

PHENIX WEEKLY PLANNING



August 21, 2014
Don Lynch

This Week

PHENIX
REPORT
NORTH

- Continue prep for MPC-Ex North installation
- MPC North removal of failed modules repair/reinstall
- VTX/FVTX Repairs repairs continue
- Continue assembly of MPC-Ex North
- Continue sPHENIX support

Next Week

- Continue prep for MPC-Ex North installation
 - VTX/FVTX Repairs repairs continue
 - F/VTX replace Teflon lines with stainless
 - Continue assembly of MPC-Ex North
 - Continue sPHENIX support
-
- Saturday (8/23/2014) Electrical shutdown of 13.8 kV feeder:
 - All power to PHENIX except emergency power will be out from ~8:00 AM to 5:00 PM.
 - E. Desmond will power down PHENIX electronics before the end of the day Friday 8/22/14

2014 planned Technical Support & 2014 Shutdown

TECHNICAL SUPPORT NORTH

Summer Sunday prep AH, tours and restore AH	Done
Remove scaffolding from sta 1 south, Move CM South	Done
Install scaffolding in Sta 1 North	Done
MuTr Sta 1 South troubleshooting and repairs	Done ?
Maint. & Repairs for MPC South, BBC South, RPC1 South1	Done?
Repair and reinstall FVTX/VTX East & West	in progress -10/15/2014
VTX/FVTX Upgrade cooling lines, chiller preventive maintenance	in progress-10/6/2014
Troubleshoot intermittent water leak in MMS	7/30- 8/8/2014
Other Maint. In MMS	7/30-8/29/2014
Assemble & test MPC-Ex North, ready for installation	in progress-9/5/2014
Electronic Cooling Water High Temp Alarm	8/11-8/29/2014
F/VTX Cooling line upgrades teflon to stainless	8/25-10/31/2014
F/VTX N2 supply manifold upgrade	8/25-10/31/2014
F/VTX Chiller preventative maintenance	8/25-10/31/2014
Prep MPC-Ex North installation area	8/8-8/15/2014
MuTr Sta 1 & Sta. North troubleshooting and repairs	8/11-9/5/2014
MPC North-remove damaged crystals, repair as necessary, re-install	8/11-9/5/2014
Install new MPC-Ex North, thoroughly test before moving CM north	9/8-9/26/2014
Reinstall MMS east vertical lampshade	9/2-9/5/2014
Assemble & test MPC-Ex South, ready for installation	9/2-10/3/2014

2014 planned Technical Support & 2014 Shutdown (cont'd)

Remove Sta 1 N scaffolds, Move CM North, Install scaffolding in Sta 1 S	9/29-10/3/2014
Install MPC-Ex South	10/6-10/24/2014
Reinstall, reconnect, re-survey and re-commission VTX/FVTX	10/16-11/26/2014
Other detector support	TBD
Infrastructure Maintenance and Improvement	TBD
Decommissioning of obsolete PHENIX detector equipment	TBD
sPHENIX Support	on-going
End of Shutdown Tasks (Move MS north, roll in EC , install collars, remove 10 ton cart, plates and manlifts, build shield wall, etc.)	10/27-11/26/2014
DC East & West maintenance & repairs	11/17-12/5/2014
Pink/White/Blue Sheets	12/1-12/19/2014
End of Shutdown Party	????
Start Flammable gas flow	????
Close shield wall, install radiation interlocks and prepare for run 14	12/31/2014
Start run 15	1/2/2015

Muon Tracker Shutdown Work List – summer 2014

- testing as MPC-EX installed, particularly before closing Sta-1's
- **fix North Arcnet – N.2.7.1, North Sta-2 Oct-7 Chassis-1 (bad cable?) - Done**
- fix packets that were disabled for Run14
 - 11035,36 – South Sta-1 Quad-4 Chassis-3
 - **11267,68 – North Sta-2 Oct-7 Chassis-2 - Done**
- replace boards for most frequent FEM problems from run
 - 11195 - North Sta-1 Quad-3 Chassis-3?
 - might have already done this; check history (changed RX 3/14/12)
 - 11064 – South Sta-2 Oct-3 Chassis-3 - unreachable
- N341 HV trip problem?
- auto-reboots of ArcNet and iocondev's for calibration?

