



U.S. Department  
of Transportation  
**Pipeline and Hazardous  
Materials Safety  
Administration**

1200 New Jersey Avenue, SE  
Washington, DC 20590

January 22, 2026

Timothy Nuoffer  
Field Services Manager  
The Hartford Steam Boiler  
Inspection and Insurance Company  
One State Street  
Hartford, CT 06102

Reference No. 25-0066

Dear Mr. Nuoffer:

This letter is in response to your May 14, 2025 letter requesting clarification of the Hazardous Materials Regulations (HMR; 49 CFR Parts 171-180) applicable to the repair and modification of MC 331 specification cargo tanks. You explain that your company has received questions regarding repairs to Department of Transportation (DOT) MC 331 specification cargo tanks that underwent postweld heat treatment (PWHT) during their construction. You ask several questions and seek confirmation of your understanding as it relates to § 180.413, the Compressed Gas Association (CGA) Technical Bulletin TB-2, Guidelines for Inspection and Repair of MC 330 and MC 331 Cargo Tanks, and the NB-23, National Board Inspection Code (NBIC), A Manual for Boiler and Pressure Vessel Inspectors.

We have paraphrased and answered your questions as follows:

- Q1. What edition of the NBIC must be used for the repair or modification of an MC 331 specification cargo tank?
- A1. The 1992 edition of the NBIC—incorporated by reference in the HMR—is necessary to perform what makes up a “repair” for an MC 331 specification cargo tank (*see* § 180.413(b)(6)). By contrast, performing a “modification” on an MC 331 specification cargo tank is prescribed in § 180.413(a)(1) and (d). Please note if any modification involves welding on the cargo tank wall, it must meet all requirements for “repair,” as defined in § 180.403 and the use of the 1992 edition of the NBIC.
- Q2. For instances where PWHT is required for “non-minor” weld repairs, the 1992 edition of NBIC NB-23 states that alternative methods for PWHT may be used if it involves a “special welding method” that is acceptable to the inspector. It also emphasizes that,

where necessary, competent technical advice should be obtained from the manufacturer of the object or from another qualified source. You ask, since the 1992 edition of NBIC NB-23 does not provide examples of “special welding” methods for P-No 11A and P-No 11B materials, may the alternative welding methods without PWHT, as described in the 2023 edition of NBIC NB-23 Part 3, Repairs and Alterations—which includes methods for P-No 11A and 11B materials—be considered as “another qualified source” per the 1992 Edition and not require a special permit?

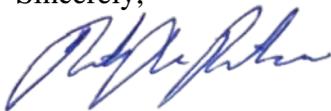
- A2. Yes. Welding methods authorized by the applicable edition of the NBIC may be used for an MC 331 specification cargo tank weld repair, provided the requirements of § 180.413(b)(6) are met. Section 180.413(b)(6) requires that each cargo tank having cracks or other defects requiring welded repairs must meet all inspection, test, and heat treatment requirements of § 178.337-16 in effect at the time of the repair, except that PWHT is not required after minor weld repairs. Accordingly, MC 331 specification cargo tanks undergoing non-minor weld repairs remain subject to the applicable heat treatment requirements. Please note that alternative welding methods described in external publications (*i.e.*, reference materials) do not replace or waive the requirements; therefore, waiving any HMR mandated heat treatment requirement would require issuance of a special permit.
- Q3. As it relates to § 180.413(b)(6), which references minor weld repair, the CGA TB-2 appears to describe a “minor repair” in section 3.4. What is the definition of “minor repair”?
- A3. A “minor weld repair” as referenced in § 180.413(b)(6) is not defined in either § 171.8 or § 180.403 of the HMR. However, CGA TB-2 describes what constitutes a “minor repair” in section 3.4. Additionally, section 3.7 of CGA TB-2 states that no PWHT is required after a minor repair, which is referenced in § 180.413(b)(6) for “minor weld repairs.” Thus, it is the opinion of this Office that, in this context, weld repairs as described in CGA TB-2 and performed in accordance with requirements of § 180.413(b)(6) and CGA TB-2 may be considered a “minor repair.”
- Q4. Does PHMSA permit a repair facility to forgo PWHT or any alternative methods on an MC 331 specification cargo tank after performing a non-minor welded repair?
- A4. No. A repair facility is not allowed to forgo PWHT on an MC 331 cargo tank after making a non-minor welded repair. PWHT is excepted only for minor weld repairs, as referenced in § 180.413(b)(6).

Q5. If a repair facility is adding non-pressure retaining and non-structural pads to the inside of an MC 331 specification cargo tank that is welded directly to the shell or head by fillet welds, would PWHT be required?

