



Standards and Rulemaking Division
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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?

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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.