Index of COUPP-2L Engineering Documentation:

1) A Useful link to the PPD Drawing Database
    a. http://www-admscad.fnal.gov/MSDMain/cgi-bin/TP_PPDifind-web.pl

2) A Useful link to FESHM 5031, Rev. 06/2009 "PRESSURE VESSELS"
    a. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=183

3) COUPP-2L Single Line Electrical Distribution Diagram:
    a. The Single-Line Electrical Distribution document is a complete description of the COUPP-2L experiment "as-built" in the MINOS area at Fermilab.
    b. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=224

4) COUPP-2L Instrumentation Wiring Diagram:
    a. This group of documents provides documentation for the internal wiring of instrumentation and DAQ readout electronics. The documentation consists of:
        i. Top Level Instrumentation Wiring Document
        ii. Instrumentation Wiring Map
        iii. Diagram of the internal wiring of the SC-2345 instrumentation wiring chassis.

5) COUPP-2L Process Diagram:
    a. While not yet a finished product, the process diagram is in pretty good shape. The current version is a markup on which we have indicated the auxiliary equipment used for filling and draining operations.
    b. There has been considerable progress in checking the component sheet against the actual equipment and in updating component tags.
    c. Estimate May 14 for completion of process diagram & component sheet.
    d. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=56

6) The PPD/Technical Centers Department Hydraulic Cart:
    a. PPD/TC operates somewhat differently from PPD/MD in that work from PPD/TC is not documented in the "Engineering Notes" system maintained by PPD/MD. Carl Lindenmeyer of PPD/TC designed the mechanical elements of the hydraulic cart. Carl's work is largely hand drawn and documented in a physical notebook maintained by PPD/TC. The instrumentation and controls work on the cart was done by Jerry Zimmerman, and is documented separately.
    b. The original Hydraulic Cart Mechanical documentation from Carl Lindenmeyer has been scanned:
    c. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=54

d. The air tank on the COUPP-2L hydraulic cart meets the definition of a pressure vessel. It bears a "silver sticker" PPD10103 and is the subject of a pressure vessel note prepared by Carl Lindenmeyer, 10/11/06:
e. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=184
f. Hydraulic Cart Controls Document from Jerry Zimmerman:
g. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=55

7) The COUPP-2L Pressure Vessel:
   a. *This document is Andrew Szymulanski's original 28 September, 2004 Pressure Vessel Note for the Meyer Tool Pressure Vessel. Andrew includes appendices covering all elements of the experiment as it was originally configured.*
   b. *Note this is a 21 MB file.*
   c. http://coupp-docdb.fnal.gov/cgi-bin/ShowDocument?docid=185
   d. *Summary of the Appendices to PPD10096:*
      i. *Appendix 1: "Filling and Operating the 1 Liter Bubble Chamber"*
         1. *Appendix 1 is obsolete. Refer to COUPP-2L Operational Procedures for current information.*
      ii. *Appendix 2: "Meyer Tool and Mfg., Inc. Certificate of Compliance"*
         1. *Note the start of Appendix 2 is not flagged in the scanned copy. Beginning with the formal certificate, this appendix continues with 21 pages of supporting drawings and calculations.*
      iii. *Appendix 3: consists of the Meyer Tool drawing set for the pressure vessel. The drawings appear in the scanned copy only as an image of the title block of the folded drawings.*
      iv. *Appendix 4: consists of the "FORM U-1A Manufacturer's Data Report for Pressure Vessels"*
      v. *Appendix 5: "Determine the Relief Requirements for Vessel Exposure to Open Fires."*
      vi. *Appendix 6: "Heat Exchanger Coils."*
      vii. *Appendix 7:"Observation Port Window Technical Information."*
      viii. *Appendix 8: is obsolete. This consists of drawings for the first generation polyethylene shielding pile.*
      ix. *The last element in the scanned document is a Revision Note: "1 liter Bubble Chamber-Outer Vessel COUPP Revision to Engineering Note," 7/2/07, Kurt Krempetz. This note describes revisions to the pressure relief devices on the vessel. This note appears to be obsolete. A new note may be required to document the current pressure relief on the vessel.*
   e. Pressure Vessel Note Revision. 2010 COUPP-2L Vessel Pressure Relief. *To Be Written… [A word of explanation here. The 7/2/07 note describes a situation in*

which 4 different relief valves had accumulated on the vessel for various historical reasons. Prior to a run later in 2007 as I recall, the redundant valves were removed, leaving only a single appropriately sized relief valve on the top flange. I believe that this valve is in fact the one that was effectively providing the relief in the more complicated 4-valve situation. Removal of the redundant relief valves was appropriate, but does require a revision to the note.]

f. Pressure Vessel Top Flange Spacer:
    i. *Modification to the pressure vessel 6" diameter top flange assembly to accommodate the increased length of the upgraded 2-liter inner vessel assembly relative to the original 1-liter inner vessel assembly.*
    ii. *The Note interprets the flange as an element of the piping components and not as a vessel or a modification to the vessel. Hence this is an Engineering Note rather than a Pressure Vessel Note.*
    iii. *The reference:* PPD Document 656-v1, "MD-ENG-186 Coupp 1 Liter Chamber Spacer Flange," 28 May 2009, Dave Pushka.
    iv. http://ppd-docdb.fnal.gov/cgi-bin/ShowDocument?docid=656