

Magnet, Support and Infrastructure

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- Hall A Engineering Group Tasks for FY16
- Magnet Transfer to JLAB
- Transport and Storage of CLEO II
- Cold Test Planning and Coordination
- CAD Model Available to Collaboration

Hall A Engineering Group Tasks

FY16 (6MW design/10MW engineer)

- Participate in the removal of CLEO from CESR July – Sept 2016
- Shipping of CLEO parts to JLAB scheduled for Sept - Oct 2016
- Coordinate storage of CLEO components with property management
- Develop plan and coordinate setup of JLAB facility for cold test of cryostat
- Define utility and facility needs
- 3D magnet analysis to determine the amount of return iron needed to produce proper axial magnetic forces on the coils.
- 3D magnet analysis to aid in magnet mapping definition and defining forces
- FEA of magnet and detector supports
- Define new power supply
- Update resource loaded schedule and cost estimates; including cost benefit analysis of used equipment and definition of Jlab resources required

Magnet Transfer to JLAB

- Cornell has developed a comprehensive schedule for CLEO II disassembly and shipping to JLAB during their summer 2016 shutdown.
- All of the parts for CLEO II are scheduled to be shipped in Oct 2016.
- Developing the requirements for JLAB manpower needed to oversee the removal of CLEO components, inventory and organize for shipping and document the disassembly process to aid in reassembly at JLAB.

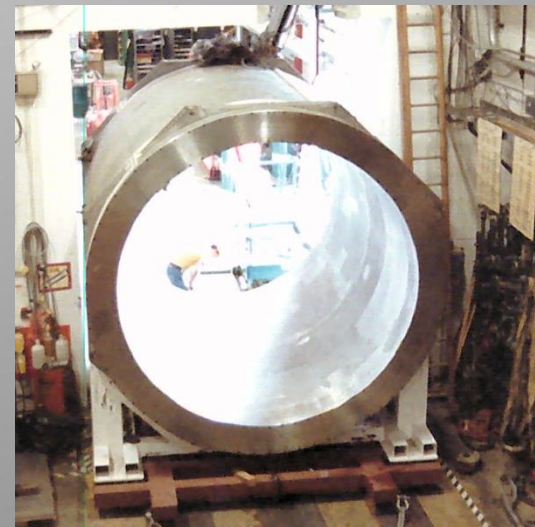
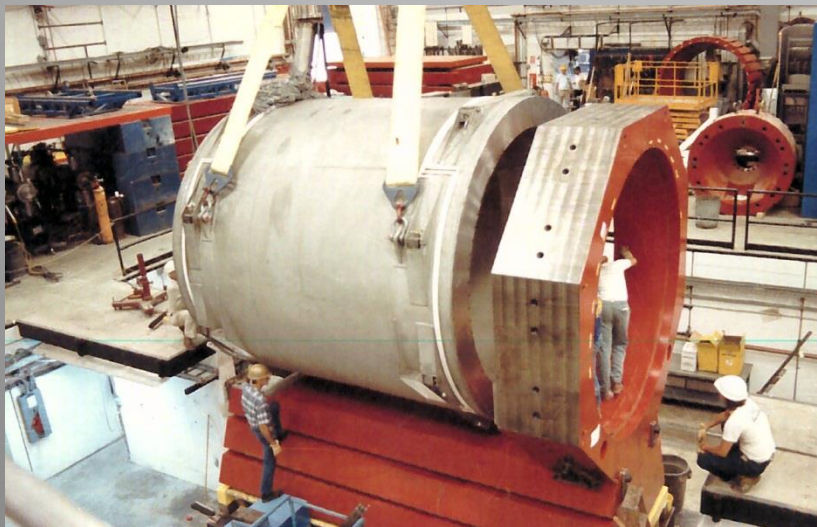
JLAB Facilities Preparation

Current planning scenario:

