or inert gas.

Statement of Problem and Substantiation for Public Input

Clearly notifies user that fuel systems as well as cargo related systems must be inspected.

Submitter Information Verification

Submitter Full Name: Donald Raffo
Organization: General Dynamics, Electric Boat
Street Address:
City:
State:
Zip:
Submittal Date: Mon Aug 10 11:29:24 EDT 2015

Public Input No. 137-NFPA 306-2016 [Section No. 9.4.4]

9.4.4

Prior to the opening of cargo machinery or systems for repairs, such equipment shall have been purged and ventilated to remove ~~cargo~~ flammable cryogenic liquid vapor or inert gas.

Statement of Problem and Substantiation for Public Input

Proposed changes are intended to allow this section to be used for vessels carrying cryogenic liquids as fuel, not just cargo.

Submitter Information Verification

Submitter Full Name: John Doran
Organization: Osg Ship Management Inc
Street Address:
City:
State:
Zip:
Submittal Date: Wed Jun 15 12:03:03 EDT 2016

Public Input No. 70-NFPA 306-2016 [New Section after A.1.1.8]

TITLE OF NEW CONTENT

Type your content here ...

1.1.5.1 When requested a Marine Chemist may issue a Marine Chemist Certificate on land based confined spaces including but not limited to land storage tanks, rail cars etc. The requestor shall be made aware that the Marine Chemist will be following NFPA 306 and issuing an approved Marine Chemist Certificate and is in support other regulatioins.

Statement of Problem and Substantiation for Public Input

1.1.5.1 allows a CMC to check other spaces not within the maritime environment. This makes it clear that if requested the CMC must follow NFPA 306, issue an official Certificate, pay surcharges and be under the oversight of the MCQB

Submitter Information Verification

Submitter Full Name: Leslie Blaize
Organization: Belay Incorporated
Street Address:
City:
State:
Zip:
Submittal Date: Sat Mar 26 16:43:40 EDT 2016

Public Input No. 44-NFPA 306-2016 [Section No. A.1.1.8]

A.1.1.8

The Marine Chemist, as a shipyard safety professional, should take note of any observed physical hazards in a tank or confined or enclosed space, and convey that information to those individuals who are empowered and qualified to correct such hazards. Some examples of physical hazards are, among others, slippery surfaces, unguarded openings, broken or rusted ladder rungs, engulfment, entrapment, obvious electrical hazards, and noise hazards.

Statement of Problem and Substantiation for Public Input

In tanks and voids and enclosed spaces on Chemist's Certificates the most common cause of physical injuries is falls. And falls, in turn, are themselves due to slippery surfaces or unguarded openings. So as the Standard lists physical hazards it seems the most common causes of the most common injury should be included.

Submitter Information Verification

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Submittal Date: Fri Feb 19 10:15:16 EST 2016

Public Input No. 87-NFPA 306-2016 [New Section after A.1.4]

Ammunition-containing spaces

The U.S. Navy's OP-4 should be consulted when a Marine Chemist is requested for hot work involving spaces aboard vessels last containing ammunication. There may be circumstances in which hot work can be safely authorized within non-permissible areas (no hot work is allowed inside or against spaces containing ammunication). In such cases, requests for waivers or exemptions should be in accordance with OP-4.

Statement of Problem and Substantiation for Public Input

Regarding ammunition on USN and USCG (using USN ammunition) vessels, OP-4 is the required document.

Submitter Information Verification

Submitter Full Name: Robbie Walker
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Submittal Date: Sun May 15 10:42:59 EDT 2016

Public Input No. 65-NFPA 306-2016 [Sections A.3.3.12.1, A.3.3.12.3]

Sections A.3.3.12.1, A.3.3.12.3

A.3.3.12.1 Combustible Liquid.

Definition applies as determined by the test procedures and apparatus set forth in Chapter 4 of NFPA 30, *Flammable and Combustible Liquids Code*. ~~Combustible~~ These definitions of combustible liquid classes are different from the USCG's definitions of combustible liquid grades. Combustible liquids are classified as Class II or Class III as follows:

(1) Class II Liquid — Any liquid that has a flash point at or above 37.8°C (100°F) and below 60°C (140°F)

(2) Class IIIA — Any liquid that has a flash point at or above 60°C (140°F), but below 93°C (200°F)

(3) Class IIIB — Any liquid that has a flash point at or above 93°C (200°F)

A.3.3.12.3 Flammable Liquid.

Definition applies as determined by the test procedures and apparatus set forth in Chapter 4 of NFPA 30, *Flammable and Combustible Liquids Code*. ~~Flammable~~ These definitions of flammable liquid classes are different from the USCG's definitions of flammable liquid grades. Flammable liquids are classified as Class I as follows:

(1) Class I Liquid — Any liquid that has a closed-cup flash point below 37.8°C (100°F) and a Reid vapor pressure not exceeding 2068.6 mm Hg (40 psia) at 37.8°C (100°F), as determined by ASTM D 323, *Standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method)*

Class I liquids are further classified as follows:

(1) Class IA — Those liquids that have flash points below 22.8°C (73°F) and boiling points below 37.8°C (100°F)

(2) Class IB — Those liquids that have flash points below 22.8°C (73°F) and boiling points at or above 37.8°C (100°F)

(3) Class IC — Those liquids that have flash points at or above 22.8°C (73°F), but below 37.8°C (100°F)

Statement of Problem and Substantiation for Public Input

When generally speaking of "combustible liquids" and "flammable liquids," it is important to identify which definition is being use. Since NFPA and USCG define these two groups of liquids differently, and since both NFPA and USCG are involved with the maritime industry, this brings awareness to the maritime industry that there are differences.