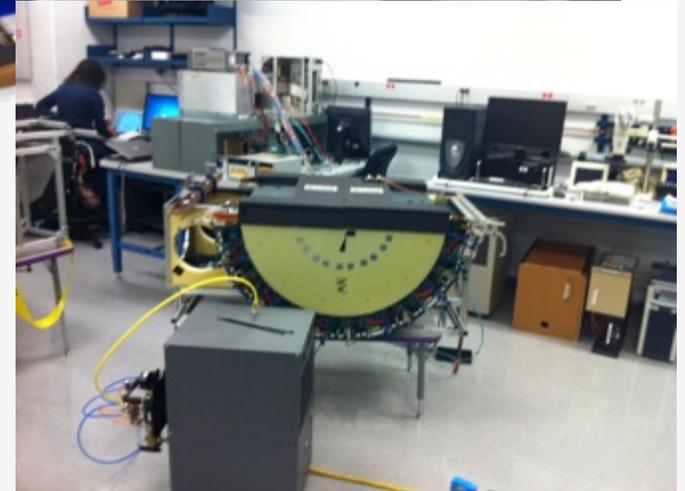
- Access needed:
 - South & North Sta-1
 - **Inside North Sta-2 on bottom Done**
- Main Issue – Manpower

Work Permits for 2014 Shutdown

- **Start of Shutdown - Done**
- **VTX/FVTX East - Done**
- **MPC-Ex - Done**
- **MuTr Sta 1 N & S - Done (scaffold agreement done)**
- **MuTr North station 2/3 - Done**
- **MuTr South station 2/3 & MMS South Water leak - Done**
- **MPC North - Done**
- DC East/West – need in November
- End of Shutdown – need in November



VTX/FVTX east & west repairs/
upgrades under way



From Melynda Brooks:

For anyone interested, here is a short status report on the FVTX detector checkout (more details in e-log):

--Good news: East and West side detectors are now basically fully functional. The NW5 ROC was replaced as well as NW4 which lost its SC communication (generally means a connector got damaged on the board)

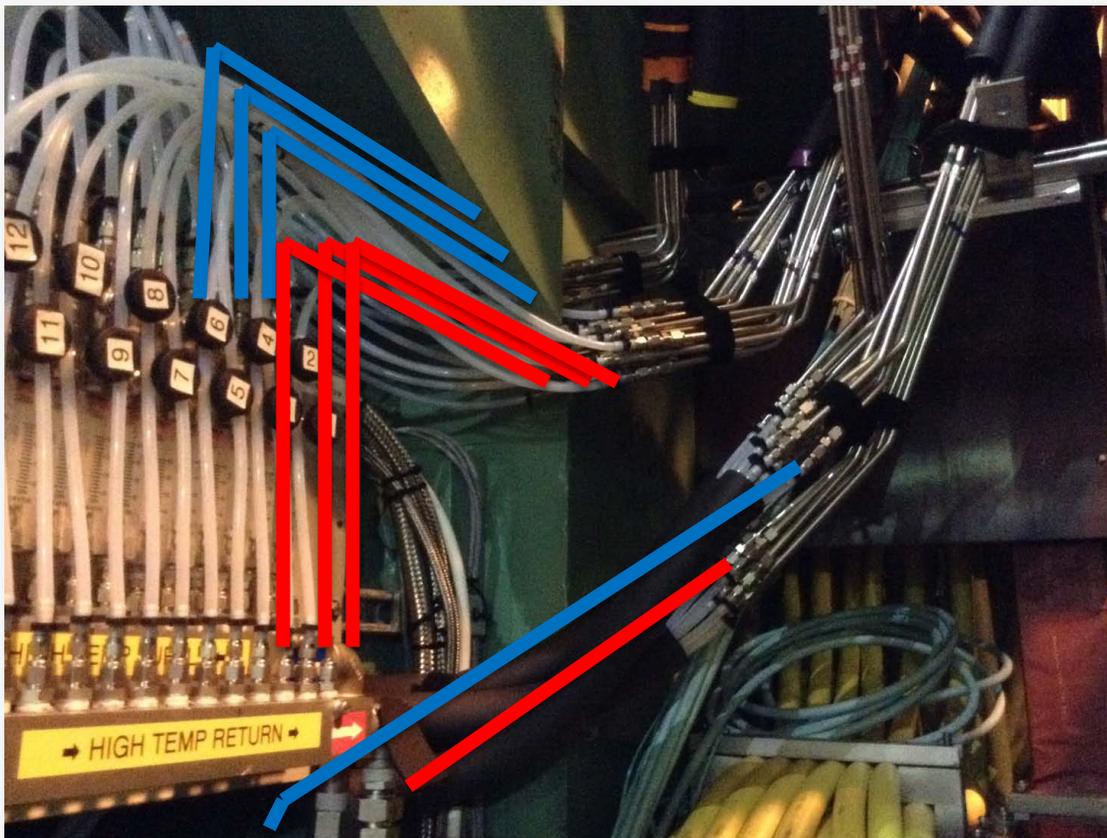
--News of undetermined status - once again all east-side detectors which had issues obtaining latch in the IR operate fine in physics. Eric, I and others have been discussing what we know about the problem and possible paths forward (I also tried to summarize this in an e-log). We will try to arrange a phone discussion with anyone who might be interested in participating to relay what we know about the problems in the IR and what we should do before re-installing. For now, all the ROCs that were in the IR have been left in place

Many thanks to Mike, Eric for the help in testing and ROC replacement.

