



CERTITANK LLP

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EXEMPTIONS & APPROVALS
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July 8, 1999 99 NORTH ELEVENTH AVENUE . COATESVILLE, PA 19320 • (610) 384-3148 . FAX (610) 380-0316

Ms. Sherrie Nelson -DHM-31
United States Department of Transportation
OHMEA – EXEMPTIONS – ROOM 8436
400 Seventh Street – SW
Washington, DC 20590

VIA FAX AND US MAIL

RS-PA-99-6102-1

RE: Application for Exemption, 49CFR Part 107 – Emergency Processing Request

Dear Ms. Nelson,

Pursuant to 49CFR Part 107, Subpart B, Exemptions, the Applicant:

CERTITANK, LLC (K-049)
Attention: Richard C. Willard, President
99 North Eleventh Avenue
Coatesville, PA 19320
Telephone (610) 384-6851 Facsimile (610) 380-0316

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would like to apply for an exemption to 49CFR 173.34, Qualification Maintenance and use of Cylinders, specifically part 173.34 (l), Rebuilding of DOT-4 series and DOT-8, welded and brazed cylinders, subparagraphs (l), (2), and (3). This exemption is required for DOT authorized rebuilding facilities to enable them to perform this function. We are currently a DOT authorized repair facility (K-049).

Please review the letter we sent March 9th, of this year to James Enoch Jones and the sample exemption attached to this letter. These documents were sent to Mr. Jones on the date shown. Mr. Jones called my office the following day and told me he had briefly reviewed my request and did not see a problem with issuing the exemption in 90 days.

We have not had a response from DOT since March 10th. Our customer must move forward with these repairs as soon as possible as they now do not have the correct containers for shipping product. We are therefore requesting EMERGENCY PROCESSING of this exemption.

Please contact my office should you have any questions or comments concerning this request.

Sincerely,

Richard C. Willard
President
Enclosure



99 NORTH ELEVENTH AVENUE . COATESVILLE, PA 19320 . (610) 384-3148 . FAX (610) 380-0316

March 9, 1999

Mr. James Enoch Jones
Chief, Approvals Branch
Office of Hazardous Materials Exemptions and Approvals
United States Department of Transportation
Research and Special Programs Administration
400 Seventh Street, SW
Washington, DC 20590

RE: Request for Exemption for Cylinder Rebuilding and/or Modification

Dear Mr. Jones,

We have been approached by FMC Corporation to modify certain existing 4BW cylinders in hazardous materials service, by replacing or adding additional openings on the upper head. To accomplish this we intend to weld in the new nozzles (using a backing strip for full penetration) in accordance with CGA Pamphlet C-3. Our intent is that all modified cylinders will be subject to a full volumetric expansion test after completion of all welding.

Because this work is more a modification than actual rebuilding (such as the replacement of a complete head or shell section), we take exception to the heat treatment requirements associated with "rebuilding". The current edition of the National Board Inspection Code, which the DOT has mandated for all repairs to MC or DOT transportation vessels currently in use, allows for the use of a higher preheat in lieu of performing post weld heat treatment of completed weldments for P-I materials. We believe that the steel used in cylinder manufacturing would fall into the P-I class of materials. We also feel that this technique could be successfully applied to the installation of the new or replacement nozzles which will be 2" NPT couplings or smaller.

Accordingly, we have prepared a sample exemption for your perusal and use in expediting our request for this consideration. The nozzle configuration we propose is currently being produced for our customer by a manufacturer of new cylinders. Our customer has a significant quantity of cylinders (700 - 1000) that will have to be removed from service if we cannot make these modifications.

At this time, we do not intend to use this exemption for the purpose of recertifying damaged cylinders to sell as other recertification companies do. If you have any questions or comments, please feel free to call me at any time.