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Submittal Date: Sun Feb 28 13:06:19 EST 2016

Public Input No. 42-NFPA 306-2016 [Section No. A.3.3.16]

A.3.3.16 Requester.

~~The requester of the Marine Chemist Certificate is generally considered to be one of the following: vessel owner, vessel repairer, shipbreaker, or vessel builder.~~

A.3.3.16 _ Requester.

As provided for on the Certificate Space, *"Certificate Requester',* the “Requester" is either the Host Employer or the Contract Employer of workers who will enter or do hot work in or on spaces to be inspected by the Marine Chemist and noted on the Certificate.”

Statement of Problem and Substantiation for Public Input

Statement of Problem and Substantiation for Public Input

The "Vessel Owner" should be deleted as having regulatory backing to request the services of a Marine Chemist for these reasons:

#1: 29cfr1915, OSHA's Maritime Standard is incorporated by reference (2.1 ..."and shall be considered part...of this document.") The entire legal structure of 29cfr1915 rests on "The Employer" as in 1915.14 (a) "The Employer shall ensure that hot work is not performed...until the work area ha been tested and certified by a Marine Chemist..." This is but one of dozens of such duties OSHA assigns "The Employer." And every OSHA enforcement Citation and penalty, whether fines or imprisonment, aims directly at "The Employer"

#2: For decades NFPA 306 followed OSHA's lead, stating that the Marine Chemist's services were to be requested by the "Ship Repairer", who was obviously the Employer responsible for the safety of those doing the repairs.

#3: In spite of referencing OSHA as part of NFPA 306, 2 revisions back NFPA 306 went directly against the essential legal structure of OSHA by saying an "owner" or some indefinite "entity" had standing to request the Chemist's services. This has 2 things wrong with it:

a) It invites "Chemist-shopping" because the vessel owner, who has no legal responsibility for worker safety, has instead a possible conflict of interest because he pays the bill and is impelled to "request" the cheapest, least professional and above all least demanding Marine Chemist he knows of or can find. Such is precisely the reason why OSHA has traditionally and wisely limited responsibility to "The Employer" of the workers being protected.

b) OSHA says by law the Employer has the duty to "maintain" safe conditions. (1915.15) But NFPA's pursuit of "owner" or "entity" as the Certificate Maintainer creates an obvious conflict within 306: The "entity" requesting the Certificate may have no immediate knowledge of workplace conditions in Puget Sound when they are a purchasing agent or functionary in Virginia Beach. At least an employer has people on site, whereas the owner or "entity" need not. In truth, the Chemist’s Certificate cannot be maintained without a Shipyard Competent Person. And there is no requirement that an owner or

“entity” have any such resource. (Of course, the employer lives with that regulation every day.)

#4. "owner/entity" is an attempt to deal with the multi-employer workplace. But that difficulty is easily and more specifically addressed by the changed wording I suggest. “Requester is either the Host Employer or the Contract Employer of workers who will enter or do hot work in or on spaces to be inspected by the Marine Chemist and noted on the Certificate.”

#5. At times more than one "requester" has been involved with some Certificates. The "either" I suggest in the definition will make the singular requester more definite.

Submitter Information Verification

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Submittal Date: Sat Feb 13 16:13:30 EST 2016

Public Input No. 13-NFPA 306-2015 [Section No. A.3.4.2]

A.3.4.2 Hot Work.

Grinding, drilling, abrasive blasting, or similar spark-producing operations should always be considered hot work when conducted in the presence of accumulations of flammable gases, flammable or combustible liquids, their vapors, or accumulations of other common combustible materials. These operations or similar operations are considered hot work unless deemed otherwise by the Marine Chemist and stated in writing on the Marine Chemist Certificate.

Statement of Problem and Substantiation for Public Input

This will allow the Chemist to deem certain operations as cold work. This is especially needed for blasting operations where the Chemist may determine that the cleaning of adjacent spaces is not needed (but required if the operation is hot work) and permit the operation to proceed while calling it cold work. Following the standard and calling blasting hot work may require the many spaces adjacent to the operation to be cleaned and gas free before blasting.

Submitter Information Verification

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City:
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Submittal Date: Tue Oct 20 09:24:52 EDT 2015

Public Input No. 29-NFPA 306-2016 [Section No. A.3.4.2]

A.3.4.2 Hot Work.

Grinding, drilling,abrasive blasting, or similar spark-producing operations are considered hot work unless deemed otherwise br a Marine Chemist and stated in writing on a Marine Chemist's Certificate. Grinding, drilling, abrasive blasting, or similar spark-producing operations should always be considered hot work when conducted in the presence of accumulations of flammable gases, flammable or combustible liquids, their vapors, or accumulations of other common combustible materials.

Statement of Problem and Substantiation for Public Input

This clarifies that a CMC can authorize these forms of hot work under certain circumstances. Exp. Drilling a void to check for accumulation of flammable gases. this language was removed from NFPA 306 2009 and should be replaced.

Submitter Information Verification

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Submittal Date: Wed Jan 13 14:57:27 EST 2016

Public Input No. 45-NFPA 306-2016 [Section No. A.5.8]

~~A.5.8 —~~

~~On dry cargo vessels, miscellaneous vessels, passenger vessels, and shipyard employment land-side operations, no hot work is permitted adjacent to any vessel's or other fuel oil tanks unless the work has been authorized by the Marine Chemist. When the adjacent space contains flammable or combustible liquids with a flash point at or below 65.6°C (150°F), or flammable gases and the distance between such spaces and the hot work is greater than 7.6 m (25 ft), then a competent person can visually inspect and test the space. [If the hot work is 7.6 m (25 ft) or closer to the adjacent space containing such flammables, then a Marine Chemist must certify the hot work.]~~

Statement of Problem and Substantiation for Public Input

1. The whole purpose of the 25' rule is to deal with the possibility of explosion from hot work too close to gassy tank contents. But, this is already accomplished by 7.1.4.4, (spaces adjacent to hot work must have less than 10% L.E.L.) The 25' rule is plainly superfluous.