Top manifold has 13 Supply and 13 return lines.
Both North and south need to be replaced.

Bottom manifold has 9 Supply and 9 Return lines
Both North and South need to be replaced

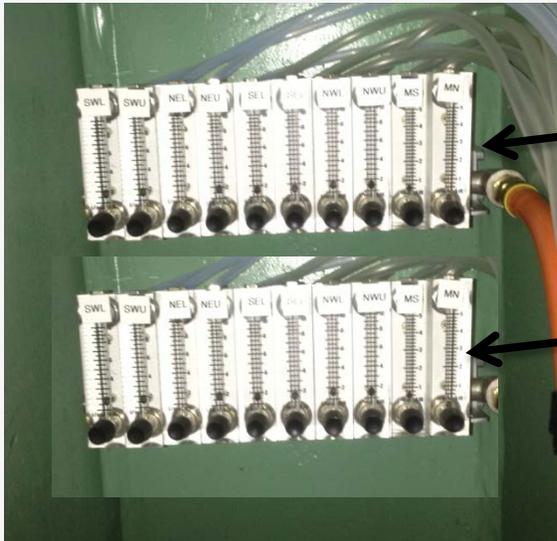
Current labeling on tubes needs to be maintained and copied to new lines



Bends need to be done carefully so not to restrict flow. Swage elbows can also be used for sharp bends

Replace All Teflon lines with 1/4" ID 316 thin walled Stainless
McMaster
Coil: 89995K82
Or Rigid with Min ID 0.21" (89995K288)

VTX/FVTX N2 Supply Manifold.
 Located on south side of central
 magnet



Original N2 Distribution Panel

New N2 Distribution Panel

- 10 flowmeters
- 0-10lpm
- Output ¼" I.D barb
- Leave about 10" space between manifolds.

Shutdown work on chillers to help with reliability

1. Change pump seals on chillers 1 and 3
 - Chris replaced chiller 2's pump seal. There was some trial and error to get it right.
 - We have these parts
2. Replace both control solenoids and Filter on chiller 1 and 2
 - We have these parts
 - BNL HVAC guys. Schedule for Beginning of OCT
3. General annual maintenance on all 3 units listed in manual
 - HVAC guys/ Phenix Tech



Modifications to Water lines to make switchover less time consuming.

Permanently connect water lines to all 3 chiller through a new 3 channel manifold. Currently the manifold only has 2 channels. It needs to have a 3rd channel added for the spare chiller. We should also replace the flowmeter s with ones that have a smaller scale.

