January 31, 2020

U.S. Department
of Transportation

**Pipeline and Hazardous
Materials Safety Administration**

East Building, PHH-30
1200 New Jersey Avenue S.E.
Washington, D.C. 20590

DOT-SP 12718
(EIGHTH REVISION)

EXPIRATION DATE: 2022-07-31

(FOR RENEWAL, SEE 49 CFR § 107.109)

1. GRANTEE: Weldship Corporation
Bethlehem, PA

2. PURPOSE AND LIMITATION:

a. This special permit authorizes the use of certain DOT Specification 3AL cylinders used for the transportation in commerce of the compressed gases described in paragraph 6 below, when retested by a 100% ultrasonic examination in lieu of the internal visual and the hydrostatic retest. This special permit provides no relief from the Hazardous Materials Regulations (HMR) other than as specifically stated herein. The most recent revision supersedes all previous revisions

b. The safety analyses performed in development of this special permit only considered the hazards and risks associated with transportation in commerce.

c. Party status will not be granted to this special permit.

3. REGULATORY SYSTEM AFFECTED: 49 CFR Parts 106, 107 and 171-180.

4. REGULATIONS FROM WHICH EXEMPTED: 49 CFR §§ 172.203(a) and 172.301(c) in that each shipping paper or cylinder is not required to be marked with the special permit number; §§ 180.205(f), 180.205(g) and 180.209(a) in that the

ultrasonic examination is performed in lieu of the specified internal visual examination and hydrostatic pressure test, except as specified herein.

NOTE: This does not relieve the holder of this special permit from securing an approval for retesting cylinders from the Associate Administrator for Hazardous Materials Safety.

5. BASIS: This special permit is based on the application of Weldship Corporation dated July 19, 2018, submitted in accordance with 49 CFR § 107.109 and additional information dated January 16, 2020.

6. HAZARDOUS MATERIALS (49 CFR § 172.101):

Hazardous Material Description			
Proper Shipping Name	**Hazard Class/ Division**	**Identi-fication Number**	**Packing Group**
Liquefied or non-liquefied compressed gases, or mixtures of such compressed gases, classed as Division 2.1, (flammable gas) Division 2.2, (nonflammable gas) or Division 2.3, (gases which are Toxic by Inhalation (TIH)) which are authorized in the Hazardous Materials Regulations for transportation in DOT 3AL cylinders.	2.1, 2.2 or 2.3 as appropriate	As appropriate	N/A

7. SAFETY CONTROL MEASURES:

a. PACKAGING: Packaging prescribed is a DOT Specification 3AL cylinder manufactured from 6061 alloy aluminum that is subjected to periodic retesting, reinspection and marking prescribed in §§ 180.205, 180.209, 180.213 and 180.215 except that the cylinder is examined by an ultrasonic method in lieu of the hydrostatic pressure test and internal visual inspection. Each cylinder must be subjected to an external visual examination and retested and marked in accordance

with the procedure described herein and Weldship's May 22, 2001, and supplemental information dated March 14 and October 31, 2001, and August 28, 2002, on file with the Office of Hazardous Materials Safety Approvals and Permits Division (OHMSAPD). A cylinder that has been exposed to fire or to excessive heat may not be retested under the terms of this special permit.