2. When originally written (~1980) the 25' rule was applied only to tank vessels. But it has been taken out of that context and now applies only to "dry cargo, miscellaneous...etc" because the tank vessel rules made the 25' rule superfluous. At least on a big tank vessel the rule had some applicability because of the vessel's size. But on "miscellaneous" vessels, hot work is almost always within 25' of some oil tank, and usually within 25' of several. How many tank flash points before the concept becomes unworkable?

3. It is an unworkable rule for these reasons:
a.) Of the ~20 commercial yards I am familiar with, not one has a flash-point testing apparatus.
b.) I do not know a single Shipyard Competent Person who has been trained to know how to do the test.
c.) The concept is a little difficult and even those who might have some knowledge and equipment wouldn't understand its meaning.
d.) The Standard doesn't specify "open" or "closed" cup tests, which have a variance of 10-15 F°
e.) 150°F is the approximate cc flash point of diesel. It is illogical to make decisions based on a few Fahrenheit degrees when they come from a test procedure that has a variance of more than 10 such degrees.
f.) Some say the flash point can be looked up in reference material or cargo manifests. This is plainly wrong, as the contents of any service tank are bound to be a mixture of multiple loadings and hence a mixture of many flash point contents.

4. The most important and teachable "adjacent hot work" rule is that the ship repairer stay away from any work "immediately" adjacent to an oil tank. Yet the Standard does not mention that workable strategy, and gives no guidance to its implementation. At least "immediately adjacent" is a workable concept, whereas the "25-foot" rule is essentially a political idea, based on someone's opinion, (Why not 18.6 feet??) and technically without support.

Submitter Information Verification

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Submittal Date: Fri Feb 19 11:17:11 EST 2016

Public Input No. 142-NFPA 306-2016 [New Section after A.7.1.1]

A.6.2 Though I do not have any proposed language at this time, better guidance should added to the Annex to clarify any ambiguities and differences of interpretation associated with the following sentence:

The Marine Chemist shall, " ***whenever possible, physically enter each compartment or space and conduct a visual inspection to the extent necessary"*** to determine the atmospheric or fire hazards that exist.

Statement of Problem and Substantiation for Public Input

The term "whenever possible, physically enter each compartment or space and conduct a visual inspection to the extent necessary" has been interpreted in many ways and for the benefit of all Marine Chemists, some clarifying language should be inserted in Annex A to avoid ambiguous interpretations.

Submitter Information Verification

Submitter Full Name: John Doran
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City:
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Submittal Date: Wed Jun 15 13:24:12 EDT 2016

Public Input No. 139-NFPA 306-2016 [New Section after A.7.1.4(1)]

TITLE OF NEW CONTENT

7.1.4 A Certificate authorizing hot work during tank cleaning, gas freeing and transfer operations _ should not be written when there is a transfer of oil or hazardous material as the requirements for transfer in 33CFR 156.120 (dd) prohibit welding, hot work operations on vessels during the transfer of flammable or combustible materials. 33 CFR 154.735(l)(1) indicates that welding or hotwork is prohibited during gas freeing operations. ISGOTT further recommends that hot work should be prohibited during cargo or ballast operations, and when tank cleaning, gas freeing, purging or inerting.

Statement of Problem and Substantiation for Public Input

It is recommended that some clarifying language be inserted in Appendix A as a reminder to Marine Chemists that a SAFE FOR HOT WORK or SAFE FOR LIMITED HOT WORK Certificate should not be issued when a transfer operation is taking place.

Submitter Information Verification

Submitter Full Name: John Doran
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Submittal Date: Wed Jun 15 12:47:58 EDT 2016

Public Input No. 140-NFPA 306-2016 [New Section after A.7.1.8(1)]

A.7.1.6 Refer to A7.1.4

Statement of Problem and Substantiation for Public Input

Same as 7.1.4. It is recommended that some clarifying language be inserted in Appendix A as a reminder to Marine Chemists that a SAFE FOR HOT WORK or SAFE FOR LIMITED HOT WORK Certificate should not be issued when a transfer operation is taking place.

Submitter Information Verification

Submitter Full Name: John Doran
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Street Address:
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Submittal Date: Wed Jun 15 13:02:28 EDT 2016

Public Input No. 138-NFPA 306-2016 [Section No. A.9.1.1]

A.9.1.1

Flammable cryogenic ~~liquid carriers~~ liquids present hazards due to the presence of gas-dangerous spaces. The following are examples of gas-dangerous spaces:

(1) A space in the cargo area that is not arranged or equipped in an approved manner to ensure that its atmosphere is at all times maintained in a gas-free condition.

(2) An enclosed space outside the cargo or flammable cryogenic liquid storage area through which any piping that could contain liquid or gaseous products passes, or within which such piping terminates, unless approved arrangements are installed to prevent any escape of product vapor into the atmosphere of that space.

(3) A ~~cargo~~ containment system and ~~cargo~~ associated piping.

(4) A hold space where

~~cargo is~~

(a) flammable cryogenic liquid is carried in a

~~cargo~~

(a) containment system requiring a secondary barrier.

(b) A hold space where

~~cargo~~

(a) flammable cryogenic liquid is carried in a

~~cargo~~

(a) containment system not requiring a secondary barrier.

(5) A space separated from a hold space described in A.9.1.1 (3)(a), above, by a single gastight steel boundary.

