



DEPARTMENT OF THE NAVY

OFFICE OF THE SECRETARY
1000 NAVY PENTAGON
WASHINGTON, DC 20350-1000

SECNAVINST 5100.16A
ASN (I&E)
JUNE 06 2003

SECNAV INSTRUCTION 5100.16A

From: Secretary of the Navy

Subj: NAVY GAS FREE ENGINEER CERTIFICATION/RECERTIFICATION PROCESS

Ref: (a) Asst Sec Labor (OSHA) ltr of 25 Jan 94 (NOTAL)
(b) NAVSEA S6470-AA-SAF-010, Gas Free Engineering Manual (NOTAL)

Encl: (1) Qualifications for Navy Gas Free Engineers
(2) Application for Certification as a Navy Gas Free Engineer
(3) Application for Recertification as a Navy Gas Free Engineer

1. Purpose. To set policy for the certification and recertification of Navy Gas Free Engineers (GFEs) who perform GFE certifications for naval maritime facilities and to restate the functions and authority of the Navy GFE Certification Board to ensure compliance with the U.S. Department of Labor's Occupational Safety and Health Administration (OSHA) Alternate Standard requirements, per reference (a). The instruction has been revised to include new recordkeeping requirements for the Navy GFE Certification Board and to clarify the qualifications for certification and recertification of Navy GFEs.

2. Cancellation. SECNAVINST 5100.16

3. Definitions

a. Navy Gas Free Engineer (GFE). The holder of a valid Certificate issued by the Navy GFE Certification Board establishing the holder as a person qualified to ensure that confined space operations incident to construction, overhaul, repair, lay-up, or shipbreaking of naval vessels are undertaken safely. The qualifications are described in enclosure (1).

b. Candidate. A Navy employee applying for certification or recertification as a GFE.

c. Navy GFE Certification Board. A panel of personnel organized for the purpose of certification and/or recertification of Navy GFEs.

d. Application Forms. A copy of the form included as enclosure (2) must be completed by the candidate and forwarded to the Navy GFE Certification Board when applying for initial certification as a Navy GFE. A copy of the form given as enclosure (3) should be completed and sent to the Board by GFEs seeking recertification.

e. Naval Maritime Facilities. Naval facilities where maritime operations are performed on or in naval vessels or vessel sections. Vessels include all naval ships, port operations and port services watercraft, barges, floating cranes, derricks, and floating drydocks. Specific definitions of terms are included in 29 CFR 1915.4 and OPNAVINST 5100.23F. Maritime operations include shipbuilding, ship repair, shipbreaking, and related employment. Naval maritime facilities include shipyards, ship repair facilities, intermediate maintenance facilities, Trident refit facilities (TRFs), shore intermediate maintenance activities (SIMAs), and certain other installations.

4. Background

a. The OSHA regulations at 29 CFR 1915.14(a)(1) require testing and certification "Safe for Hot Work" by a Marine Chemist or a U.S. Coast Guard authorized person when hot work is performed in or on any of the following confined and enclosed spaces and other dangerous atmospheres, boundaries of spaces, or pipelines:

(1) Within, on, or immediately adjacent to spaces that contain or have contained combustible or flammable liquids or gases.

(2) Within, on, or immediately adjacent to fuel tanks that contain or have last contained fuel.

(3) On pipelines, heating coils, pump fittings or other accessories connected to spaces that contain or have last contained fuel.

b. Likewise, OSHA regulation 29 CFR 1915.12(c)(3) requires confined spaces that cannot be ventilated to within permissible exposure limits (PELs) or are immediately dangerous to life or health (IDLH) to be tested and certified "Enter with Restrictions" or "Safe for Workers" by a Marine Chemist or Certified Industrial Hygienist.

c. Under provisions of 29 CFR 1960.17, OSHA, by reference (a), authorizes the Navy to use a Navy-certified GFE in lieu of a Certified Marine Chemist. The authorization was granted by OSHA with a stipulation that a Navy GFE Certification Board be established to review candidate applications and certify and recertify Navy Gas Free Engineers.

