



VECTRA

October 20, 1994

File: 71-9070

Mr. C. R. Chappell, Section Leader
Cask Certification Section
Storage and Transport Systems Branch
Division of Industrial and
Medical Nuclear Safety, NMSS
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Reference: Docket No. 71-9070 Letter, C.R. Chappell to C. Temus dated September 21, 1994

Subject: Response to request for additional information and Revision 2 of application for
Renewal of Certificate of Compliance No. 9070

Dear Mr. Chappell:

This letter transmits Revision 2 of the Consolidated Safety Analysis Report (SAR) for the Model N-55 packaging (Docket 71-9070). This revision is in response to your request for additional information. Attachment 1 provides specific responses to your questions. Attachment 2 provides 10 copies of the insert and delete instructions and the revised pages of the SAR. We believe that these attachments fully address your information needs.

The revised pages are identical for both the proprietary and non-proprietary versions of the application. The revision may be placed in the Public Document Room.

If there are any questions, please contact me at (206) 661-4779.

Sincerely,

Vectra Technologies, Inc.

Charles J. Temus
Transportation Licensing Manager
Fuel Services

cc: W. Bak - Vectra Fuel Services

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Attachment #1

Response to NRC questions 71-9070, dated September 21, 1994

- 1. Provide an evaluation of the drum shown on sheet 4c, Rev. 1, of the application dated August 22, 1994. Compare the drum to the previously approved DOT Specification 17H and 17C drums. The evaluation should consider both the structural integrity of the drum, and the containment function provided by the drum.**

An evaluation of the current drum, along with a comparison to the previously approved DOT Specification 17H is provided with a more detailed drum specification.

- 2. Revise the sketch of the drum on sheet 4c, Rev. 1, to specify the gasket required for the drum closure. Include any leak testing provisions for the drum.**

Gaskets required and leak testing provisions are contained in the detailed drum specification. The drawing on sheet 4c is now Figure 1.3.2-1 on page 4g and only represents typical dimensions.

Insert Delete Instructions for Revision 2

NuPac N-55 Consolidated

Docket 71-9070

DELETE	INSERT
Page 4c	Pages 4c-4g

APPENDIX 1.3.2

Specification for 55-Gallon Drum and Liner

1.3.2 Specification for 55-Gallon Drum and Liner

1.3.2.1 Summary of specifications

The N-55 material is contained in a 55-Gallon Drum. The typical material of construction are shown in Table 1.3.2-1 and minimums are based on the previously approved DOT Specification 17H. The nominal dimensions are depicted on Figure 1.3.2-1.

Location	Material
All Steel components	Low carbon, open hearth or electric steel
Body	Minimum 18 gauge ¹ uncoated steel
Heads	Minimum 18 gauge ¹ uncoated steel 3/8 - inch minimum convexity top and bottom head
closure	12 gauge ² bolted ring 5/8 inch diameter bolt and nut
gasket - Type I Type II	Tubular Styrene-Butadiene or Equivalent Dewey, or Almy Styrene-Butadiene Foam, or equivalent
rolling hoops	3-rolled or swedged types, one within 3 inches of the top curl

¹ Nominal Thickness=0.0478 inches, Minimum Thickness=0.0428, measured not less than 3/8 inch from an edge

² Nominal Thickness=0.1046 inches, Minimum Thickness=0.0946, measured not less than 3/8 inch from an edge

Table 1.3.2-1

1.3.2.2 Rate Capacity

Rated capacity shall be nominally 55 gallons, and shall not be less than 4% and not more than 5%.

1.3.2.3 Composition

Sheets for body and heads shall be made of low carbon steel, open hearth or electric steel.

1.3.2.4 Seams and Chime Reinforcement

Body seams to be welded. Chime reinforcement required to be not less than 12 gauge.

1.3.2.5 Parts and dimensions

See Table 1.3.2-1 and Figure 1.3.2-1 for nominal parts and dimensions.

1.3.2.6 Convex Heads

Convexity of heads to be at least 3/8 inches, not extending beyond the level of the chime.

1.3.2.7 Closures

Gaskets required per Table 1.3.2-1 to prevent leakage. Other types of closures are allowed if they perform without failure under the test required by this specification, and that record of the tests is retained during the period the closure is in use.

1.3.2.8 Defective Containers

Leaks and other defects are to be repaired by the method of construction, not by soldering.

1.3.2.9 Markings

The year of manufacture and gauge of the metal in the thinnest part shall be marked on the drum in an obvious and durable manner (for example, 18-94). When the gauge of the metal in the body and heads differ, both must be indicated with a slanting line between them and with the gauge on the body indicated first (for example 18/16-94)

1.3.2.10 Type Testing

Samples taken at random and closed as for use, shall withstand the test prescribed in this specification. Each packaging design type must successfully pass the test before the packaging is used. The test must be repeated every 4 months of production for a particular design. The packaging design is defined by the design, size, material, thickness, and manner of construction, but may include various surface treatments. The samples last tested must be retained until further tests are made, or for 1 year, whichever period is shorter. The type test are as follows:

(1) Test by dropping, filled with water to 98% capacity, from height of 4 feet onto solid concrete so as to strike diagonally on chime, or when without chime seam, to strike on other circumferential seal: also additional drop test on any other parts which might be weaker than the chime. Closing devices and other parts projecting beyond chime or rolling hoops must also be capable of withstanding this test.

(2) Hydro static pressure test of 15 pounds per square inch sustained for 5 minutes.