(6) A ~~cargo~~ pump room and ~~cargo~~ compressor room.

(7) A zone on the open deck or semienclosed space on the open deck within 3 m (9.84 ft) of any ~~cargo~~ flammable cryogenic liquid tank outlet, gas or vapor outlet, ~~cargo~~ flammable cryogenic liquid pipe flange, ~~cargo~~ valve, or entrance and ventilation opening to ~~cargo~~ related pump rooms and ~~cargo~~ compressor rooms.

(8) The open deck over the cargo area and 3 m (9.84 ft) forward and aft of the cargo area on the open deck up to a height of 2.4 m (7.88 ft) above the weather deck.

(9) A zone within 2.4 m (7.88 ft) of the outer surface of a ~~cargo~~ flammable cryogenic liquid containment system where such surface is exposed to the weather.

(10) An enclosed or semienclosed space in which pipes containing product are located.

(11) A compartment for ~~cargo~~ transfer hose.

(12) An enclosed or semienclosed space having a direct opening into any gas-dangerous space or zone.

Statement of Problem and Substantiation for Public Input

Proposed changes are intended to allow this section to be used for vessels carrying cryogenic liquids as fuel, not just cargo.

Submitter Information Verification

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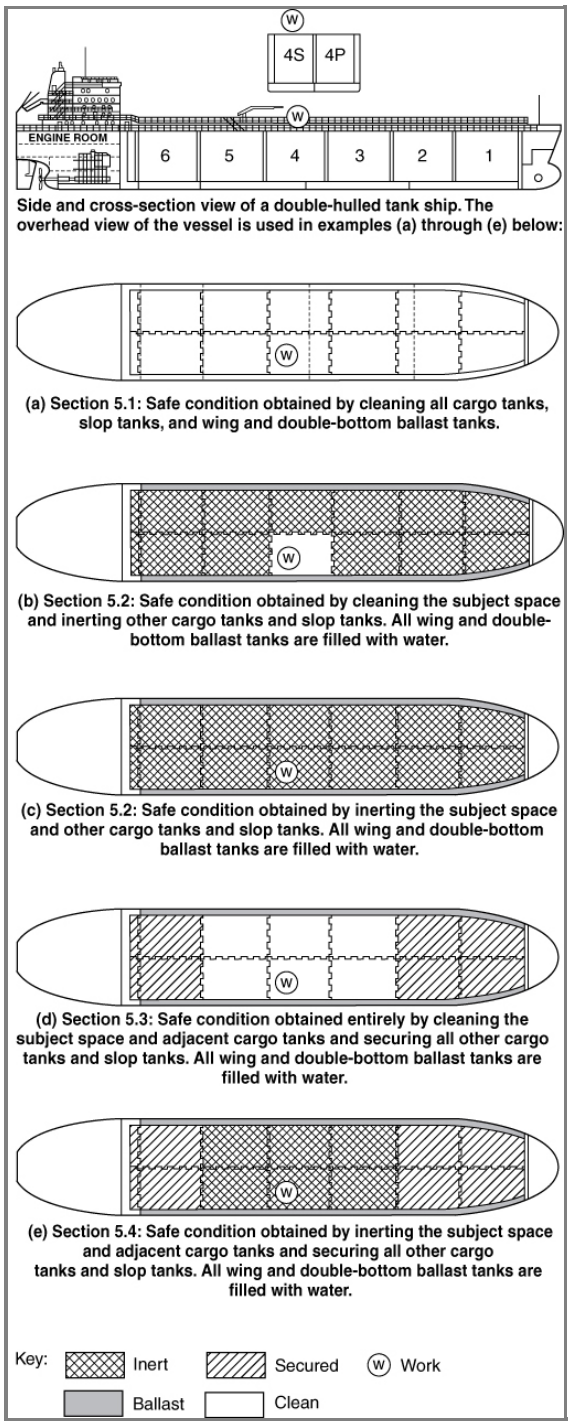
Submittal Date: Wed Jun 15 12:11:03 EDT 2016

Public Input No. 154-NFPA 306-2016 [Section No. B.1]

B.1 General.

The illustrations of a double-hulled tank ship in Figure B.1, parts (a) through (e), are examples of safe conditions discussed in Chapter 5 of this standard. In this example, hot work is planned for the deck area above the four-starboard cargo tank. The vessel is not in a dry dock. The conditions shown in the drawings correspond to Sections 5.1 through 5.4 of this standard. Although the single plane drawings show horizontal separations only, vertical compartmentation should be similarly treated.

Figure B.1 Illustrations of Safe Conditions.



Statement of Problem and Substantiation for Public Input

Because the illustrations are accompanied by text which may not be modified, I cannot illustrate how to address the problem.

However, the problem is straightforward. The ballast tanks in the bottom 5 illustrations are described as "full". My objections are these:

First, there appear to be no reasons why the ballast tanks need be full of ballast. Partially full or entirely empty ballast tanks are equally safe for the hot work.

Second, ballast tanks are never really "full"...they always have airspaces needing evaluation.

I think the "full" should be replaced by either "secured and noted on the Chemist's Certificate" or "adjacent to subject space and needing evaluation by the Marine Chemist." This is because even "full" ballast tanks have airspaces that need testing by the Chemist when they are adjacent.

Submitter Information Verification

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Organization: sound testing
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City:
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Submittal Date: Sat Jun 25 08:54:00 EDT 2016

Public Input No. 104-NFPA 306-2016 [Section No. C.1]

C.1 Paper Marine Chemist's Certificate Form.

The Certificate shown in Figure C.1 is a sample of the paper form that is filled out manually by the Marine Chemist at the completion of the inspection.