5. Requirements. The requirements of the naval maritime facility GFE program for entry into and work in or on confined or poorly ventilated enclosed spaces are set forth in reference (b).

6. Navy GFE Certification Board. A Navy GFE Certification Board (hereinafter called the Board) is established.

a. The Board membership shall be composed of personnel who are qualified in one or more of the following areas: Federal and Navy regulations/standards pertaining to ship construction, overhaul and/or repair; industrial hygiene; shipyard safety, loss control and accident prevention; fire prevention; and confined space testing/marine chemistry. It shall consist of seven (7) voting members with representation as follows: the Office of the Assistant Secretary of the Navy for Installations and Environment (ASN(I&E)); the Environmental Protection, Safety, and Occupational Health Division (N45), Chief of Naval Operations; the Environmental and Occupational Safety and Health (OSH) Office, Commander, Naval Sea Systems Command (COMNAVSEASYSKOM); two naval maritime facility representatives (at least one GFE); a fleet shore command representative; and OSHA. The naval maritime facility representatives shall be nominated by the respective major claimant, with the approval of the respective naval maritime facility commander. The OSHA representative shall be nominated by that agency. In addition, the Navy's Office of General Counsel will provide legal advice to the Board, as appropriate.

b. The term of each naval maritime facility representative to the Board shall be limited to no more than six years. The other members of the Board shall serve at the discretion of the offices they represent.

c. The Board shall meet at least annually. It shall also meet whenever requested by a Board member and to act on applications for GFE certification and recertification within 90 days of their receipt. The Board may approve or deny certification or recertification to a candidate by a majority vote. Any candidate denied certification/recertification and their major claimant will be provided written rationale within 30 days of the Board's decision for denial and informed of further actions required to meet certification/recertification requirements. Candidates that are refused certification or recertification have 30 days to file a written appeal with the Secretary of the Board; the Board will respond to the appeal within 60 days of receipt.

d. The Board shall provide oversight of the Navy Board-certified GFE's performance, including process review and the quality of GFE certificate writing. It shall review the performance of all Navy Board-certified GFEs: (1) at least every five years and, appropriately, recertify or decertify the GFE; and (2) after any reportable mishap in accordance with OPNAVINST 5100.23F Chapter 14 occurring in any GFE process covered by the requirements of reference (b). This includes any fatality, injury, or material (property) damage related to a GFE certification. The Board may participate, as desired, in incident investigations to assess GFE actions. Periodic reviews of the performance of Navy GFEs, including on-site visits, may be made as deemed necessary by the Board.

e. The representative of the ASN(I&E) shall serve as the Board's Chair, who shall appoint a Secretary to the Board.

f. The Secretary of the Board shall receive, screen, and track the status of applications for certification and recertification; compile information associated with an application; provide each application to the Board members for review; schedule and set up Board meetings; produce and archive meeting minutes; notify candidates of the Board's decision by phone and follow-up letter; issue GFE certificates; and perform such other duties as may be requested by the Board.

7. Certificate. The Board shall issue a Certificate to each successful candidate as evidence that the holder has the qualifications [as detailed in enclosure (1)] required for certification or recertification as a Navy GFE.

8. Applicability. The requirements for Board certification of Navy GFEs under this policy apply to Department of the Navy employees who perform GFE certifications for naval maritime facilities.

Hansford T. Johnson
Secretary of the Navy
Acting

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QUALIFICATIONS FOR NAVY GAS FREE ENGINEERS

The following general, professional, and practical qualifications are considered to be minimal for favorable consideration of any application by the Board.

a. General

(1) Candidates shall be physically able to perform the duties of a Gas Free Engineer.

(2) Candidates shall be employees of the Department of the Navy.