b. Ultrasonic equipment and performance: The ultrasonic examination (UE) equipment described in Weldship's application for special permit, on file with OHMSAPD, must be used and perform in accordance with the procedures delineated therein and as detailed in this special permit. The equipment will be a fully automated, pulse echo type, and incorporate multiple transducers, with interactive software. The ultrasonic pulses must enter into the cylinder wall in both longitudinal and circumferential directions to ensure 100 percent coverage of the cylinder wall. All defects (such as isolated pits, line corrosion, sidewall defects (e.g. cracks, folds) and line corrosion side-wall-to-base transition area (SBT)) must be detected. The equipment must incorporate continuous automatic monitoring of the transducer to cylinder wall acoustic coupling to assure 100 percent cylinder wall coverage during UT. The frequency used for this UT may not be less than 2 MH_z and greater than 10 MH_z. It must be capable of discerning and aborting the test when the ultrasonic data indicate a loss of acoustic coupling or signal between the transducer assembly and the cylinder wall. This safety control measure must be an integral part of the test equipment design incorporating Lack-of-Expected-Response (L.E.R.) monitoring independent of operator actions. A manual contact shear or longitudinal search unit may be used for confirmation and sizing of an indicated defect. If manual UE is used, it must be performed under direct supervision of a Senior Review Technologist by a minimum Level II operator and in accordance with American Society of Testing Materials (ASTM) practice E 213.

c. Standard References (reference cylinder).

(1) A cylinder or a cylinder section must be used as a standard reference and must have similar acoustic properties, surface finish and metallurgical condition as the cylinders under test. The standard reference, (reference cylinder) must have a known minimum design

wall thickness (t_m) which is less than or equal to the cylinder under test. The standard reference cylinder for cylinders less than or equal to 6-inches in diameter must have the same nominal diameter as the cylinder being tested. Cylinders greater than 6-inches in diameter must conform to the allowable size ranges shown in the following table:

Standard Reference	Cylinder Size Ranges Being Retested by UE	
Outside Diameter (OD-inches)	Minimum OD- (inches)	Maximum OD- (inches)
7	6.30	10.50
7.50	6.75	11.25
9.00	8.10	13.50
9.25	8.33	13.88
10.00	9.00	15.00
12.00	10.80	18.00

Prior to placing the simulated defects such as minimum wall thickness, the average minimum wall thickness for the standard reference must be determined by means of an independent method.

(2) The standard reference (reference cylinder) must be prepared to include the following artificial defects:

(i) The artificial defect for area corrosion will be 0.70 square inch (in^2) and the remaining wall thickness must be at least the design minimum wall for a cylinder being tested.

(ii) The artificial defect for isolated pits in cylinders less than or equal to 4 inches in diameter consisting of an internal flat bottom hole (FBH) of 1/8 inch diameter and $1/3t_m$ in depth.

(iii) The artificial defect for isolated pits in

cylinders greater than 4 inches in diameter consisting of an internal FBH of 1/4 inch diameter and 1/3t_m in depth.

(iv) The artificial defect for line corrosion consisting of two circumferential (one internal and one external) and two longitudinal (one internal and one external) notches. These notches shall be electro discharge machine (EDM), measuring 0.10 t_m in depth, 1 inch in length and less than or equal to 0.010 inch width.

(3) A certification statement signed by the Weldship senior review engineer (SRE) must be available for all standard references at each site where retesting is performed. The certification statement must include a standard reference drawing for each size of cylinder. A standard reference drawing must include dimensions and the locations of each simulated defect.

d. Ultrasonic Examination (UE) System Standardization (Calibration). Prior to retesting a cylinder, the cylinder must be identified. The UE system must be standardized for testing the identified cylinder by using a standard reference. Standardization of the UE system must be performed by using a relevant reference cylinder that is described in paragraph 7.c. of this special permit. The standardization of the UE system is as follows:

(1) A reference cylinder with an artificial defect made to represent area corrosion must be placed in the UE system. The UE system must be standardized to indicate rejection for an area equal or greater than the machined surface for the cylinder (0.70 in^2). Where the wall thickness is reduced below t_m, a straight ultrasound beam must be used to measure the wall thickness of the machined area.

(2) A reference cylinder with a FBH made to represent an isolated pit must be placed in the UE system. The FBH must be detected by a minimum of two shear wave beams that strike the FBH from opposite sides (e.g. the first shear wave direction is from top to bottom of the cylinder and the second shear wave direction is from

the bottom to top). The UE gain must be increased until the signal from FBH is maximized at 80 percent of the screen height.

