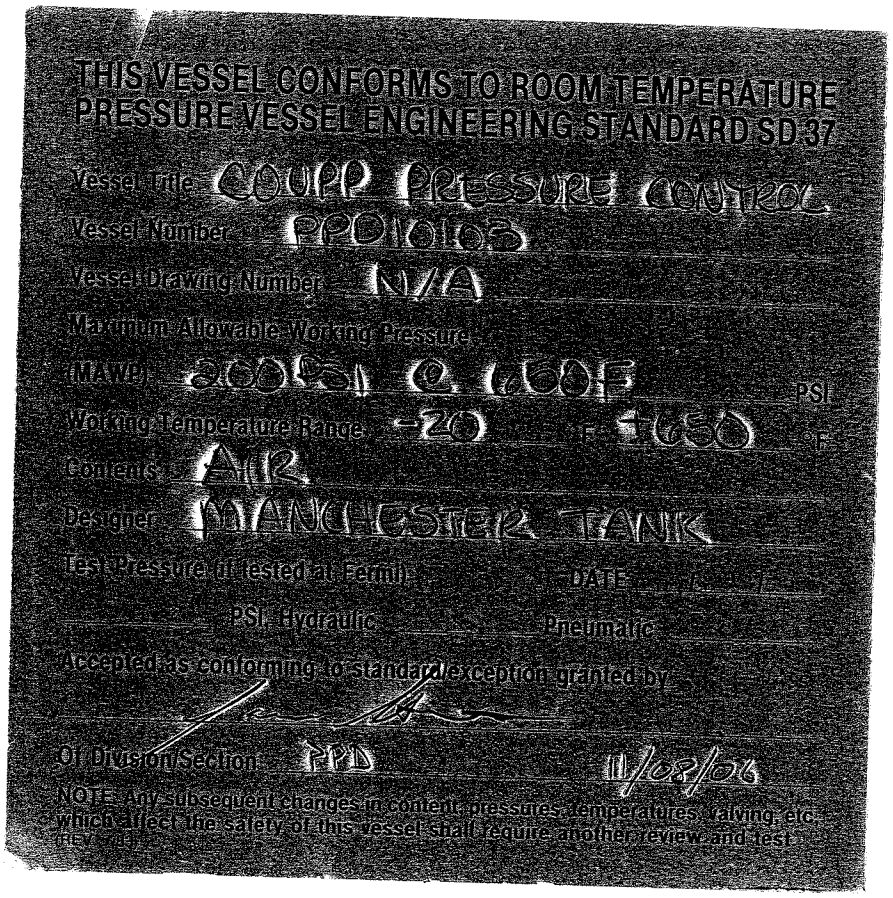

THIS VESSEL CONFORMS TO ROOM TEMPERATURE
PRESSURE VESSEL ENGINEERING STANDARD SD 37

Vessel Title: COUPP PRESSURE CONTROL

Vessel Number: PPD10103

Vessel Drawing Number: N/A

Maximum Allowable Working Pressure:

(MAWP): 2000 @ 650 PSI

Working Temperature Range: -20 F - 650 F

Contents: AIR

Designer: MANCHESTER TANK

Test Pressure (if tested at Fermi): DATE:

PSI Hydraulic Pneumatic

Accepted as conforming to standard exception granted by:

Of Division/Section: PPD 11/02/06

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

REV 7/01

PRESSURE VESSEL ENGINERING NOTE
PER CHAPTER 5031

Prepared by: CARL LINDENMEYER
Preparation date: 10-11-06

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

This vessel conforms to Fermilab ES&H Manual Chapter 5031

Vessel Title COUPP PRESSURE CONTROL

Vessel Number PPD 10103 ←Obtain from Division/Section Safety Officer

Vessel Drawing Number N/A

Maximum Allowable Working Pressures (MAWP):
Internal Pressure 200 PSI @ 650°F
External Pressure

Working Temperature Range -20 °F + 650 °F

Contents AIR

Designer/Manufacturer MANCHESTER TANK

Test Pressure (if tested at Fermi) Acceptance Date: ←Document per Chapter 5034 of the Fermilab ES&H Manual

PSIG, Hydraulic Pneumatic
Accepted as conforming to standard by

of Division/Section PPD Date: 11/8/06 ←Actual signature required

NOTE: Any subsequent changes in contents, pressures, temperatures, valving, etc., which affect the safety of this vessel shall require another review.

Reviewed by: Daniel Ottis (10394N) Date: 11/2/06

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): N/A
Lab Location Code: _____ (obtain from safety officer)
Purpose of Vessel(s): STORE VOLUME OF AIR TO OPERATE RAPID QUENCH CYLINDER
Vessel Capacity/Size: 3GAL Diameter: 8" Length: 15"
Normal Operating Pressure (OP) 135 PSI MAX
MAWP-OP = 65 PSI

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

Drawing #	Location of Original
N/A	

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 to the side

Copy data here:

653560
MANCHESTER TANK IL
W MAWP 200PSI @650°F
RT-NOM DMT -20F @200PSI
CAT# 304983 YR 2006
CRN H9635.5123467890
SH .094 GAL 3
HD .094 2:1 SE

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)