Figure C.1 Sample of the Paper Form to Be Filled Out After Inspection for Certification.

MARINE CHEMIST CERTIFICATE
SERIAL NO. A 00000

Survey Requested by	Vessel Owner or Agent	Date
Vessel	Type of Vessel	Specific Location of Vessel
Last Three (3) Loadings	Tests Performed	Time Survey Completed

SAMPLE

In the event of physical or atmospheric changes affecting the STANDARD SAFETY DESIGNATIONS assigned to any of the above spaces, this certificate is voided; spaces not listed on the Certificate are not to be entered unless authorized on another Certificate and/or maintained in accordance with OSHA 29 CFR 1915, or if in any doubt, immediately stop all work and contact the undersigned Marine Chemist. Unless otherwise stated on the Certificate, all spaces and affected adjacent spaces are to be reinspected daily or more often as necessary by the competent person in support of work prior to entry or recommencement of work.

QUALIFICATIONS: ***Transfer of ballast, cargo, fuel, or manipulation of valves or closure equipment tending to alter conditions in pipelines, tanks, or compartments subject to gas accumulation, unless specifically approved in this Certificate, requires inspection and a new Certificate for spaces so affected. All lines, vents, heating coils, valves, and similar enclosed appurtenances are considered "not safe" unless otherwise specifically designated. Movement of the vessel from its specific location voids the Certificate unless shifting of the vessel within the facility has been specifically authorized on this Certificate.***

STANDARD SAFETY DESIGNATIONS (partial list, paraphrased from NFPA 306):

ATMOSPHERE SAFE FOR WORKERS: In the compartment or space so designated (a) the oxygen content of the atmosphere is at least 19.5 percent and not greater than 22 percent by volume; (b) the concentration of flammable materials is below 10 percent of the lower explosive limit; (c) any toxic materials in the atmosphere associated with cargo, fuel, tank coatings, inerting mediums, or fumigants are within permissible concentrations at the time of the inspection.

NOT SAFE FOR WORKERS: In the compartment or space so designated, entry is not permitted.

ENTER WITH RESTRICTIONS: In the compartment or space so designated, entry for work is permitted only if conditions of proper protective equipment, or clothing, or time, or all of the aforementioned, as appropriate, are as specified.

SAFE FOR HOT WORK: In the compartment or space so designated (a) the oxygen content of the atmosphere is not greater than 22 percent by volume; (b) the concentration of flammable materials in the atmosphere is less than 10 percent of the lower explosive limit; (c) the residues, scale, or preservative coatings are cleaned sufficiently to prevent the spread of fire and are not capable of producing a higher concentration than permitted by (a) or (b); (d) all adjacent spaces containing or having contained flammable or combustible materials are sufficiently cleaned of residues, scale, or preservative coatings to prevent the spread of fire, or they are to be inerted. Ship's fuel tanks, lube tanks, or engine room or fire room bilges, or other machinery spaces, are to be treated in accordance with the Marine Chemist's requirements.

NOT SAFE FOR HOT WORK: In the compartment or space so designated, hot work is not permitted.

SAFE FOR LIMITED HOT WORK: In the compartment or space so designated (a) portions of the space are to meet the requirements for SAFE FOR HOT WORK AND PARTIAL CLEANING, as applicable; (b) the space is to be inerted, adjacent spaces are to meet the requirements for SAFE FOR HOT WORK, and hot work is restricted to specific locations; (c) portions of the space are to meet the requirements for Safe for Hot Work, as applicable, and the nature or type of hot work is to be limited or restricted.

CHEMIST'S ENDORSEMENT: This is to certify that I have personally determined that all spaces in the foregoing list are in accordance with NFPA 306, *Standard for the Control of Gas Hazards on Vessels*, and have found the condition of each to be in accordance with its assigned designation.

The undersigned acknowledges receipt of this Certificate under NFPA 306 and understands conditions and limitations under which it was issued, and the requirements for maintaining its validity.

This Certificate is based on conditions existing at the time the inspection herein set forth was completed and is issued subject to compliance with all qualifications and instructions.

Signed _____ Signed _____

Name Company Date — Marine Chemist Certificate No.

VESSEL POSTING

© 2013 National Fire Protection Association NFPA 306

Statement of Problem and Substantiation for Public Input

The certificate in the appendix does not reflect the certificate currently in use by marinee chemists. It needs to be updated to reflect the revised standard safety designations

Submitter Information Verification

Submitter Full Name: Gregory Grondin
Organization: Marine Chemist Assocation
Street Address:
City:
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Zip:
Submittal Date: Wed May 18 08:27:16 EDT 2016

Tentative Interim Amendment

NFPA® 69

Standard on Explosion Prevention Systems

2014 Edition

Reference: 7.2.3.1.2, 7.2.3.1.1(new), A.3.3.25, and Table C.1(a)
TIA 14-1
(SC 16-4-9 / TIA Log #1211)

Pursuant to Section 5 of the NFPA *Regulations Governing the Development of NFPA Standards*, the National Fire Protection Association has issued the following Tentative Interim Amendment to NFPA 69, *Standard on Explosion Prevention Systems*, 2014 edition. The TIA was processed by the Technical Committee on Explosion Protection, and was issued by the Standards Council on April 6, 2016, with an effective date of April 26, 2016.

A Tentative Interim Amendment is tentative because it has not been processed through the entire standards-making procedures. It is interim because it is effective only between editions of the standard. A TIA automatically becomes a public input of the proponent for the next edition of the standard; as such, it then is subject to all of the procedures of the standards-making process.