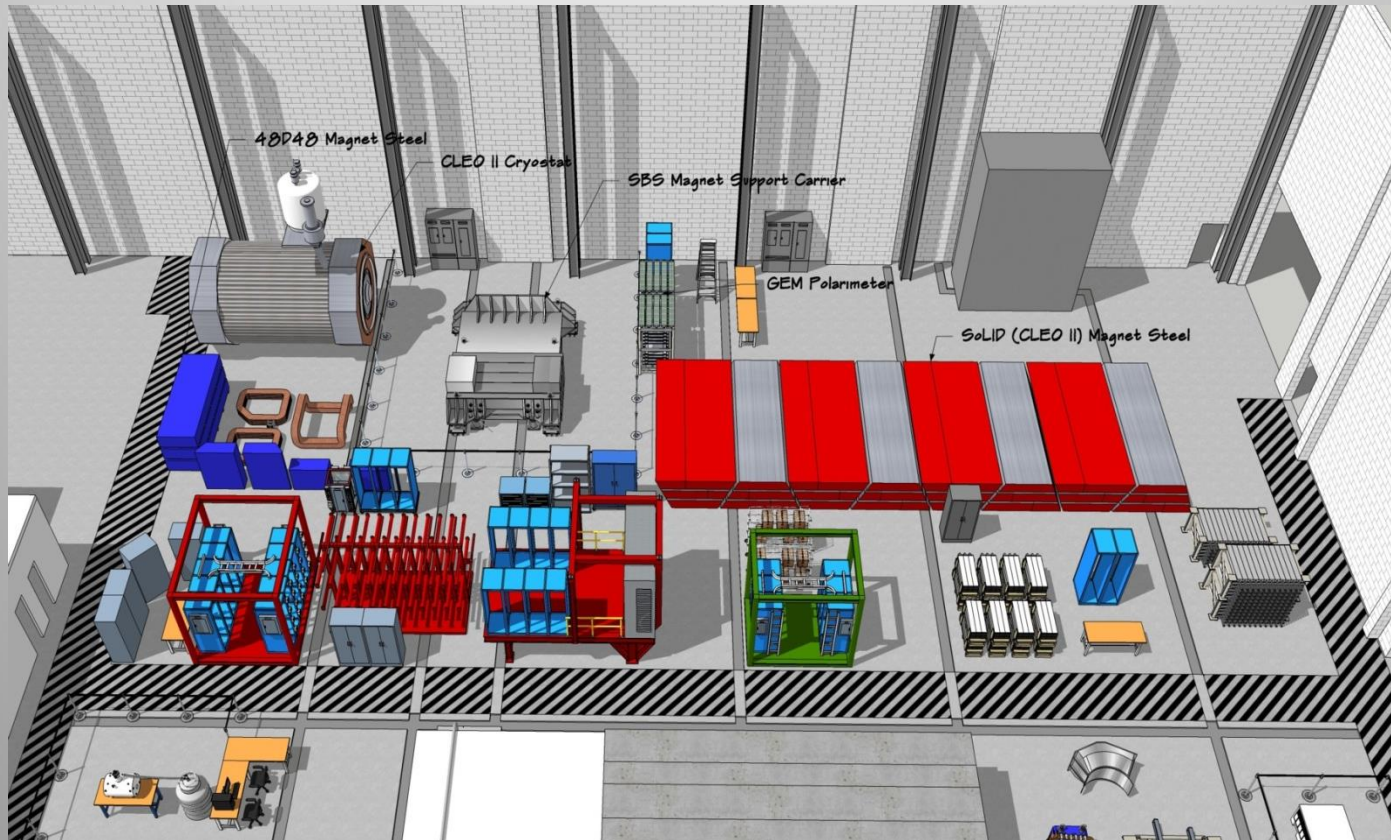
- Identify cold test location based on available utilities - Spring 2016.
- Through TOSCA modeling, determine the amount of return iron needed to safely operate the magnet at required fields and develop plan for installation – Spring/Summer 2016.
- Finalize storage location for remaining iron and develop a plan and budget for handling of material – Spring/Summer 2016.