A5. Yes. Direct welding to the shell or head(s) of a cargo tank would affect the structural integrity by introducing uneven heating and cooling, as well as residual stress. Therefore, installation of mounting pads by welding would be considered a modification. Note, § 180.413(b)(6) of the HMR requires non-minor weld repairs to an MC 331 specification cargo tank be accompanied by PWHT.

I hope this information is helpful. Please contact us if we can be of further assistance.

Sincerely,

A handwritten signature in blue ink, appearing to read "Dirk DerKinderen".

Dirk DerKinderen  
Chief, Standards Development Branch  
Standards and Rulemaking Division

Baker, Y.  
25-0066



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14 May 2025

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To whom it may concern:

### **Repair/Modification of MC-331 Cargo Tanks**

In the past year, HSB has received some questions regarding repairs to DOT MC-331 specification tanks where postweld heat treatment (PWHT) was performed during construction of the tank. HSB has discussed these questions in the past with US DOT and would like to receive a formal response. The questions are related to paragraph 49CFR180.413, CGA TB-2 and the National Board Inspection Code (NBIC). The repair organizations that HSB works with do have a National Board R stamp. HSB's role is as the NBIC Repair Inspector. HSB is not the DOT Design Certifying Engineer(DCE) or the DOT Registered Inspector(RI).

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**Question #1:** Paragraph 180.413(a)(1) states the edition of the NBIC to be used for the repair and modification should be the edition in effect at the time of the repair. For a repair performed on tank in 2024, the repair would be performed to the 2023 Edition of the NBIC. Paragraph 180.413(b)(6) refers to 171.7 for the NBIC to be used for repairs of MC-331 cargo tanks. Per 171.7 the edition of the NBIC incorporated by reference is 1992. What edition of the NBIC shall be used for the repair and modifications of MC-331 cargo tanks?

**Answer #1:** 1992 Edition of the NBIC shall be used for repair and modifications of MC-331 cargo tanks.

**Question #2a:** For repairs that are not considered "minor" per 49CFR180.413(b)(6), PWHT is required per the DOT specification requirements for the construction of the cargo tank at the time the repair is being performed. For MC-331 cargo tanks constructed with ASME Section VIII Div. 1 Part UHT materials, PWHT would be required. The 1992 Edition of the NBIC paragraph R-303.2.2 is for alternative methods for PWHT and states, "special welding method acceptable to the Inspector may be used. Examples of special welding methods for P1 and P3 materials are described in Supplement 3, page 55. Where deemed necessary, competent technical advice should be obtained from the manufacturer of the object or from another qualified source." The Part UHT materials used for construction are P-No 11A or P-No 11B materials. Since the 1992 Edition does not provide examples of special welding methods for P-No 11A and P-No 11B materials, may the alternative welding methods without PWHT as described in the 2023 Edition of the NBIC Part 3, which includes methods for P-No 11A and 11B materials, be considered as "another qualified source" per the 1992 Edition and not require special permit?

14 May 2025

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**Answer #2a:** Yes.

**Question #2b:** In reviewing 180.413(b)(6) and CGA TB-2:1980 paragraph 3.4, it seems the definition of “minor repair” is when a repair is made to remove cracks and then the affected area built-up by welding. Other repairs that do not meet this definition would be considered a “major repair.” Is this correct the correct definition for “minor repair”?

**Answer #2a:** Yes, provided the repair organization follows the procedure for performing the minor repair in 180.413(b)(6) and CGA TB-2:1980 paragraph 3.4.

**Question #3:** Is it permitted by US DOT for a repair organization to not perform any PWHT or any kind of alternative method on a MC-331 tank following a welded repair, excluding “minor” repairs?

**Answer #3:** Yes. Only if a cargo tank is not constructed to Part UHT may postweld heat treatment not be performed. For all Part UHT cargo tank constructions, post weld heat treatment is required.

**Question #4:** If a repair organization is adding a non-pressure retaining and non-structural pad to the inside of a MC-331 cargo tank to be welded directly to the shell or head by fillet welds, would PWHT be required?

**Answer #4:** If the addition of the non-pressure/non-structural pad is not specifically called out in the design drawing, this would fall under a modification and would require a DCE. The DCE has authority to determine whether or not PWHT is required. If the non-pressure/non-structural pad is called out in the design drawing and was originally constructed to Part UHT, the welded attachments and pads may not need PWHT provided that the design drawing does not require the welded attachments and pads to be PWHT. If the design drawing requires PWHT of the welded attachments for these non-pressure and non-structural pads, the repair organization must PHWT.

A reply as soon as possible would be appreciated. Should you have additional questions or need to discuss, please call 618-444-7628.

Sincerely,



The Hartford Steam Boiler Inspection  
and Insurance Co.