1. Revise Subparagraph 7.2.3.1.2 to read as follows:

7.2.3.1.2 For gases and vapors, if the LOC values according to ASTM E 2079 are not available, then the LOC values obtained in flammability tubes shall be used after adjustment by subtracting 1.5 ~~2~~ percent by volume oxidant for LOC values of 10 percent or greater and by multiplying by a factor of 0.85 for LOC values less than 10 percent, as indicated in the adjusted columns in Table C.1(a).

2. Add new Subparagraph 7.2.3.1.3 to read as follows:

7.2.3.1.3 In no case shall the adjusted LOC value for carbon dioxide inerting result in a value lower than that required for nitrogen inerting.

3. Revise Annex A.3.3.25 to read as follows:

A.3.3.25 Limiting Oxidant Concentration (LOC). Materials other than oxygen can act as oxidants. The LOC depends upon the temperature, pressure, and fuel concentration as well as the type of diluent. Preliminary results of the ASTM E 2079, *Standard Test Methods for Limiting Oxygen (Oxidant) Concentration in Gases and Vapors*, round robin tests for gases and vapors revealed that the LOC data that were obtained using different test methods and that are listed in a majority of reference publications are nonconservative. The old Bureau of Mines data were obtained mostly in a 50 mm diameter flammability tube. This diameter might be too small to mitigate the flame-quenching influence, thereby impeding accurate determination of the LOC of most fuels. The 4 L minimum volume specified in ASTM E 2079 would correspond to a diameter of at least 200 mm (7.9 in.). As a result, some LOC values determined using

this standard are approximately 1 percent by volume oxygen lower than the previous values measured in the flammability tube, and a few are even up to 1.5 ~~2~~ percent by volume lower. The lower LOC values obtained in larger chambers are more appropriate for use in fire and explosion hazard assessment studies. A data comparison can be found in Table A.3.3.25.

4. Replace Table C.1(a) and associated notes with the following:

Table C.1(a): Limiting Oxidant Concentrations for Flammable Gases When Nitrogen or Carbon Dioxide Are Used as Diluents

	Updated or (Adjusted) Data				Original Data			
	N_2-Air Mixture		CO_2-Air Mixture		N_2-Air Mixture		CO_2-Air Mixture	
Gas/Vapor	LOC	Note	LOC	Note	LOC	Note	LOC	Note
Paraffins (alkanes)								
Methane	11.1	*a*	(13.1)	*b*	12.1	*b*	14.6	*b*
Ethane	(9.5)	*b*	(11.9)	*b*	11.0	*b*	13.4	*b*
Propane	10.7	*a*	(12.8)	*b*	11.4	*b*	14.3	*b*
n-Butane	(10.6)	*b*	(13.0)	*b*	12.1	*b*	14.5	*b*
Isobutane (methylpropane)	(10.5)	*b*	(13.3)	*b*	12.0	*b*	14.8	*b*
n-Pentane	(10.6)	*b*	(12.9)	*b*	12.1	*b*	14.4	*b*
Isopentane (2-methylbutane)	(10.5)	*c*	(13.0)	*c*	12.0	*c*	14.5	*c*
n-Hexane	(10.4)	*b*	(13.0)	*b*	11.9	*b*	14.5	*b*
n-Heptane	(10.0)	*c*	(13.0)	*c*	11.5	*c*	14.5	*c*
Cycloparaffins (cycloalkanes, naphthenes)								
Cyclopropane	(10.2)	*b*	(12.4)	*b*	11.7	*b*	13.9	*b*
Olefins (alkenes)								
Ethylene (ethene)	8.5	*a*	(10.2)	*b*	10.0	*b*	11.7	*b*
Propylene (propene)	(10.0)	*b*	(12.6)	*b*	11.5	*b*	14.1	*b*
α-butylene (1-butene)	(10.1)	*b*	(12.5)	*b*	11.6	*b*	14.0	*b*
Isobutylene (2-methylpropene)	(10.5)	*c*	(13.5)	*c*	12.0	*c*	15.0	*c*
Isopentene (3-methyl-1-butene)	(10.0)	*c*	(12.5)	*c*	11.5	*c*	14.0	*c*
Diolefins (dienes)								
1,3-Butadiene	(8.9)	*b*	(11.6)	*b*	10.4	*b*	13.1	*b*
Aromatics								
Benzene	11.4	*d*	(12.4)	*b*	11.4	*d*	13.9	*b*
Ethylbenzene	9.0	*d*, ‖	---	---	9.0	*d*, ‖	---	---
Diethylbenzene	8.5	*d*, ##	---	---	8.5	*d*, ##	---	---
Divinylbenzene	8.5	*d*, ##	---	---	8.5	*d*, ##	---	---
Toluene	9.5	*e*, †	---	---	9.5	*e*, †	---	---
Vinyltoluene	9.0	*d*, #	---	---	9.0	*d*, #	---	---
Styrene (phenylethene)	9.0	*d*, ††	---	---	9.0	*d*, ††	---	---
Alcohols								
Methyl alcohol (methanol)	(8.5)	*c*	(10.5)	*c*	10.0	*c*	12.0	*c*
Ethyl alcohol (ethanol)	(9.0)	*c*	(11.5)	*c*	10.5	*c*	13.0	*c*
Ethyl alcohol (ethanol)	8.7	*e*, †	---	---	8.7	*e*, †	---	---
n-Propyl alcohol (*n*-propanol)	8.6	*e*, †	---	---	8.6	*e*, †	---	---
Isopropyl alcohol (2-propanol)	9.5	*f*, †	---	---	9.5	*f*, †	---	---
t-Butyl alcohol (*t*-butanol)	---	---	(15.0)	*c*, §	---	---	16.5	*c*, §
Isobutyl alcohol (2-methyl-1-propanol)	9.1	*e*, †	---	---	9.1	*e*, †	---	---
Isohexyl alcohol (2-ethyl-1-butanol)	(7.9)	*c*, §	---	---	9.3	*c*, §	---	---
Esters								
Methyl formate	(8.5)	*c*	(11.0)	*c*	10.0	*c*	12.5	*c*
Methyl acetate	(9.5)	*c*	(12.0)	*c*	11.0	*c*	13.5	*c*
n-Propyl acetate	10.1	*f*, †	---	---	10.1	*f*, †	---	---
Isopropyl acetate	8.8	*e*, †	---	---	8.8	*e*, †	---	---
n-Butyl acetate	9.0	*e*, †	---	---	9.0	*e*, †	---	---
Isobutyl acetate	9.1	*e*, †	---	---	9.1	*e*, †	---	---
Isobutyl formate	(11.0)	*c*	(13.5)	*c*	12.5	*c*	15.0	*c*
Ethers								
Methyl ether	(9.0)	*c*	(11.5)	*c*	10.5	*c*	13.0	*c*
Ethyl ether	(9.0)	*c*	(11.5)	*c*	10.5	*c*	13.0	*c*
Propylene oxide	(6.6)	*g*	---	---	7.8	*g*	---	
Ketones								
Acetone	(10.0)	*c*	(12.5)	*c*	11.5	*c*	14.0	*c*
Methyl ethyl ketone	(9.5)	*c*	(12.0)	*c*	11.0	*c*	13.5	*c*
Organo-chlorides								
n-Butyl chloride	(12.5)	*c*	---	---	14.0	*c*	---	---
	(10.5)	*b*, ‡	---	---	12.0	*b*, ‡	---	---
Methylene chloride	(17.5)	*b*, **	---	---	19.0	*b*, **	---	---
	(15.5)	*c*, ‡	---	---	17.0	*c*, ‡	---	---
Ethylene dichloride	(11.5)	*c*	---	---	13.0		---	---
	(10.0)	*b*, ‡	(15.0)	*b*, ‡	11.5	*b*, ‡	16.5	*b*,‡
1,1,1-Trichloroethane	(12.5)	*c*	---	---	14.0	*c*	---	---