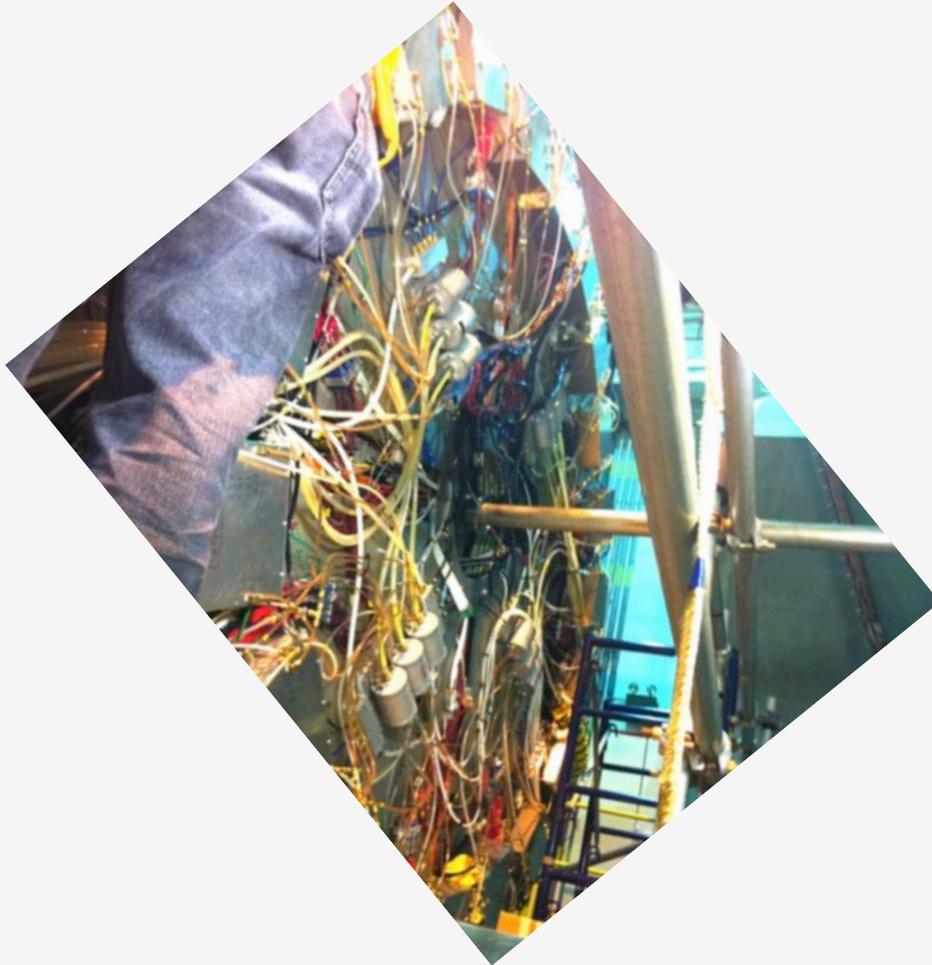


Manifold Location

Instrument spare chiller with alarms similar to other two chillers.

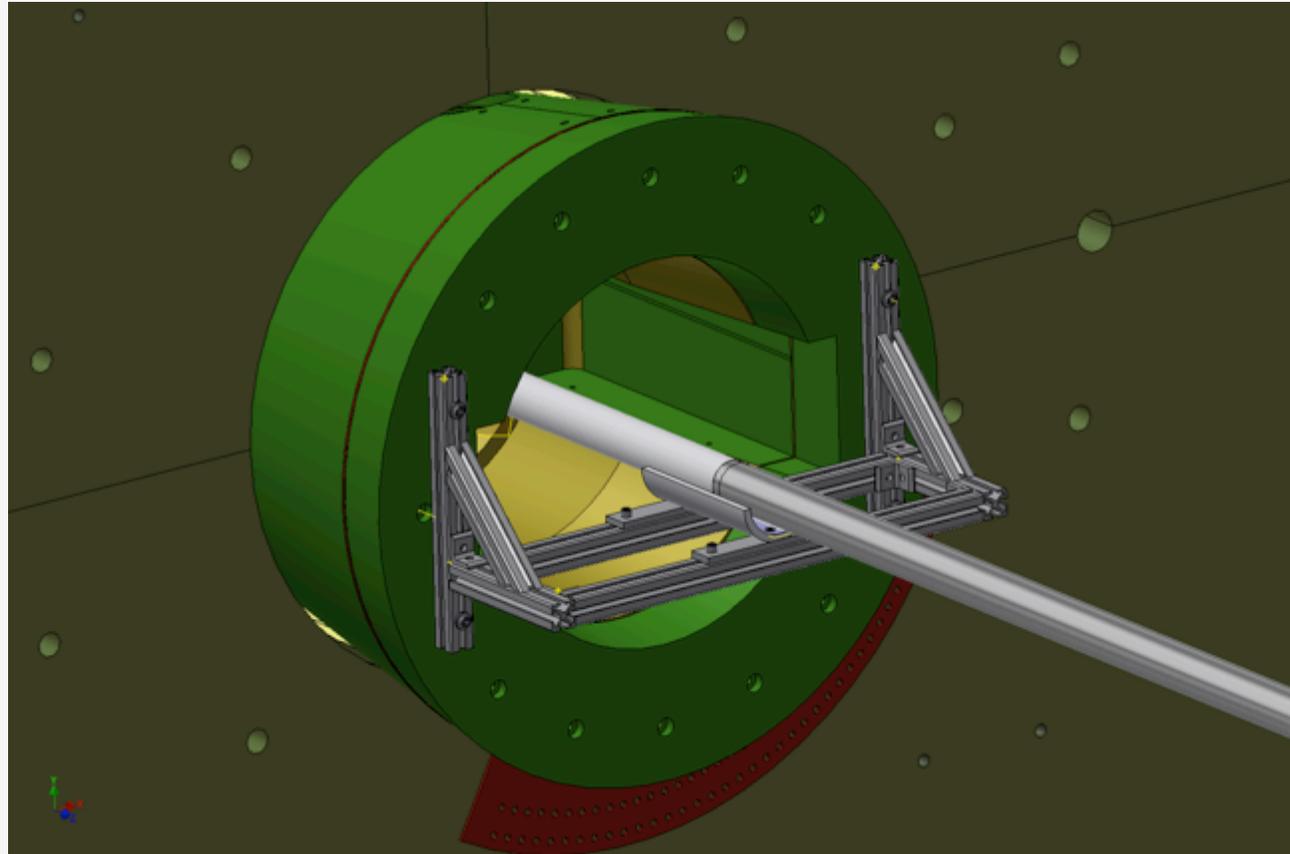
1. Need to add float switch to lid. (I have parts)
2. A third strobe and audible alarm added to rail. (Frank did this last time)