Transport and Storage of CLEO II

- Disassembled and loaded on trucks for shipping by the Cornell personnel with oversight by Jefferson Lab. It will require 52 trucks to transport the magnet and related equipment.
- We have identified all of the parts of the CLEO magnet, with sizes and weights, anticipating a need for storage of these parts at Jefferson Lab starting October 2016, total weight of 1,053k lbs.
- The cryostat (44k lbs) and power supply will need to be stored in an environment-controlled area of approximately 400 square feet. Space in the Test Lab and utility needs are being requested.
- Working with Cornell to confirm the condition of the support and transport frames and plan for refurbishment if necessary.



Transport and Storage of CLEO II



- Proposed layout in the Test Lab high bay area.
- Exploring options to store iron in JLAB CMSA and protect blocks from the elements.
- Create a plan for rolling the cryostat into the test lab

Cold Test Planning and Coordination

- **Cold Test**

Leak test, pressure test, hi-pot and low current

Testing of DC power supply, controls, quench protection and any new cryogenic interfaces.

- **Cooldown Specifications**

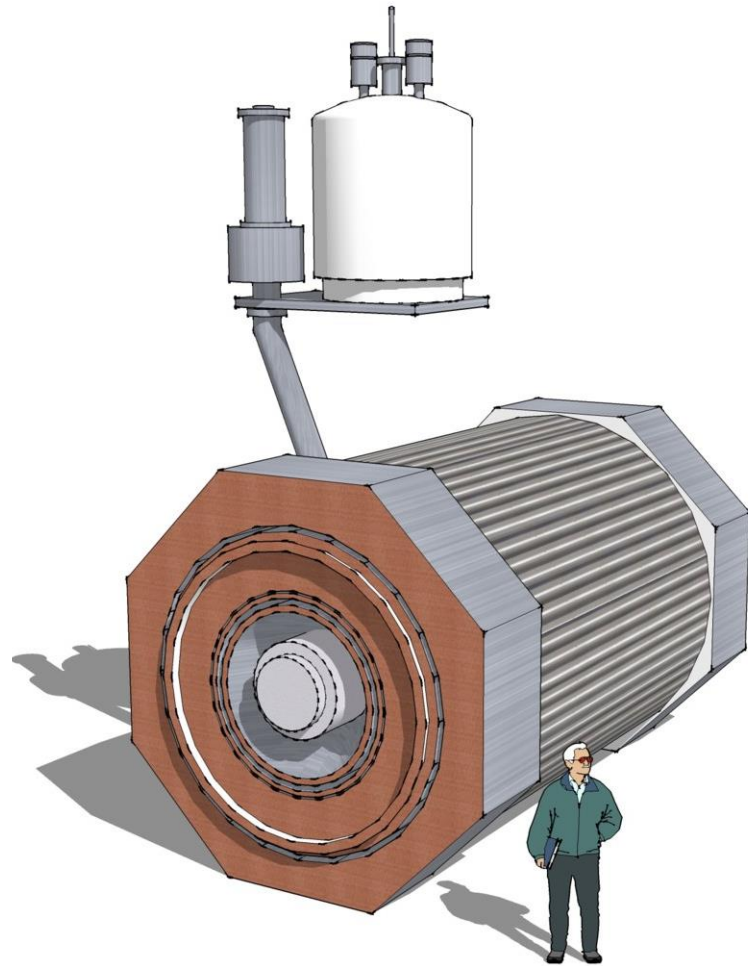
Cooldown to 4K

Liquid Pressure : (min) = 40 psia (25 psig)
(max) = 60 psia (45 psig)