(Continues)

Table C.1(a): Continued

Gas/Vapor	Updated or (Adjusted) Data				Original Data			
	N_2-Air Mixture		CO_2-Air Mixture		N_2-Air Mixture		CO_2-Air Mixture	
	LOC	Note	LOC	Note	LOC	Note	LOC	Note
Trichloroethylene	(7.7)	*c*, ‡	···	···	9.0	*c*, ‡	···	···
Vinyl chloride	13.4	*d*, †	···	···	13.4	*d*, †	···	···
Vinylidene chloride	15.0	*d*	···	···	15.0	*d*	···	···
Inorganic Compounds								
Carbon disulfide	(4.3)	*c*	(6.4)	*c*	5.0	*c*	7.5	*c*
Carbon monoxide (in air)	5.1	*a*	(5.1)	*c*	5.5	*c*	5.5	*c*
Hydrogen (in air)	4.6	*a*	(4.6)	*c*	5.0	*c*	5.2	*c*
Hydrogen sulfide (in air)	(6.4)	*c*	(10.0)	*c*	7.5	*c*	11.5	*c*
Miscellaneous nitrogen-containing compounds								
UDMH (1,1-dimethyl hydrazine)	(6.0)	*c*	···	···	7.0	*c*	···	···
Commercial Fuels								
Motor Gasolines								
(70/100)	(10.5)	*c*	(13.5)	*c*	12.0	*c*	15.0	*c*
(100/130)	(10.5)	*c*	(13.5)	*c*	12.0	*c*	15.0	*c*
(115/145)	(10.5)	*c*	(13.0)	*c*	12.0	*c*	14.5	*c*
Aviation Fuels								
Kerosene	(8.5)	*c*, §	(11.5)	*c*, §	10.0	*c*, §	13.0	*c*, §
JP-1 fuel	(9.0)	*c*, §	(12.5)	*c*, §	10.5	*c*, §	14.0	*c*, §
JP-3 fuel	(10.5)	*c*	(13.0)	*c*	12.0	*c*	14.5	*c*
JP-4 fuel	(10.0)	*c*	(13.0)	*c*	11.5	*c*	14.5	*c*
Natural gas								
(Pittsburgh natural gas)	(10.5)	*b*	(12.9)	*b*	12.0	*b*	14.4	*b*

Notes:
(*a*) 120-L apparatus – Zlochower and Green (2009).
(*b*) Flammability Tube – Bureau of Mines Bulletin 503, Table 44, J. F. Coward and G. W. Jones (1952).
(*c*) Flammability Tube – Bureau of Mines Bulletin 680, Table 11, J. M. Kuchta, A. L. Furno, A. Bartkowiak, and G. H. Martindill (1968).
(*d*) ~5-L Vessel, ASTM E681 – The Dow Chemical Company (Unpublished)
(*e*) ~5-L Vessel, ASTM E2079 – L.G. Britton "Using Heats of Oxidation to Evaluate Flammability Hazards", Process Safety Progress, (2002).
(*f*) ~5-L Vessel, ASTM E2079 – L.G. Britton, The Dow Chemical Company, 1999 (Unpublished Report)
(*g*) R.M. Jones, "Reducing the Inflammability of Fumigants with Carbon Dioxide," Ind. Eng. Chem., Vol. 25, 1933, pp 394-396.

* All experiments performed at 25 °C unless otherwise indicated
** Experiments performed at 30 °C
† Experiments performed at 60 °C
‖ Experiments performed at 70 °C
†† Experiments performed at 73 °C
‡ Experiments performed at 100 °C
# Experiments performed at 105 °C
Experiments performed at 114 °C
§ Experiments performed at 150 °C

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Annex F Informational References

F.1 Referenced Publications.