Sincerely,

Richard C. Willard
President

1. **GRANTEE:** Certitank, LLC
2. **PURPOSE AND LIMITATION:** This exemption authorizes the rebuilding (modification) of DOT-4B, 4BA and 4BW cylinders in accordance with the procedures prescribed within this exemption, for use in the transportation of hazardous materials authorized in paragraph 6. This exemption provides no relief from any regulation other than as specifically stated herein.
3. **REGULATORY SYSTEM AFFECTED:** 49 CFR Parts 106, 107 and 171-I 80.
4. **REGULATIONS FROM WHICH EXEMPTED:** 49 CFR 173.34 (I) subparagraphs 1, 2, and 3.
5. **BASIS:** This exemption is based on the application of Certitank's letter dated March 9, 1999 submitted in accordance with 49 CFR 107, 109.
6. **HAZARDOUS MATERIAL 49 CFR 172.101:** Compressed gases, flammable liquids, corrosive materials and other hazardous material that are authorized to be shipped in DOT 4B, 4BA, and 4BW cylinders of 49 CFR Part 173.
7. **PACKAGING AND SAFETY CONTROL MEASURES:** This exemption authorizes the rebuilding or modification of low-pressure, DOT Specification 4F, 4BA and 4BW steel cylinders having water capacities not exceeding 1000 pounds, in accordance with the following:
 - a. Only cylinders originally manufactured to a DOT Specification 4B, 4BA and 4BW may be rebuilt or modified and represented as DOT 4B, 4BA or 4BW cylinders.
 - b. Rebuilding or modification work shall be performed in accordance with the approved Procedures Manual on file in the Office of Hazardous Materials Exemptions and Approvals (OHMEA), and with 49 CFR 173.34 (I).
 - c. Rebuilder shall be considered a manufacturer subject to the requirements of Section 178.2(a) (2) and Subpart C of part 178.
 - d. After removal of a non-pressure component and before replacement of any non-pressure component, the cylinder must be visually inspected in accordance with CGA Pamphlet C-6. Rejected cylinders must be repaired and rebuilt as prescribed in 49 CFR 173.34 (I) or (j), or condemned.
 - e. Rebuilding or modification of any cylinder involving a joint subject to internal pressure may only be performed by fusion welding. The rebuilder may rebuild or modify a DOT 4B, 4BA or 4BW cylinder having a water capacity of 20 pounds or greater by replacing a head of the cylinder using a circumferential joint. When this weld joint is located at other than an original welded joint, a notation of this modification shall be shown on the Manufacturer's Report of Rebuilding (See Appendix A). Weld joint must be on the cylindrical section of the cylinder.
 - f. Welding must be:
 - (i) in accordance with the procedures and qualification requirements of CGA Pamphlet C-3 and National Board Inspection Code part RC-1103 and RD-1030.
 - (ii) Performed using welding rod compatible with the material of the cylinder including any non-pressure component.
 - (iii) Performed on an area free of any contaminant.

- g. Any cylinder to be rebuilt (involving replacement of heads or shell sections):
 - (i) Heat-treated as required in the applicable specification.
 - (ii) Subjected to a full hydrostatic volumetric expansion test on each cylinder as specified in the applicable cylinder specification in Part 178. The results of the tests must conform with the applicable cylinder specification.
 - (iii) Inspected and have test data reviewed to determine conformance with the applicable cylinder specification.
 - (iv) Made of material in conformance with the specification. Determination of conformance shall include chemical analysis, verification, inspection and tensile testing of the replaced part.
- h. Any cylinder to be modified (involving addition or replacement of outlet fittings):
 - (v) Subjected to a full hydrostatic volumetric expansion test on each cylinder as specified in the applicable cylinder specification in Part 178. The results of the tests must conform with the applicable cylinder specification.
 - (vi) Inspected and have test data reviewed to determine conformance with the applicable cylinder specification.
 - (vii) Made of material in conformance with the specification. Determination of conformance shall include chemical analysis, verification, inspection and tensile testing of the replaced part.
 - (viii) Modification welds limited to 8" maximum continuous length.
- i. A record of rebuilding must be completed for each cylinder rebuilt or modified in the format presented in Appendix A.
- j. A copy of the reports of the rebuilding must be maintained by the rebuilding facility for 15 years.

8. SPECIAL PROVISIONS:

- a. Each packaging rebuilt or modified under the authority of this exemption and in accordance with an approval issued under Section 73.34 (I), must be marked with the approval number issued for the holder of this exemption.
- b. A copy of this exemption, in its current status, must be maintained at the facility where the packaging is rebuilt or modified and must be made available to the DOT representative upon request.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor Vehicle.