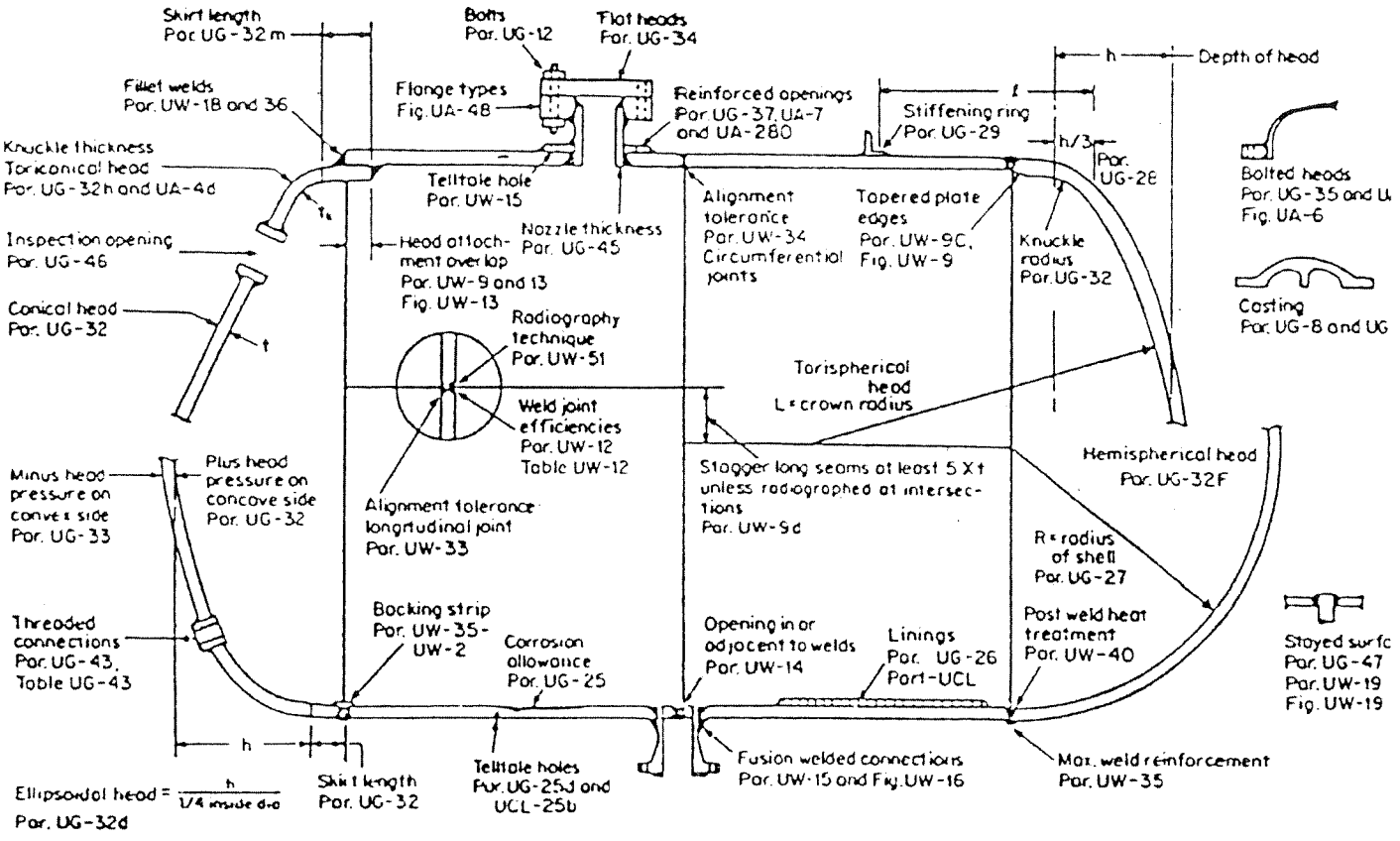

Figure 1. ASME Code: Applicable Sections

2B.

Summary of ASME Code

Item	Reference ASME Code Section	CALCULATION RESULT (Required thickness or stress level vs. actual thickness calculated stress level)
		vs
		vs
		vs
		vs
		vs

N/A

3. System Venting Verification Provide the vent system schematic.

Does the venting system follow the Code UG-125 through UG-137?
Yes X No___

Does the venting system also follow the Compressed Gas Association Standards S-1.1 and S-1.3?
Yes X 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:

Manufacturer	Model #	Set Pressure	Flow Rate	Size
CDI STL MO	SF50	150 PSIG	274 SCFM	½ NPT

4. Operating Procedure

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

5. Welding Information

Has the vessel been fabricated in a non-code shop? Yes_____ No X
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 X

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 X

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 COUPP PRESSURE CONTROL

Vessel Number _____

Vessel Drawing Number N/A

Maximum Allowable Working Pressures (MAWP):

Internal Pressure 200 PSI

External Pressure _____

Working Temperature Range -20°F ^{0}F +650 ^{0}F

Contents AIR

Designer MANCHESTER 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, valving, 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.

NOTES FOR COUPP PRESSURE CONTROL ℄ 10-11-06

MAX SUPPLY:

BOOTSTRAP COMPRESSOR 9 SCFM @150 PSIG IN USE (285 PSIG MAX)

INPUT TO VESSEL: REGULATOR < 30 SCFM

RELIEF VALVE 150 PSIG, 374 SCFM

CGA REQUIREMENTS:

(5.2.1) W/O FIRE $Q_A = \frac{.0085\,PV}{C}\sqrt{\frac{M}{Z}} = \frac{.0085 \times 214.7 \times 0.4}{356}\sqrt{\frac{29}{1.0}} =$

$= 0.01$ SCFM

(5.3.1) WITH FIRE $Q_A = .00035\,P^{1.1}_{e} = .00035 \times 214.7 \times 25 = 1.9$ SCFM

∴ RELIEF CAPACITY IS ADEQUATE