(3) Candidates shall furnish the Board with such evidence of their education, training, knowledge, and experience and any other information as the Board considers necessary or advisable.

b. Professional

(1) The candidate GFE shall have earned a Bachelor degree in Science or Engineering; or, as acceptable to the Board, have the equivalent in experience and education per the Office of Personnel Management (OPM) guidelines (which includes college-level courses in general inorganic, organic, qualitative, and quantitative chemistry with labs) and have three years of progressively responsible experience related to gas free engineering, safety, industrial hygiene, fire protection or a similar area, at least one of which shall have been full-time employment in a naval maritime facility.

(2) The education, training, knowledge, and experience of the GFE candidate shall include, but not be limited to, the following subjects:

- (a) Basic ship repair safety;
- (b) Fire prevention and emergency rescue;
- (c) Combustion and explosion technology;
- (d) Entry into shipboard confined spaces;
- (e) Principles of confined space and shipboard testing;
- (f) Tank cleaning and inerting procedures;
- (g) Fundamentals of industrial hygiene;
- (h) Properties of flammable and combustible materials;
- (i) Properties of toxic gases, vapors and fumes;
- (j) Properties of hazardous cargoes and materials;
- (k) Properties of tank coatings and preservatives;
- (l) Testing for toxic gases, vapors, fumes, and residues;
and
- (m) Test instruments and their calibration.

(3) The candidate shall have satisfactorily completed the Naval Occupational Safety and Health and Environmental Training Center Course A-493-0030, Confined Space Safety, attaining a grade of 90 percent or higher for the course.

c. Practical

In addition to the professional qualifications set forth in the preceding subparagraph, each candidate shall have completed or obtained:

(1) Three hundred hours or more of on-the-job training (OJT) in maritime GFE operations on naval vessels or vessel sections under the direct supervision of a Navy GFE or Certified Marine Chemist, or other experience as deemed acceptable to the Board (see Table 1 for a list of acceptable training experiences); the OJT must be accomplished in at least two naval maritime facilities (a minimum of one week [40 hours] at a second activity) under the direction of different Board-certified Navy GFEs or Navy Fire Protection Association-certified Marine Chemists, during which time the candidate must demonstrate a practical ability to perform the full scope of GFE duties; and

(2) Working knowledge of the construction of naval vessels including machinery spaces, hull and superstructure compartmentation systems, and piping systems.

d. Oral Interview

All GFE applicants will be required to meet with the Board and to pass an oral examination conducted by the Board.

Table 1. OJT Training Requirements

| Experience type | Hours required |
|---|---|
| General (covering carriers, auxiliaries, submarines [fast attack and fleet ballistic missile], barges, and nonmaritime, and surface combatants) | 150 |
| High risk evolutions (fuel transfers, Freon evolutions, and freeze seals) | 20 (5 hours minimum in any single area) |
| Inerting, purging, or pressing-up operations | 20 |
| Initial fuel tank certifications for hot work | 50 |
| Potential chemical exposure (e.g., painting, hot wash, alcohol cleaning, fuel, etc.) | 20 |
| Evaluation of ventilation (e.g., flow calculations, location, general/dilution, ducting material, exhaust/supply, type [electric or pneumatic]) | 15 |
| Evaluation of hot work evolutions | 25 |

APPLICATION FOR CERTIFICATION AS A NAVY GAS FREE ENGINEER

Please complete Items 1-8 below after reading the Privacy Act Statement attached.

1. Name: _____ 2. Phone: _____
(Last) (First) (MI)

3. Activity: _____

4. Physical Qualifications: Submit completed Standard Form No. 78, Certificate of Medical Examination, or equivalent evidence of physical fitness to perform GFE tasks.)