(3) A reference cylinder with circumferential notches made to represent line corrosion must be placed in the UE system. Each internal and external notch must be detected by a minimum of one shear wave beam. The UE gain must be increased until the signal from each notch is maximized at 80 percent of the screen height.

(4) A reference cylinder with longitudinal notches to represent a longitudinal sidewall crack (LSC) must be placed in the UE system. Each internal and external notch must be detected by a minimum of two shear wave beams that strike the LSC from opposite directions (e.g. the first shear wave direction is clock wise and second shear wave direction is counter-clock wise). The UE gain must be increased until the signal from the notch is maximized at 80 percent of the screen height.

e. Test Procedures.

(1) A written test procedure for performing ultrasonic examination of cylinders under the terms of this special permit must be at each facility performing ultrasonic examination. At a minimum, this procedure must include:

(i) A description of the test set-up; test parameters; transducer model number, frequency, and size; transducer assembly used; system standardization procedures and threshold gain used during the test; and other pertinent information.

(ii) Requirement for the equipment standardization to be performed at the end of the test interval (cal-out), after 200 cylinders or four hours, whichever occurs first. This cal-out can be considered the cal-in for the next interval during continuous operation. Cylinders examined during the interval between cal-in and cal-out must be quarantined until an acceptable cal-out has been performed. An acceptable cal-out occurs when the calibration cylinder is examined and all required features are revealed without changing examination settings. If an acceptable cal-out does not occur, if any equipment that affects the

UE results are replaced or altered (such as a search unit or coaxial cable etc.) or when a loss of power occurs, all cylinders examined since the last successful calibration must be re-examined. Additionally, standardization of test equipment shall be performed at the beginning of each work shift, when the cylinder under test has dimensions that exceed the allowable ranges of the reference cylinder, when there is a change of operator(s), if any equipment that affects the UE results are replaced or altered (such as a search unit or coaxial cable etc.) or when a loss of power occurs, and at the end of each work shift.

(2) The test procedure must be available to a DOT official when requested. Any change to the written procedure must be submitted to OHMSAPD as soon as practicable.

(3) The equipment may not allow testing of a cylinder unless the system has been properly standardized (calibrated).

(4) The rotational speed of a reference cylinder must be such that all simulated defects are adequately detected, measured and recorded.

(5) The rotational speed of the cylinder under UE must not exceed the rotational speed used during the standardization.

(6) The area of ultrasonic examination (UE) coverage must be 100% of the cylindrical section. The coverage must extend three inches into the sidewall-to-base transition taper.

(7) The external surface of the cylinder to be examined must be free of loose material such as scale and dirt.

f. UE Acceptance/Rejection Criteria. A cylinder must be rejected based on any of the following:

(1) The wall thickness is less than the design minimum wall thickness for the area described in the standardization section herein, paragraph 7.d.

(2) If any of the flaws such as the isolated pit, circumferential line corrosion or longitudinal sidewall crack (LSC) which meet the rejection criteria and produce a signal with an amplitude which crosses the reference threshold set in the standardization section (paragraph 7.d.).

g. Rejected cylinders. When a cylinder is rejected, the retester must stamp a series of Xs over the DOT specification number and marked service pressure, or stamp "CONDEMNED" on the shoulder, top head, or neck using a steel stamp, and must notify the cylinder owner, in writing, that the cylinder is rejected and may not be filled with hazardous material for transportation in commerce.

(1) Alternatively, at the direction of the owner, the retester may render the cylinder incapable of holding pressure.

