



**Particle Physics Division
Mechanical Department Engineering Note**

Number: MD-ENG-074

MD-ENG- Date: 01/27/05

Project Internal Reference: NMI-017

Project: NuMi

Title: MI-65 Compressed Air System Slave Tank (Target Hall)

Author(s): Ed LaVallie

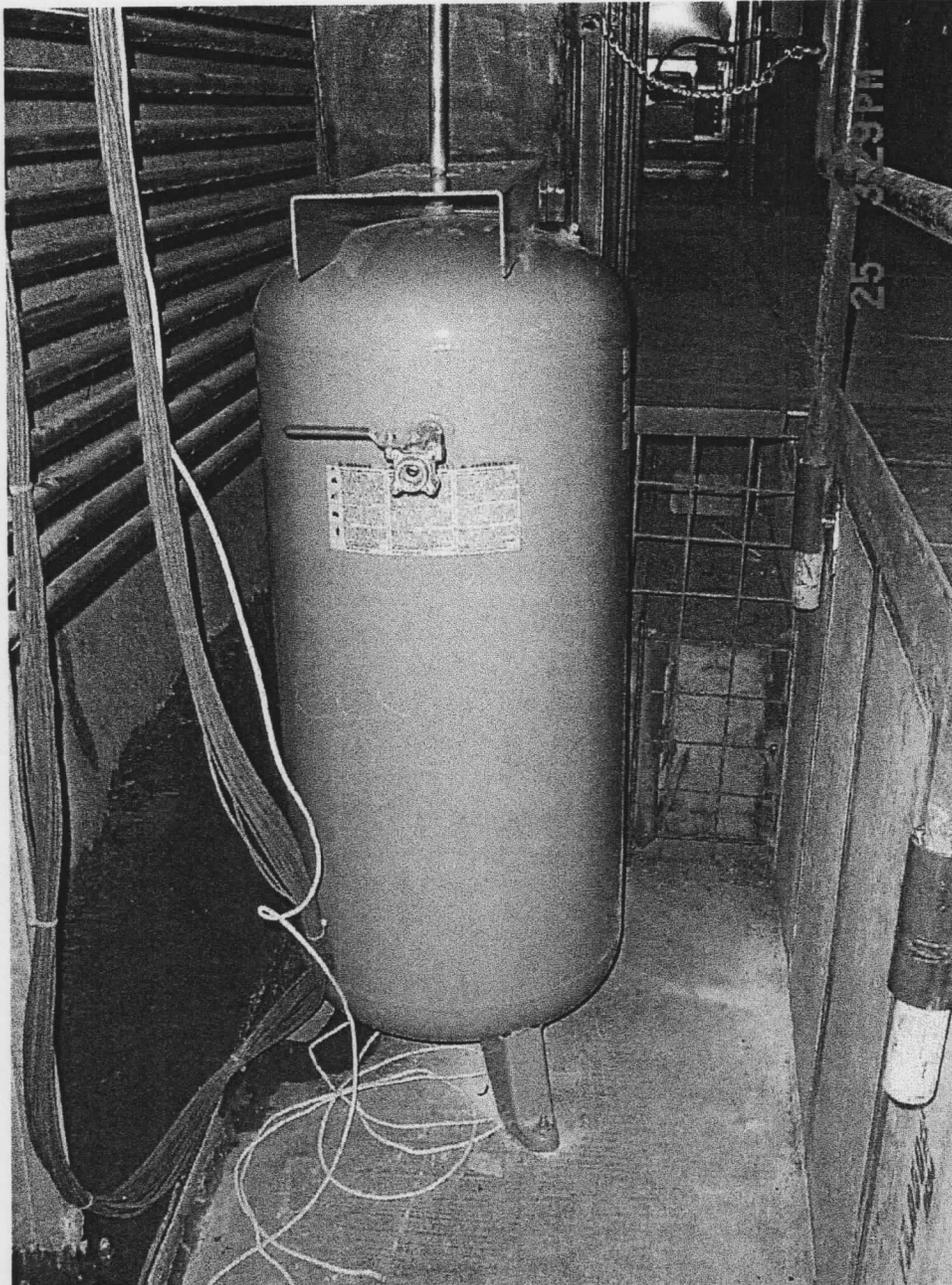
Reviewer(s): *Ang Lee*

Key Words:

Abstract Summary:

**Applicable Codes: Pressure Vessel Engineering Note
Fermilab 5031-TA**

Engineering Note
Compressed Air Tank @ MI-65 Target Hall
Connected to and supplied by
Vessel # NMI-015
Ingersoll Rand Compressor (in compressor room)



Description: Campbell Hausfeld, 20" Tank Diameter x 35 3/4" High (52 1/4" overall height), Air Tank, Vertical, Stationary, 60 Gallon Capacity, with a 200 PSI Working Pressure @ 450° F. Form U-1A Manufacturers Data Report For Pressure Vessels attached.