5. Professional Qualifications:

a. Education:

(Degree) (Major) (Institution) (Date)

(Degree) (Major) (Institution) (Date)

b. College-Level Chemistry Courses: (List by name/number (if known) including lecture/lab. Use addenda sheets as needed.)

c. Other College-Level Courses: (List courses in such related areas as fire sciences, industrial hygiene, engineering, or safety. Use addenda sheets as needed.)

d. Other Training: (List other pertinent training courses completed such as NFPA Marine Chemist Modules, DOL/OSHA)

e. Navy OSH and Environmental Training Center Course A-493-0030: Date _____ Score _____

f. Full-time Experience: List progressively responsible experience obtained during full-time employment in a shipyard or ship repair facility performing duties related to ship design, construction or repair, occupational safety and health; shipboard fire prevention/protection; or industrial hygiene. Provide the necessary data of such experience as an attachment hereto listing employers, location and periods of employment, describing in detail the duties and level of involvement in each citation of experience; include the types of equipment and instruments used in performing the duties.

Full-time experience data provided as Attachment ____ hereto.

6. Practical Qualifications: Provide, as separate attachment hereto, the record of On-the-Job Training (OJT) completed. A model record sheet is given as page 3 of this application. The record must include as a minimum the following information on each major experience: date, location (shipyard), number of hours, name of trainer, name of ship or barge, identification of tanks or spaces inspected, type of work in progress, tests performed, and test instruments used.

Record of OJT provided as Attachment _____ hereto.

Total number of OJT hours completed = _____ (must include at least 40 hours at a second shipyard or maritime activity).

7. References: *(List 3 or more persons to whom inquiry may be made concerning your character/ability to function as a GFE)*

Full Name

Telephone

Address

8. I hereby declare that, to the best of my knowledge and belief, all of my statements and information furnished herewith are true, correct, complete, and made in good faith.

Date: _____ Signature: _____

For Board Use Only

Approved: _____ Disapproved: _____

More Information Needed: _____

Privacy Act Statement

SECNAVINST 5211.5D authorizes collection of this information. The principal purpose is to provide information to the Navy Gas Free Engineer (GFE) Certification Board relevant to the decision to notify candidates as Navy GFEs and regarding the performance of Navy GFEs relevant to the decision to recertify or decertify Navy GFEs. In addition to those disclosures permitted under 5 USC 552a(b)3 of the Privacy Act, this information may specifically be disclosed outside the DoD as a routine use under 5 USC 552a(b)3 to the Navy GFE Certification Board for the purpose of certifying, recertifying, and decertifying Navy GFEs and GFE candidates. The 'Blanket Routine Uses' that appear at the beginning of the Department of the Navy's compilation of systems notices apply to this system. Disclosure of this information is voluntary; however, failure to provide the information may affect participation in the Navy GFE Certification Program.

| Navy GFE On-the-Job Training Record | | | | | | | |
|---|---------------------|----------------------------|---|-------------------------|-----------------|------------------|-------------------------|
| Name of trainee: John Doe | | | | | | | |
| Name of maritime facility where training occurred: NNSY | | | | | | | |
| Training Date | Name of Ship/Vessel | ID of Tank/Space Inspected | Type of Work in progress | Test Performed | Instrument Used | Name of GFE/MC | Total Time Aboard (hrs) |
| 1/1/01 | USS Navy | 5-46-2F | H/W-torch cut and remove drain line | O2/Exp/benzene/ | IndSci LTX 312 | NNSYD-Robin Yost | 0.5 |
| 1/2/01 | USS Navy | 5-46-1F | HW-torch cut access opening on pt blkhd | O2/Exp/benzene/ | IndSci LTX 312 | NNSYD-Robin Yost | 0.5 |
| 2/1/01 | USS Navy | CHT Tank | Entry-remove TLI (PEL exceeded) | O2/Exp/H2S/CO2 | IndSci TMX412 | NNSYD-Robin Yost | 1 |
| 3/1/01 | USS Navy | 4-20-2G | HW-tack weld plate to outside blkhd-tank being inerted w/N2 | O2-continous monitoring | IndSci TMX412 | NNSYD-Robin Yost | 8 |

Sample OJT Record

An electronic copy of a blank OJT Record can be obtained by contacting the Board Secretary. The completed OJT Record can be submitted to the Board either electronically or as hard copy along with the certification application.