10. MODAL REQUIREMENTS: None

11. COMPLIANCE: Failure by a person to comply with any of the following may result in suspension or revocation of this exemption and penalties prescribed by the Federal hazardous material transportation law, 49 U.S.C. Section 5101 et seq.:

- All terms and conditions prescribed in this exemption and the Hazardous Materials Regulations, 49 CFR Parts 171 to 180.
- Registration required by 49 CFR 107.601 et seq., when applicable.

Each "Hazmat Employee", as defined in 49 CFR 171.8, who perform a function subject to this exemption must receive training on the requirements and conditions of this exemption in addition to the training required by 49 CFR 172.700 through 172.704.

No person may use or apply this exemption, including display of its number, when the exemption has expired or is otherwise no longer in effect.

12. **REPORTING REQUIREMENTS:** Any incident involving loss of packaging contents or packaging failure must be reported to the Associate Administrator for Hazardous Materials Safety (AAHMS) as soon as practicable. (49 CFR 171 .15 and 171 .16 apply to any activity undertaken under the authority of this exemption.) In addition, the holder(s) of this exemption must inform the AAHMS, in writing, as soon as practicable of any incidents involving the package and shipments made under this exemption.

APPENDIX A

Manufacturer's Report of Rebuilding and/or Modification

Cylinder Identification

Manufacturer _____
Cylinder Specification Number and Service Pressure _____
Cylinder Serial Number _____
Date of Original Manufacturer _____
Other Identification Marks _____

Rebuild Information

Chemical Analysis of Replacement Parts

Parts Being Replaced _____
Heat Identification _____
Steel Manufactured by _____
Analysis Performed by _____

C P S Si Mn Ni Cr Mo Cu Al Zn

Record of Physical Test of Replacement Parts

Yield PSI	Tensile PSI	Elongation in inches	Reduction of Area %	Weld Tensile	Weld bend
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Record of Hydrostatic Test

Calculated Volumetric Capacity of Cylinder Being Rebuilt - _____ lbs.

Actual Test Pressure	Total Expansion	Permanent Expansion	% of Total to Perman.	Volumetric Capacity
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Volumetric capacity of rebuilt cylinder must be within +/- 3 % of the calculated capacity.

I certify that this rebuilt cylinder is accurately represented by the data above and that all provisions of DOT-E xxxxx and other applicable regulations have been complied with.

Repair Technician _____ Date _____
Company Representative _____ Date _____

**RC-1093 PERFORMANCE
QUALIFICATION**

Welders or welding operators shall be qualified for the welding processes that are used. Such qualification shall be in accordance with the requirements of the original code of construction, or Section IX of the ASME Code.

RC-1094 RECORDS

The "R" Certificate Holder shall maintain a record of the results obtained in welding procedure qualifications, except for those qualifications for which the provisions of RC-1092 are used and of the results obtained in welding performance qualifications. These records shall be certified by the "R" Certificate Holder and shall be available to the Inspector.

RC-1095 WELDERS' IDENTIFICATION

The "R" Certificate Holder shall establish a system for the assignment of a unique identification mark to each welder/welding operator qualified in accordance with the requirements of the NBIC. The "R" Certificate Holder shall also establish a written procedure whereby all welded joints can be identified as to the welder or welding operator who made them. This procedure shall use one or more of the following methods and be acceptable to the Inspector. The welder's or welding operator's identification mark may be stamped (low stress stamp) adjacent to all welded-joints made by the individual, or in lieu of stamping, the "R" Certificate Holder may keep a record of welded joints and the welders or welding operators used in making the joints.

RC-1096 WELDERS' CONTINUITY

The performance qualification of a welder or welding operator shall be affected when one of the following conditions occur:

- a. When the welder or welding operator has not welded using a specific process during a period of six (6) months or more, their qualifications for that process shall expire.
- b. When there is specific reason to question their ability to make welds that meet the specification, the qualification which supports the welding that is being performed shall be revoked. All other qualifications not questioned remain in effect.

RC-1100 HEAT TREATMENT**RC-1101 PREHEATING**

Preheating may be employed during welding to assist in completion of the welded joint (Appendix B). The need for and the temperature of preheat are dependent on a number of factors, such as chemical analysis, degree of restraint of the items being joined, material thickness, and mechanical properties. The welding procedure specification for the material being welded shall specify the preheat temperature requirements.