PRESSURE VESSEL ENGINEERING NOTE

PER CHAPTER 5031

Prepared by: **Ed LaVallie**

Preparation date: **1/27/05**

1. Description and Identification
Fill in the label information below:

<p>This vessel conforms to Fermilab ES&H Manual Chapter 5031</p> <p>Vessel Title: Campbell Hausfield Air Tank Mfg. Model #5Z354</p> <p>Vessel Number: NMI-017</p> <p>Vessel Drawing Number: None (purchased tank)</p> <p>Maximum Allowable Working Pressures (MAWP):- Internal Pressure: 200 PSI External Pressure: 1 Atmosphere Working Temperature Range: -20° F (-28.9°C) Min. 450° F (232.2°C) Max.</p> <p>Contents: Compressed Air Designer/Manufacturer: Campbell Hausfield</p> <p>Test Pressure (if tested at Fermi) Acceptance</p> <p>5034 of the Fermilab ES&H Manual</p> <p>_____ PSIG, Hydraulic _____ Pneumatic _____ Accepted as conforming to standard by _____</p> <p>_____ of Division/Section _____ Date: _____</p>	<p>←Obtain from Division/Section Safety Officer</p> <p>←Document per Chapter</p> <p>←Actual signature required</p>
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NOTE: Any subsequent changes in contents, pressures, temperatures, valves, etc., which affect the safety of this vessel shall require another review.

Reviewed by: Anghele

Date: 2-28-2005

Director's signature (or designee) if the vessel is for manned areas but doesn't conform to the requirements of the chapter.

Date: _____

Amendment No.:

Reviewed by:

Date:

Lab Property Number(s): **None**

Lab Location Code: **MI-65 Target Hall** (obtain from safety officer)

Purpose of Vessel(s): **Operate Pneumatics in Target Hall**

Vessel Capacity/Size: **60 Gal.** Length: **20"** Width: **29"** Height: **52.25"**

Normal Operating Pressure (OP): **90 PSI to 135 PSI**

MAWP-OP = **200 PSI-135 PSI**

List the numbers of all pertinent drawings and the location of the originals.

Drawing #

Location of Original

None (Purchased Tank)

2. Design Verification

Is this vessel designed and built to meet the Code or "In-House Built" requirements?

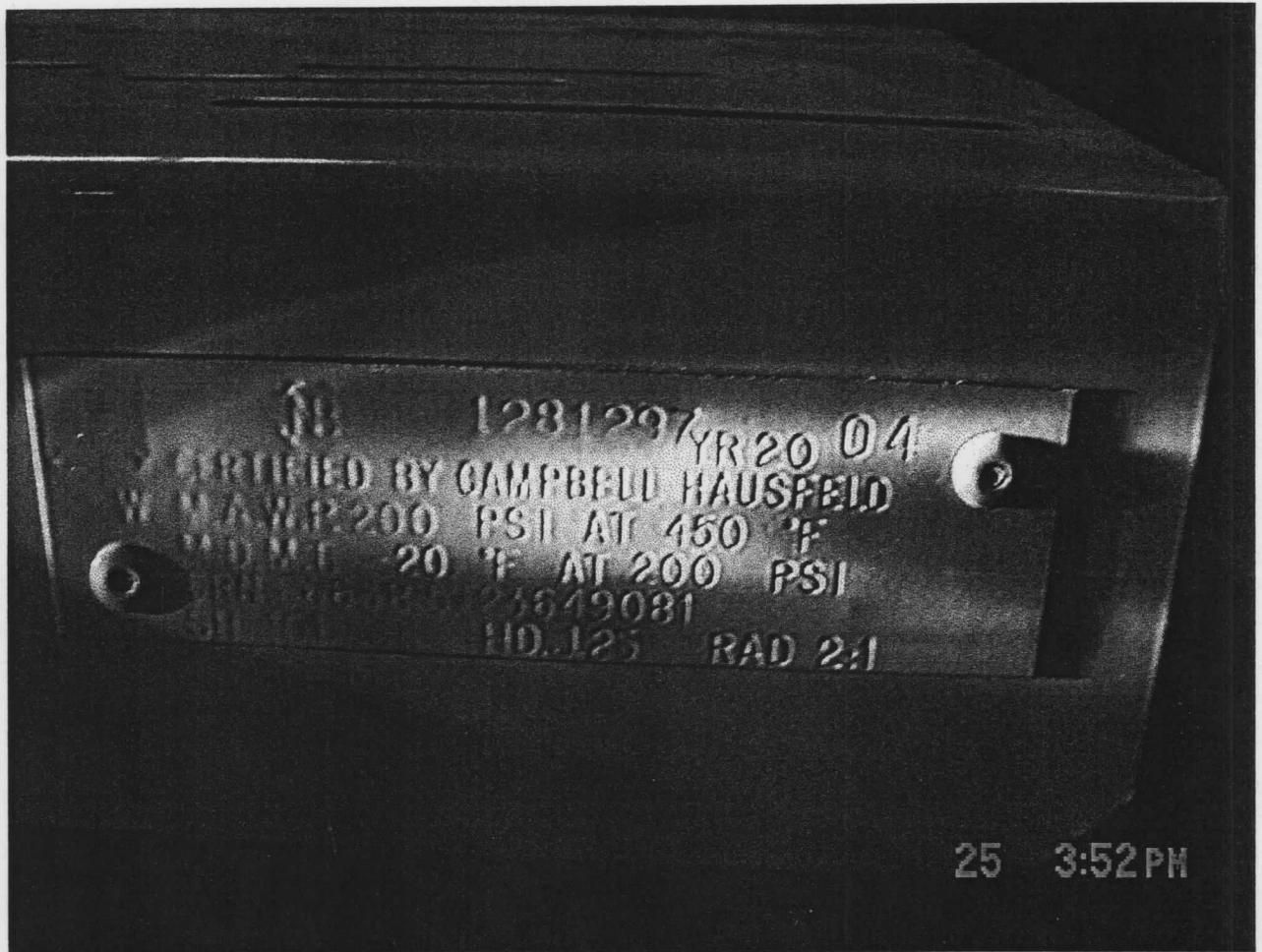
Yes No _____.