The documents or portions thereof listed in this annex are referenced within the informational sections of this standard and are not part of the requirements of this document unless also listed in Chapter 2 for other reasons.

F.1.1 NFPA Publications.

National Fire Protection Association, 1 Batterymarch Park, P.O. Box 9101, Quincy, MA 02169-7471.

NFPA 30, *Flammable and Combustible Liquids Code*, 2012 edition.

NFPA 69, *Standard on Explosion Prevention Systems*, ~~2008~~ **2014** edition.

NFPA 77, *Recommended Practice on Static Electricity*, 2014 edition.

NFPA 312, *Standard for Fire Protection of Vessels During Construction, Conversion, Repair, and Lay-Up*, ~~2011~~ **2016** edition.

Fire Protection Guide to Hazardous Materials, 2010 edition.

F.1.2 Other Publications.

F.1.2.1 ACGIH Publications.

American Conference of Governmental Industrial Hygienists, 1330 Kemper Meadow Drive, Cincinnati, OH 45240-1634.

Threshold Limit Values for Chemical Substances and Physical Agents (latest edition).

F.1.2.2 ~~– API Publications.~~

~~American Petroleum Institute, 1220 L Street, NW, Washington, DC 20005-4070.~~

~~API 1141, *Guidelines for Confined Space Entry On Board Tank Ships in the Petroleum Industry,* first edition, 1994.~~

~~F.1.2.3 – _~~ ASTM Publications.

ASTM International, 100 Barr Harbor Drive, P. O. Box C700, West Conshohocken, PA 19428-2959.

ASTM D 323, *Standard Method of Test for Vapor Pressure of Petroleum Products (Reid Method)*, ~~2008~~ **2015** .

F.1.2. 4 3 CCNR Publications.

Central Commission for the Navigation of the Rhine, 2 Place de la République, 67082 Strasbourg Cedex, France.

International Safety Guide for Inland Navigation Tank-barges and Terminals (ISGINTT), first edition, 2010.

F.1.2. ~~5~~ 4 ICS Publications.

International Chamber of Shipping, 38 St. Mary Axe, London, UK EC3A 8BH.

International Safety Guide for Oil Tankers and Terminals (ISGOTT), fifth edition, 2006.

Tanker Handbook for Deck Officers, Captain C. Baptist, eighth edition, 2000.

Tanker Safety Guide (Chemicals), ~~third~~ **Fouth** edition, ~~2002~~ **2014** .

Tanker Safety Guide (Liquefied Gas), second edition, 1995.

F.1.2. ~~6~~ 5 IMO Publications.

International Maritime Organization, 4 Albert Embankment, London, UK SE1 7SR.

Recommendations for Entering Enclosed Spaces Aboard Ships, Marine Safety Committee Circular 744, June 14, 1996.

F.1.2. ~~7~~ 6 USBM Publications.

U.S. Department of the Interior, Bureau of Mines Publications, National Technical Information Service (NTIS), ~~5285 Port Royal~~ **5301 Shawnee Road,** ~~Springfield~~ **Alexandria , VA** ~~22161~~ **22312** .

Coward, H. F., and G. W. Jones, “Limits of Flammability of Gases and Vapors,” Bulletin 503, U.S. Bureau of Mines, 1952.

Zabetakis, M. G., “Flammability Characteristics of Combustible Gases and Vapors,” Bulletin 627, U.S. Bureau of Mines.

Unpublished data, U.S. Bureau of Mines.

Unpublished data, Dow Chemical Co.

F.1.2. ~~8~~ 7 U.S. Government Publications.

U.S. ~~Government Printing~~ Government **Publishing** Office, **732 North Capitol Street, NW, Washington, DC** ~~20402~~ **20401-0001** .

Title 29, Code of Federal Regulations, Part 1915, Subpart B.

Title 29, Code of Federal Regulations, Part 1915, Subpart P.

Title 29, Code of Federal Regulations, Part 1915, Subpart Z.

Title 29, Code of Federal Regulations, Part 1915.7.

F.1.2. ~~9~~ 8 Other Publications.

Britton, L.G., "Using Heats of Oxidation to Evaluate Flammability Hazards," *Process Safety Progress*, 20(1) (March 2002): 31–54.

Eckhoff, R. K., *Dust Explosions in the Process Industries*, 1991, 586.

Jones, G. W., M. G. Zabetakis, J. K. Richmond, G. S. Scott, and A. L. Furno, "Research on the Flammability Characteristics of Aircraft Fuels," Wright Air Development Center, Wright-Patterson AFB, OH, Technical Report 52-35, Supplement I, 1954, 57 pp.

Kuchta, J. M., A. L. Furno, A. Bartkowiak, and G. H. Martindill, "Effect of Pressure and Temperature on Flammability Limits of Chlorinated Combustibles in Oxygen-Nitrogen and Nitrogen Tetroxide-Nitrogen Atmospheres," *Journal of Chemical and Engineering Data*, Vol. 13, No. 3, July 1968, p. 421.

Zabetakis, M. G., and B. H. Rosen, "Considerations Involved in Handling Kerosine," *Proceedings API*, Vol. 37, Sec. III, 1957, p. 296.

F.2 Informational References.

(Reserved)

F.3 References for Extracts in Informational Sections.

NFPA 69, *Standard on Explosion Prevention Systems*, ~~2008~~ **2014** edition.

~~NFPA 69, *Standard on Explosion Prevention Systems*, 1997 edition.~~

Statement of Problem and Substantiation for Public Input

Referenced current SDO names, addresses, standard names, numbers, and editions.

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