**RC-1102 POSTWELD HEAT
TREATMENT**

Postweld heat treatment shall be performed as required by the original code of construction in accordance with a written procedure. The procedure shall contain the parameters for postweld heat treatment.

*** RC-1103 ALTERNATIVE POSTWELD
HEAT TREATMENT METHODS**

Under certain conditions, postweld heat treatment in accordance with the code of construction may be inadvisable or impractical. In such instances, alternative methods of postweld heat treatment or special welding methods acceptable to the Inspector may be used. Examples of welding methods which may be used as alternatives

to postweld heat treatment are described in Part RD.

RC-1110 NONDESTRUCTIVE EXAMINATION

The nondestructive examination (NDE) requirements, including technique, extent of coverage, procedures, personnel qualification, and acceptance criteria, shall be in accordance with the original code of construction used for construction of the pressure retaining item. Weld repairs and alterations shall be subjected to the same nondestructive examination requirements as the original welds. Where this is not possible or practicable, alternative NDE methods acceptable to the Inspector and the jurisdiction where the pressure retaining item is installed, where required, may be used.

NDE personnel shall be qualified in accordance with the requirements of the original code of construction. When this is not possible or practicable, NDE personnel may be qualified in accordance with ASNT SNT-TC-1A (1992 Edition) Recommended Practice for Nondestructive Testing Personnel Qualification and Certification,

RC-1120 PRESSURE GAGES, MEASUREMENT, EXAMINATION AND TEST EQUIPMENT

The calibration of pressure gages, measurement, examination and test equipment and documentation of calibration shall be performed as required by the applicable standard used for construction.

RC-1130 ACCEPTANCE INSPECTION

Before signing the appropriate NBIC Report Form, the Inspector shall review the drawings, assure the welding was performed in accordance with the original code of construction, witness any pressure test applied, assure that the required

nondestructive examinations have been performed satisfactorily, and that the other functions necessary to assure compliance with the requirements of this Code have been performed.

RC-1140 STAMPING

The stamping of, or attaching of a nameplate to, a pressure retaining item shall indicate that the work was performed in accordance with the requirements of this Code. Such stamping or attaching of a nameplate shall be done only with the knowledge and authorization of the Inspector. The "R" Certificate Holder responsible for the repair or alteration shall apply the stamping. Required stamping and nameplate information is shown in Appendix 2.

RC-1141 REMOVAL OF ORIGINAL STAMPING OR NAMEPLATE

If it becomes necessary to remove the original stamping, the Inspector shall, subject to the approval of the Jurisdiction, witness the making of a facsimile of the stamping, the obliteration of the old stamping, and the transfer of the stamping to the new item. When the stamping is on a nameplate, the Inspector shall witness the transfer of the nameplate to the new location. Any relocation shall be described on the applicable NBIC Form. ASME Code items shall not be restamped with the ASME Code Symbol.

RC-1150 REGISTRATION OF DOCUMENTATION

Organizations performing repairs or alterations under an "R" stamp program may register such repairs or alterations with the National Board.

It should be noted that some jurisdictions may require registration of repairs and alterations with the National Board.

**PART RD
REPAIR METHODS**

**RD-1000 WELDING METHODS AS ALTERNATIVES TO
POSTWELD HEAT TREATMENT**

RD-1010 SCOPE

- a. Under certain conditions, postweld heat treatment in accordance with the original code of construction may be inadvisable or impractical. In such instances, the following alternative methods may be used.
- b. Competent technical advice shall be obtained from the manufacturer of the pressure retaining item or from another qualified source, such advice being especially necessary if the alternative is to be used in highly stressed areas, if service conditions are conducive to stress corrosion cracking, if materials are subject to hydrogen embrittlement or are operating at temperatures in the creep range, or if the alternative is being considered for "on-stream" repairs or "hot tapping" on piping systems. Selection of the welding method used shall be based on the rules of the original code of construction together with the above mentioned advice concerning the adequacy of the weld in the as-welded condition at operating and pressure test conditions,
- c. When reference is made in this part to materials by the ASME designation, P-Number and Group Number, the requirements of this part apply to the applicable materials of the original code of construction, either ASME or other, which conform by chemical composition and mechanical properties to the ASME P-Number and Group Number designations.