If "No" state the standard that was used _____.

Demonstrate that design calculations of that standard have been made and that other requirements of that standard have been satisfied. Skip to part 3 "system venting verification."

Does the vessel(s) have a U stamp? Yes No _____. If "Yes", complete section 2A; if "No", complete section 2B.

A. Staple photo of U stamp plate below.
Copy "U" label details below.



Copy data here:

NB 1281297 YR. 2004
Certified By Campbell Hausfield
W.M.A.W.R. 200 PSI @450 F
M.P.M.T. 20° F @ 200 PSI
CRN 66385723649081
SH 151; HD125; RAD 2:1

Provide ASME design calculations in an appendix. On the sketch below, circle all applicable sections of the ASME code per Section VIII, Division I. (Only for non-coded vessels)

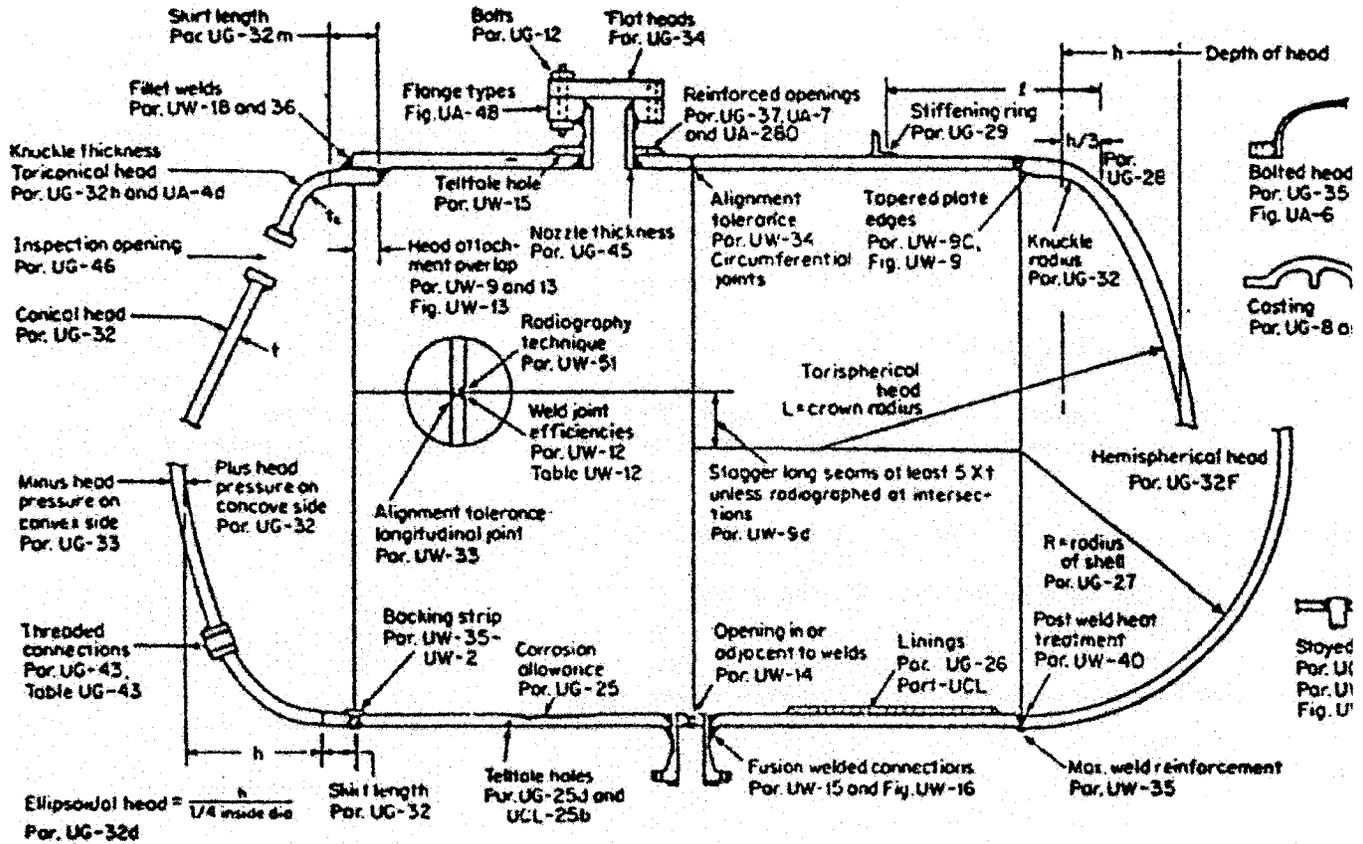


Figure 1. ASME Code: Applicable Sections 2B.

Summary of ASME Code

CALCULATION RESULT
(Required thickness or stress

Item	Reference ASME Code Section	level vs. actual	
		calculated stress level)	
_____	_____	_____	VS _____
_____	_____	_____	VS _____
_____	_____	_____	VS _____
_____	_____	_____	VS _____

3. System Venting Verification Provide the vent system schematic.

Does the venting system follow the Code UG-125 through UG-137?
Yes: No

Does the venting system also follow the Compressed Gas Association Standards S-1.1 and S-1.3?
Yes No

A "no" response to both of the two proceeding questions requires a justification and statement regarding what standards were applied to verify system venting is adequate.

List of reliefs and settings:

<u>Manufacturer</u>	<u>Model #</u>	<u>Set Pressure</u>	<u>Flow Rate</u>	<u>Size</u>
ASME (Code Stamped) CRN OG2663.1C	15-115	150 PSI	332 SCFM	3/8 NPT
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____
_____	_____	_____	_____	_____

4. Operating Procedure