MPC-Ex Prototype removed and relocated to 510



8/21/2014

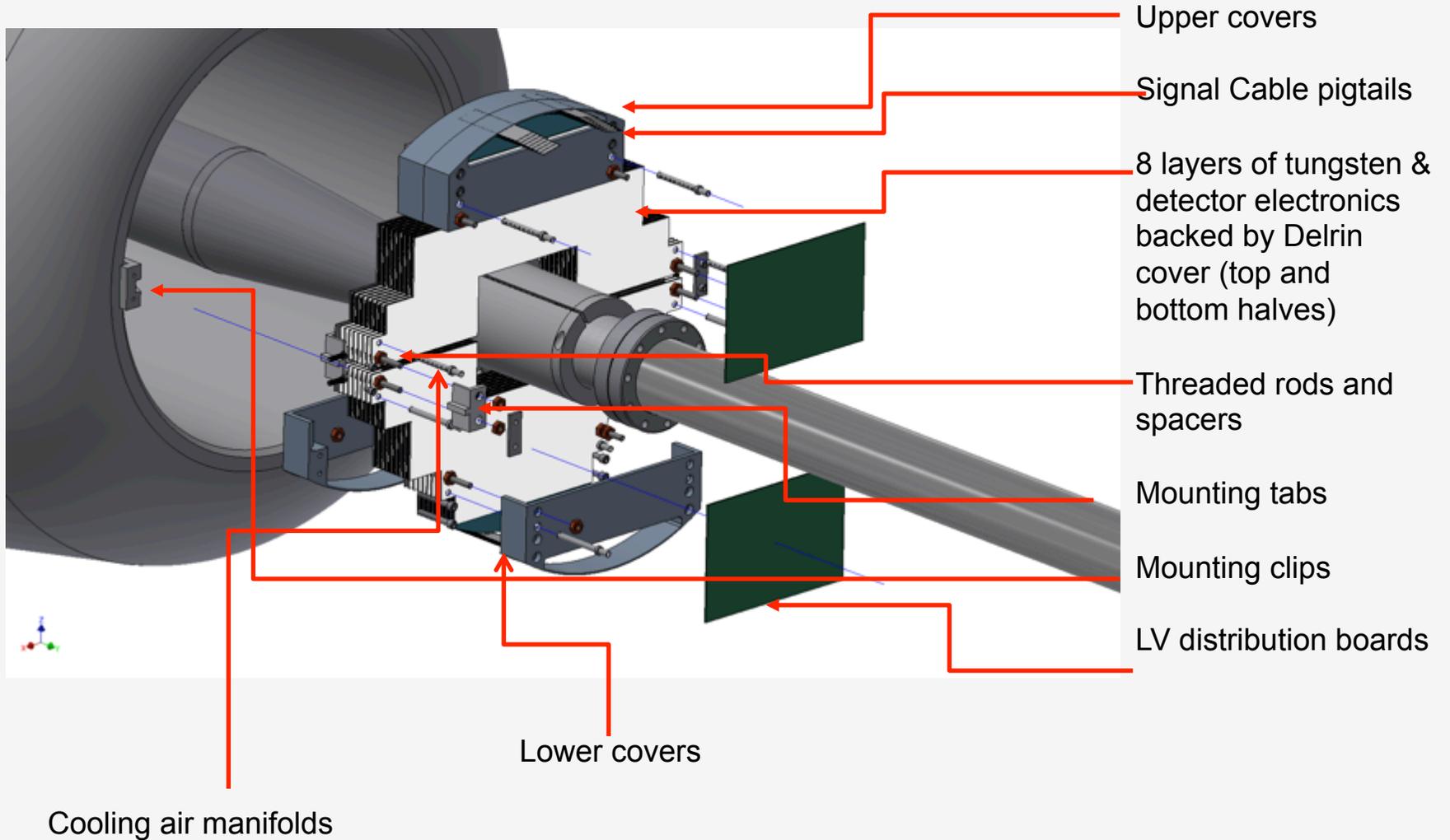
MPC-Ex North & South

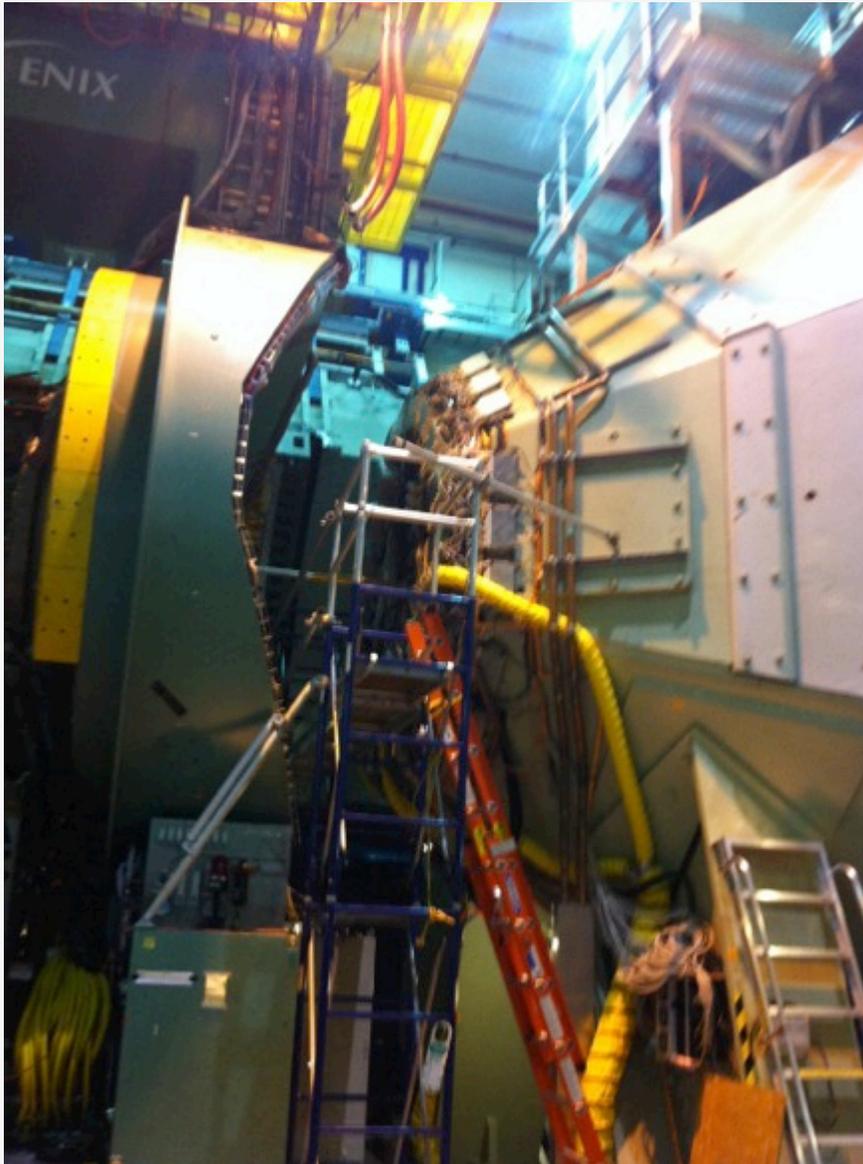


MPC-Ex North Beam pipe temporary support

MPC-Ex Exploded view

PHENIX
EXPERIMENT
MPC-EX





Scaffolding moved
to north station 1

MPC-Ex North Prep
is underway

MPC-EX Fabrication Status

- Micromodule Fabrication and Testing (BNL/SB)
 - 192 modules required per MPC-EX arm (384 total)
 - As of 8/6 a total of 216 micromodules have been assembled:
 - 146 micromodules wire bonded and tested
 - Of these 129 are “good” – good leakage current and no dead areas
 - Of remaining 17 - 6 “dead”, 2 have confirmed dead areas, 11 require additional testing
 - 70 micromodules in wire bonding 8/6-8/7
 - Sufficient micromodules on hand for MPC-EX N very soon
- Sensor Testing and Delivery
 - Sensor testing limiting factor this week
 - Youngil will deliver 50 tested sensors next week 8/9, giving ISU time to catch up
 - Total delivery will be 440 sensors + >40 additional “2nd class” sensors (slightly higher leakage current)
 - Additional 100 ROCs have been ordered, sufficient parts on hand to “overproduce” to account for losses at various production stages.
- Carrier Boards
 - Nikki and Sarah pulling together boards and tungsten for lamination (Mike L.?)

MPC-EX Electronics

- Added Chuck Pancake and Maki to FEM design/firmware
- Rev0 FEM is being used for FPGA development but not acceptable for final detector:
 - Choice of FPGA pins for LVDS not consistent with mfg. specification
 - Some wire-mod error correction
 - Change in design of readout cable routing and slow controls connection
 - Underway at ISU, re-route by 8/8, finalize and send out for production week of 8/11 (10-day turn-around)
- FEM P/S Board in Production
- Electronics Box Mock-Up Underway (Sarah Campbell)
- Remaining Elements:
 - RPi to LVDS for FEM connection (need designer, Andrey?)
 - Cable interconnect (L/R styles – Sal? Just settled last week...)
- Electronics for the North Arm are going to come in at the last minute...