(2) If a condemned cylinder contains hazardous materials and the testing facility does not have the capability of safely removing the hazardous material, the retester must stamp the cylinder "CONDEMNED" and affix conspicuous labels on the cylinder(s) stating: AUE REJECTED DOT-SP 12718. "RETURNING TO ORIGIN FOR PROPER DISPOSITION". The retester may only offer the condemned cylinders for transportation by motor vehicle operated by a private carrier to a facility, identified to, and acknowledged in writing with OHMSPA that is capable of safely removing the hazardous material. A current copy of this special permit must accompany each shipment of condemned cylinders transported for the disposal of hazardous material.

h. Marking: Each cylinder passing retests under the provisions of this special permit must be marked as prescribed in § 180.213. In addition, each cylinder must be marked UE, in characters not less than 1/4 high for a cylinder with a diameter equal to or greater than 4 inches and 1/8" for a cylinder with a diameter less than 4 inches. The marking must be at a location close to the retester's marking.

i. UE Report: A report must be generated for each cylinder that is examined. The UE report must include the following:

(1) UE equipment, model and serial number

(2) Transducer specification, size, frequency and manufacturer

(3) Specification of each standard reference used to perform UE. Standard reference must be identified by serial number or other stamped identification marking.

(4) Cylinder serial no. and type

(5) UE technicians= name and certification level

(6) Examination Date.

(7) Location and type of each defect on the cylinder (e.g. longitudinal line corrosion 5 inches from base).

(8) Dimensions (area, depth and remaining wall thickness) and brief description of each defect.

(9) Acceptance/rejection results.

(10) The UE report must be on file at the test site, and made available to a DOT official when requested.

j. Personnel Qualification: Each person who performs retesting, and evaluates and certifies retest results must meet the following qualification requirements:

(1) Project Manager/Director of Product Technology- is the senior manager of Weldship responsible for compliance with DOT regulations including this special permit.

(2) The personnel responsible for performing cylinder retesting under this special permit must be qualified to an appropriate Ultrasonic Testing Certification Level (Level I, II or III) in accordance with the American Society for Nondestructive Testing (ASNT) Recommended Practice SNT-TC-1A depending upon the assigned responsibility as described below:

(i) System startup and calibration must be performed by a Level II operator. A Level II operator may review and certify test results when a written acceptance and rejection criteria for cylinders has been provided by a Senior Review Technologist. Based upon written criteria, the Level II Operator may authorize cylinders that

pass the retest to be marked in accordance with paragraph 7.h. of this special permit. However, a person with Level I certification may perform a system startup, check calibration, and perform ultrasonic testing under the direct guidance and supervision of a Senior Review Technologist or a Level II Operator, either of whom must be physically present at the test site so as to be able to observe testing conducted under this special permit.

(ii) Senior Review Technologist (SRT) - is a person who reviews overall test results, provides supervisory training and technical guidance to Operators, and reviews and verifies the retest results. A SRT must have a Level III Certification in UE, and a thorough understanding of the DOT Regulations (49 CFR) pertaining to the re-qualification and reuse of the DOT cylinders authorized under this special permit. The SRT must prepare and submit the reports required in paragraphs 7.i. and annually verify that the UE program is being operated in accordance with the requirements of this special permit.

k. OPERATIONAL CONTROLS.

(1) No person may perform inspection and testing of cylinders subject to this special permit unless:

(i) that person is an employee or agent of Weldship and has a current copy of this special permit at the location of such inspection and testing, and

(ii) that person complies with all the terms and conditions of this special permit, and,

(iii) that person is listed on Attachment 1 of this special permit.

(2) The marking of the retester's symbol on the cylinders certifies compliance with all of the terms and conditions of this special permit.

(3) Each facility approved by OHMSAPD to test cylinders under the terms of this special permit must

have a resident operator with at least a Level II Certification in UT.

8. SPECIAL PROVISIONS:

a. During the initial use of the special permit, the total number of cylinders retested under this special permit must be reported to OHMSPA on an annual basis. The reports must be summarized to two tables which include a list of all the passed and failed cylinders under this special permit. One copy of the summarized reports must be submitted on CD or diskette in a word processing format compatible with Word Perfect, Microsoft Word or Microsoft Excel.

(1) The table for the passed cylinders must include:

(i) UE Date

(ii) Cylinder type (e.g. DOT 3AL 2016)

(iii) Cylinder serial Number

(iv) The Standard reference number used to standardize the UE.