Is an operating procedure necessary for the safe operation of this vessel?
Yes: No (If "Yes", it must be appended)

5. Welding Information

Has the vessel been fabricated in a non-code shop? Yes No:
If "Yes", append a copy of the welding shop statement of welder qualification (Procedure Qualification Record, PQR) which references the Welding Procedure Specification (WPS) used to weld this vessel.

6. Existing, Used and Unmanned Area Vessels

Is this vessel or any part thereof in the above categories?
Yes No:

If "Yes", follow the requirements for an Extended Engineering Note for Existing, Used and Unmanned Area Vessels.

7. Exceptional Vessels

Is this vessel or any part thereof in the above category?
Yes No:

If "Yes", follow the requirements for an Extended Engineering Note for Exceptional Vessels.

THIS VESSEL CONFORMS TO FERMILAB ES&H MANUAL CHAPTER 5031

Vessel Title: **Campbell Hausfield Compressed Air Tank**

Vessel Number: NMI- _____

Vessel Drawing Number: **None (Purchased Tank)**

Maximum Allowable Working Pressures (MAWP):

Internal Pressure: **200 PSI**

External Pressure: **One Atmosphere**

Working Temperature Range: **-20° F (-28,9°C) Min. 450°F (232.2°C) Max.**

Contents: **Compressed Air**

Designer: **None (Purchased Tank)**

Test Pressure (if tested at Fermi) _____ DATE / /

_____ PSIG, Hydraulic _____ Pneumatic _____

Accepted as conforming to standard by _____

Of Division/Section _____

NOTE: Any subsequent changes in content, pressures, temperatures, valves, etc., which affect the safety of this vessel shall require another review and test.

Figure 2: Sample of sticker to be completed and be placed on vessel.

Photo Below Pressure Relief Valve with UV Code Stamp

Conbraco IND., Inc.
Model# 15-115
C.R.N. #0G2663.
NB A.S.M.E.
3/8 N.P.T..
150 P.S.I.
332 C.F.M.