Gas Pressure: same as liquid pressure

Liquid Flow Rate: 0 - 4 g/s

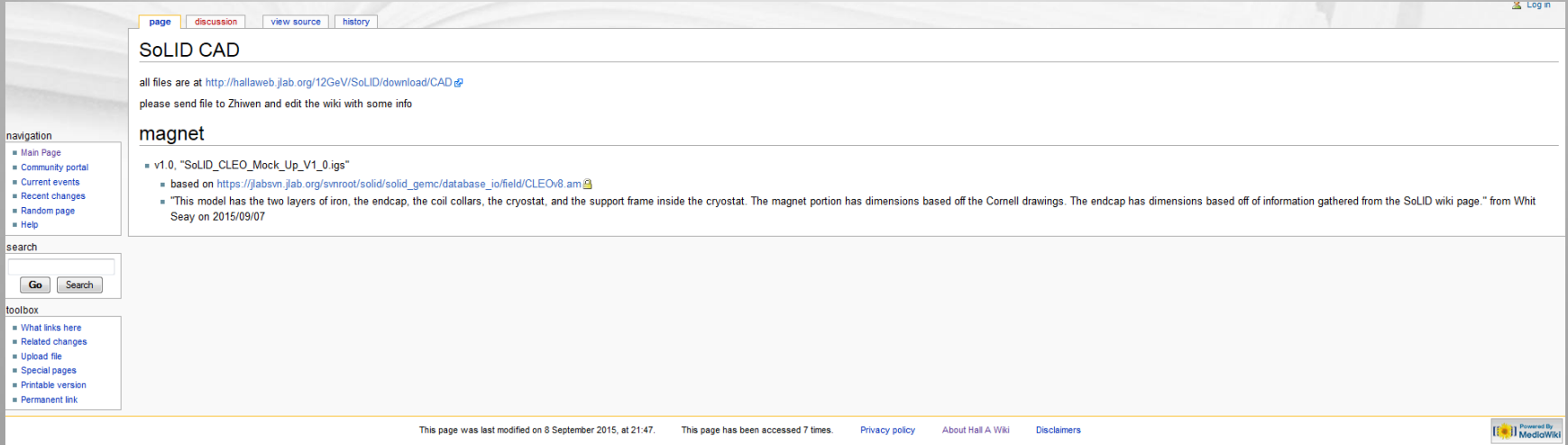
Gas Flow Rate: 4 g/s



Cold Test Planning and Coordination

- Based on TOSCA analysis, identify iron parts needed for cold test and flag them at Cornell for delivery directly to the test lab.
- Identify scaffolding and platform requirements for reassembling neck and service turret and support of the 700 L dewar.
- Develop an initial (basic) installation plan to identify facility and utility requirements that need to be addressed prior to delivery.
 - Items in excess of 50,000 lbs requires the use of both gantry cranes simultaneously
 - Can the new lifting beam be used with both cranes? Rigging limitations?
 - Reach of the cranes may dictate location of magnet
 - Cryostat can be lifted by a single gantry crane

Reminder - SoLID CAD Files



The screenshot shows a MediaWiki page for 'SoLID CAD'. At the top, there are tabs for 'page', 'discussion', 'view source', and 'history'. The main content area contains the following text:

all files are at <http://hallaweb.jlab.org/12GeV/SoLID/download/CAD>
please send file to Zhiwen and edit the wiki with some info

magnet

- v1.0, "SoLID_CLEO_Mock_Up_V1_0.igs"
 - based on https://jabsvn.jlab.org/svnroot/solid/solid_gemc/database_io/field/CLEOv8.am
 - "This model has the two layers of iron, the endcap, the coil collars, the cryostat, and the support frame inside the cryostat. The magnet portion has dimensions based off the Cornell drawings. The endcap has dimensions based off of information gathered from the SoLID wiki page." from Whit Seay on 2015/09/07

On the left side, there are navigation and search sections. The navigation section includes links for Main Page, Community portal, Current events, Recent changes, Random page, and Help. The search section has a search box and 'Go' and 'Search' buttons. The toolbox section includes links for What links here, Related changes, Upload file, Special pages, Printable version, and Permanent link. At the bottom, there is a footer with the text: 'This page was last modified on 8 September 2015, at 21:47. This page has been accessed 7 times. Privacy policy About Hall A Wiki Disclaimers'. There is also a 'Powered By MediaWiki' logo in the bottom right corner.

https://hallaweb.jlab.org/wiki/index.php/SoLID_CAD

<http://hallaweb.jlab.org/12GeV/SoLID/download/CAD/>
please send file to Zhiwen and edit the wiki with some info

SoLID CLEO Mock up V1.0 is the current version of the magnet and endcap that has been used over the last year in presentations by the engineering group.

Reminder - SoLID CAD Files

SoLID CLEO Mock up V1.0