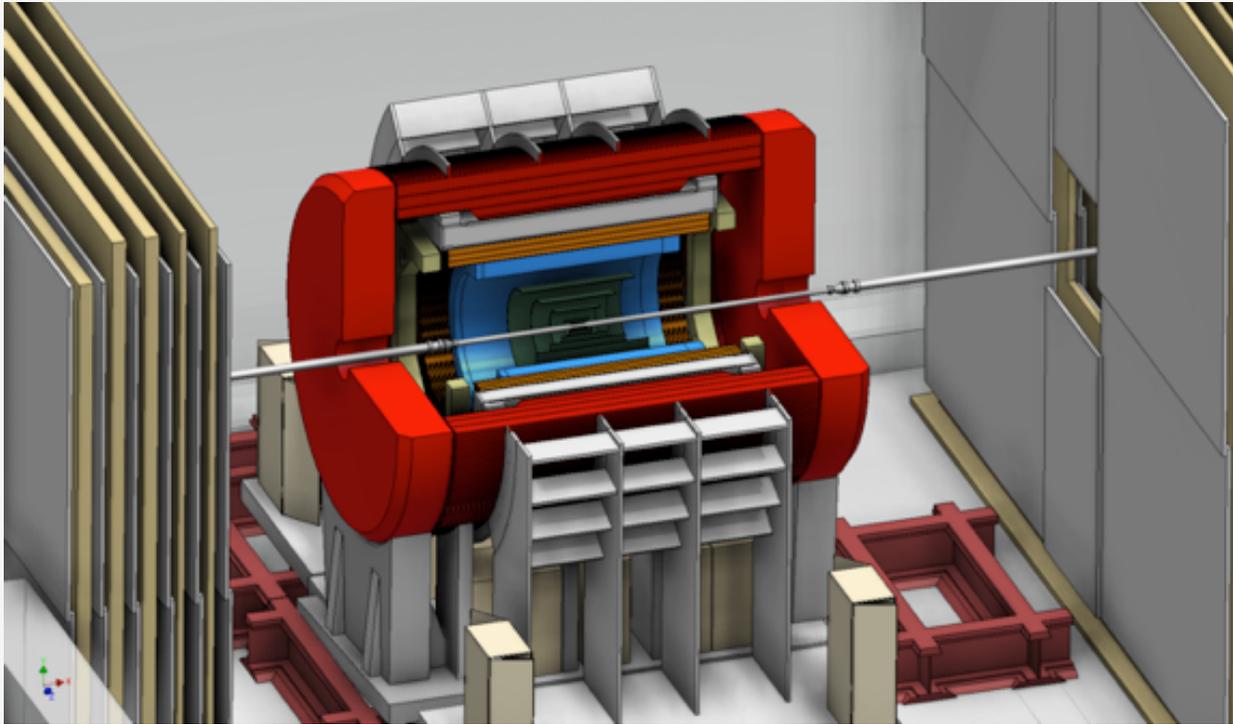
Electronics Cooling Water High Temperature Alarm

Display showing temperature of cooling water

Add Alarm to Panel



PHENIX NORTH



Magnet Update

Notes from yesterday's bi-weekly magnet meeting:

Shipping fixtures are done or will be by the end of the week. Crate to be received this week and sent on to SLAC.

Work planning at SLAC. Paul K. will email SLAC outlining our filtering and shipping prep plans, and request that SLAC work permits and any other planning required at SLAC be ready for Paul K. and Mike Racine visit next week when shipping fixtures (agent & stack) will be installed. Expect to contact shipper next Friday (8/29) to schedule pick up of all magnet parts 1 working week later (9/8, labor day in that week).

Work planning at BNL for receipt of magnet and parts. Dave P. will coordinate. Biggest item is critical lift, Paul K. is doing FEA to support that and determine whether extra wide lifting slings are needed as were used at SLAC. After Paul finishes his analyses he will pass them on to Dave to procure the appropriate slings (if necessary) and submit the critical lift analyses to Mike Gaffney next week.

Magnet Testing

- Safety Review - Don L. will prepare an outline of magnet testing plans. Yousef will coordinate with lab safety committee and cryo safety committee what items will need to be reviewed in depth based on outline plan. Some discussion of what safety committee will need to review for ASME pressure vessel compliance of valve box. Paul K. will ask SLAC if they have any relevant ASME compliance documentation.
- More details for magnet testing will be decided after parts are received.
- Schedule - Roberto indicated that he would have a 6 month window 1/1/15 - 6/30/15 to work on magnet testing during which time the refrigerant system is available while ERL is shut down. It was agreed that we should schedule the magnet testing during this time period. sPHENIX management will come up with a more detailed schedule by the next bi-weekly meeting (9/3). Schedule will include receipt of magnet, design of modified stack, Design and safety reviews, assembly and fabrication of cryo, and electrical and monitoring components and fixtures , cool down (~1 month) and any other relevant tasks.