1.3.2.11 Leakage Test

Each drum will be tested with a minimum 7 pounds per square inch interior air pressure with seams under water, or covered with soapsuds, or heavy oil, or equally efficient means of leak detection as the leak detection method. Leakers shall be rejected or repaired and retested with out failure.

1.3.2.12 Structural Comparison with previously approved DOT Specification 17H

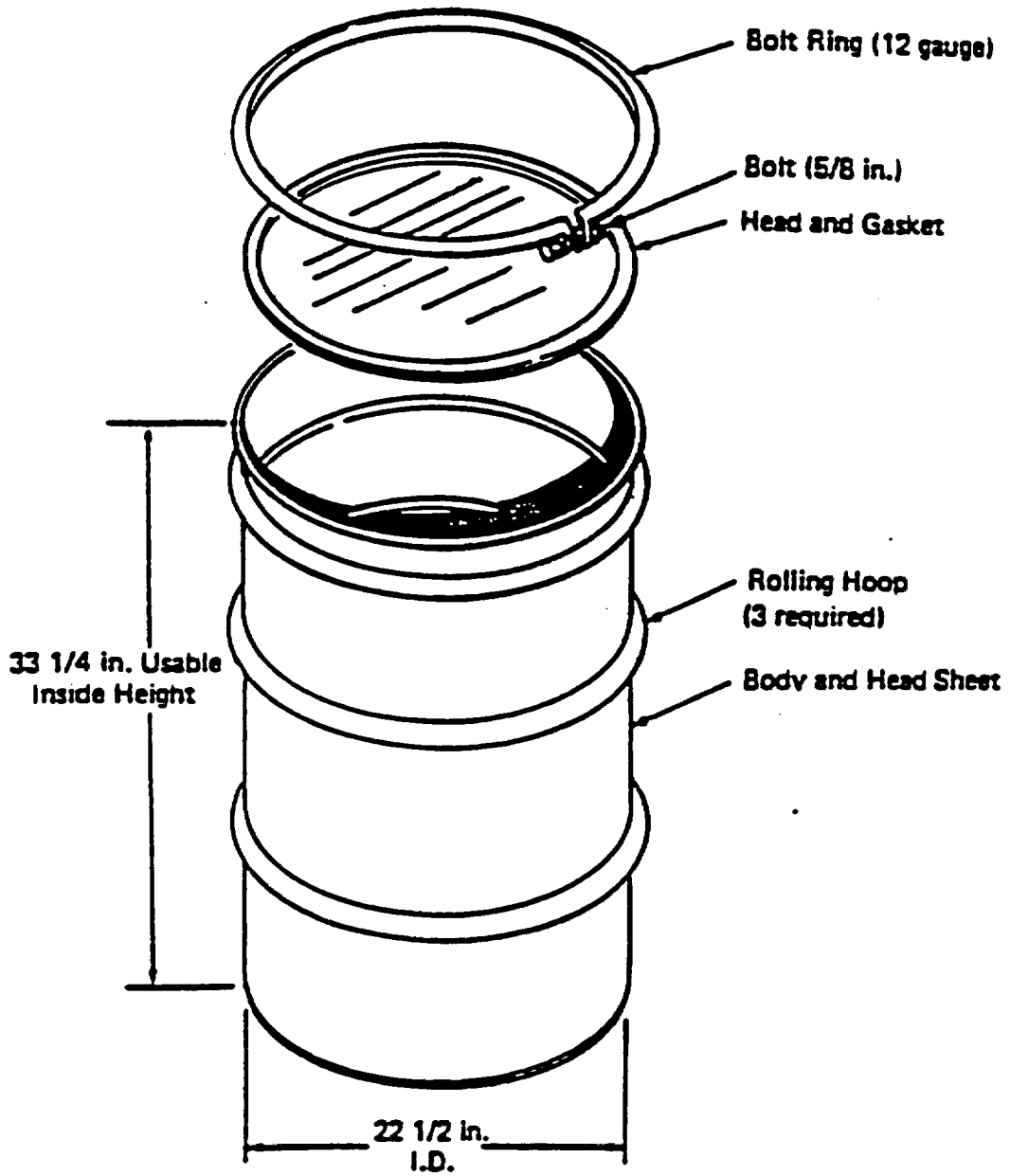
The material type and minimum thickness compare exactly to the previously approved DOT Specification 17H 55 gallon drum which was used for testing. Positive closure is accomplished by a closure ring bolt to prevent inadvertently opening. Brittle fracture does not constitute a concern because the 55 gallon drum is constructed of thin section components. The drum design is tested to pass a 15 psig hydrostatic pressure, therefore a reduced external pressure of 3.5 psia would have little effect on the drum.

Because the material, methods, and typical dimensions are the same as the previously approved DOT Specification 17H 55 gallon drum, the drum specified in this section can be considered structurally equivalent. All structural credit that was taken with the previously approved DOT 17H 55 gallon drum can be taken with the above specified 55 gallon drum.

1.3.2.13 Containment Comparison with previously approved DOT Specification 17H

Type testing and leak testing provides assurance that the 55 gallon drum specified in this section will provide at a minimum, provide containment equivalent to the previously approved DOT Specification 17H. It was shown through the testing program for the N-55 that drums which are designed and demonstrated to meet the Type and Leak testing specified above, will provide adequate containment for normal and hypothetical accident conditions.

Steel Drum (55 gallon)



Nominal 55-Gallon Drum Dimensions

Figure 1.3.2-1