magnetic particle (MT) or the liquid penetrant (PT) examination method to determine that no defects exist. After the finished repair weld has reached ambient temperature, the weld shall be examined again by either of the above methods to determine that no defects exist using acceptance standards acceptable to the Inspector or original code of construction, In addition, welded repairs greater than 3/8 in. (9.6 mm) deep or welds in a boiler, pressure vessel or piping systems that were originally required to be radiographed by the rules of the original code of construction, shall be radiographically examined. In situations where it is not practical to perform radiography the accessible surfaces of each nonradiographed repair weld shall be fully examined using the MT or PT method to determine that no defects exist, and the maximum allowable working pressure and/or allowable temperature shall be reevaluated to the satisfaction of the jurisdiction at the location of installation.

*RD-1030 WELDING METHOD 1

- a. This method may be used when the applicable rules of the original code of construction did not require notch toughness testing.
- b. The materials shall be limited to P-No. 1, Group 1, 2, and 3, and to P-No. 3, Group 1 and 2 (excluding Mn-Mo steels in Group 2), as permitted for welded construction by the applicable rules of the original code of construction.
- c. The welding shall be limited to the shielded metal-arc welding (SMAW), gas metal-arc welding (GMAW), fluxcored arc welding (FCAW) and gas tungsten-arc welding (GTAW) processes.

RD-1020 NONDESTRUCTIVE
EXAMINATION OF WELDS

Prior to welding, the area prepared for welding shall be examined using either the

- d. The welders and welding procedures (WPS) shall be qualified in accordance with the applicable rules of the original code of construction, except that the post-weld heat treatment of the test coupon used to qualify the weld procedure shall be omitted.
 - e. The weld area shall be preheated and maintained at a minimum temperature of 300 °F (149 °C) during welding. The 300 °F (149°C) temperature should be checked to assure that 4 in. (102 mm) of the material or four times the material thickness (whichever is greater) on each side of the groove (or full thickness of joint for a groove weld) is maintained at the minimum temperature during welding. The maximum interpass temperature shall not exceed 450 °F (232°C). When the weld does not penetrate through the full thickness of the material, the minimum preheat and maximum interpass temperatures need only be maintained at a distance of 4 in. (102 mm) or four times the depth of the repair weld, whichever is greater on each side of the joint.
- used to qualify the weld procedure shall be omitted. The qualification thickness for the test plates and repair grooves shall be in accordance with Table I.
 - e. As shown in Table I, the depth of the repair groove (or full thickness of a joint for a groove weld) in base metal or in weld metal is not limited provided the test material thickness for the welding procedure qualification is at least five times the depth of the repair but need not exceed the thickness of the material to be repaired, provided the required test specimens can be removed. When the thickness of the base metal to be repaired is greater than 2 in. (51 mm), the procedure qualification test material need not exceed 2 in. (51 mm); however, the depth of the groove in the test material shall be the greater of 1 in. (25 mm) or the depth of the groove to be repaired.
 - f. The test material for the welding procedure qualification shall be of the same material specification (including specification type, grade, class and condition of heat treatment) as the original material specification for the repair. In the event that the original material specification is obsolete, the test material used should conform as much as possible to the original material used for construction, but in no case shall the material be lower in strength.

RD-1040 WELDING METHOD 2

- a. This method shall be used when the applicable rules of the original code of construction required notch toughness testing.
- b. The materials shall be limited to carbon and low alloy steels permitted for welded construction by the applicable rules of the original code of construction.
- c. The welding shall be limited to the shielded metal-arc welding (SMAW), gas metal-arc welding (GMAW), fluxcored arc welding (FCAW) and gas tungsten-arc welding (GTAW) processes.
- d. The welders and welding procedures (WPS) shall be qualified in accordance with the applicable rules of the original code of construction, except that the post-weld heat treatment of the test coupon
- g. The organization making the repair shall include, when qualifying its WPS, sufficient tests to determine that the toughness of the weld metal and the heat-affected zone of the base metal in the as-welded condition is adequate at the minimum operating and pressure test temperatures (including start-up and shut-down). When these conditions are met, any original code of construction credit for PWHT may be continued. If for reasons of corrosion resistance, special hardness limits are necessary, such limits shall be included when qualifying the WPS.