(2) The table for the failed cylinders must include:

(i) UE Date

(ii) Cylinder type

(iii) Cylinder serial number

(iv) The Standard reference number used to standardize the UE.

(v) Types of defects (Area Corrosion, Isolated Pit, Longitudinal Line Corrosion, circumferential Line Corrosion or other type such as dent, etc.)

(vi) Location of the defect (e.g. longitudinal line corrosion 5 inches from base)

(vii) Dimensions (e.g. for area corrosion, larger than 0.70 in^2 or for isolated pit deeper than $1/3t_m$.

b. Offerors may use the cylinders specified and tested in accordance with the provisions of this special permit for the transportation in commerce of those hazardous materials specified herein, provided no modifications or changes are made to the cylinders, and all terms of this special permit are complied with.

c. Shippers using the cylinders covered by this special permit must comply with the provisions of this special permit, and all other applicable requirements contained in 49 CFR Parts 100-180.

d. Transportation of Division 2.1 (flammable gases) and Division 2.3 (gases which are poisonous by inhalation) are not authorized aboard cargo vessel or aircraft unless specifically authorized in the Hazardous Materials Table (§ 172.101).

e. Transportation of oxygen is only authorized by aircraft when in accordance with § 175.501.

9. MODES OF TRANSPORTATION AUTHORIZED: Motor vehicle, rail freight, cargo vessel, cargo aircraft only and passenger-carrying aircraft, as currently authorized by the regulations for the hazardous materials being transported.

10. MODAL REQUIREMENTS: See paragraphs 8.d. and 8.e. for restrictions.

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

- All terms and conditions prescribed in this special permit and the Hazardous Materials Regulations, 49 CFR Parts 171-180.
- Persons operating under the terms of this special permit must comply with the security plan requirement in Subpart I of Part 172 of the HMR, when applicable.
- Registration required by § 107.601 et seq., when applicable.

Each "Hazmat employee", as defined in § 171.8, who performs a function subject to this special permit must receive training on the requirements and conditions of this special permit in addition to the training required by §§ 172.700 through 172.704.

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

Under Title VII of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU)- 'The Hazardous Materials Safety and Security Reauthorization Act of 2005' (Pub. L. 109-59), 119 Stat. 1144 (August 10, 2005), amended the Federal hazardous materials transportation law by changing the term "exemption" to "special permit" and authorizes a special permit to be granted up to two years for new special permits and up to four years for renewals.

12. REPORTING REQUIREMENTS: Shipments or operations conducted under this special permit are subject to the Hazardous Materials Incident Reporting requirements specified in 49 CFR §§ 171.15 Immediate notices of certain hazardous materials incidents, and 171.16 Detailed hazardous materials incident reports. In addition, the grantee(s) of this special permit must notify the Associate Administrator for Hazardous Materials Safety, in writing, of any incident involving a package, shipment or operation conducted under terms of this special permit.

Issued in Washington, D.C.:

for William Schoonover
Associate Administrator for Hazardous Materials Safety

Address all inquiries to: Associate Administrator for Hazardous Materials Safety, Pipeline and Hazardous Materials Safety Administration, Department of Transportation, Washington, D.C. 20590. Attention: PHH-31.

Copies of this special permit may be obtained by accessing the Hazardous Materials Safety Homepage at http://hazmat.dot.gov/sp_app/special_permits/spec_perm_index.htm Photo reproductions and legible reductions of this special permit are permitted. Any alteration of this special permit is prohibited.

PO: M Toughiry/AE

Attachment

Only the following locations have been authorized by OHMSPA to perform requalification functions described in this special permit. Each authorization is valid only when the associated RIN approval and this special permit remain current. As acknowledged by the list of names and locations below, the grantee of this special permit must notify OHMSPA of any change in approval status, company name, address, or new test facility additions within 20 days of that change.

C284 Linde Gas
7390 Graham Rd.
Union City, GA 30291