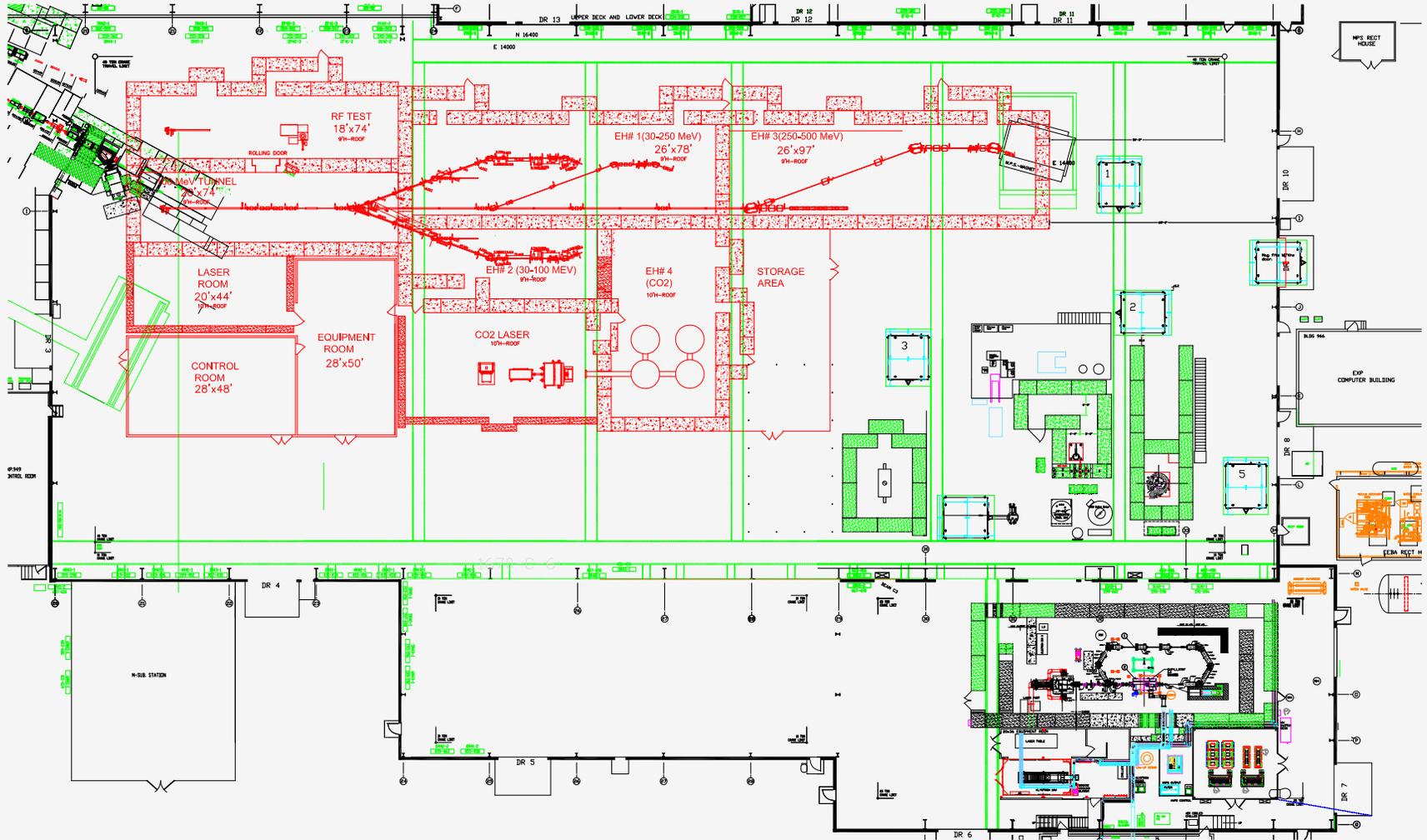
Magnet Update (cont'd)

Stack modifications – It was agreed that Paul K.'s design for the modification is essentially what we want to do, but Roberto pointed out that the 2 phase He exhaust line would create a vapor trap as currently proposed. It was agreed that we would wait until we received the equipment and examined the feasibility of bending/ or otherwise modifying the existing outlet tube for the stack modifications.

Other relevant issues-

- It was discussed whether to rotate the magnet to its final orientation after moving it to its test location. It was agreed to leave it in the “stack down” orientation to facilitate examining and possible modification, and rotate it to the operating position at a later time.
- Paul G. requested info concerning monitoring and control of the electrical and cryogen supplies to the magnet both in the testing area and later when installed at PHENIX. Paul will coordinate with Roberto Than (cryo) and CAD power supply group (electrical) to gather the info he will need.

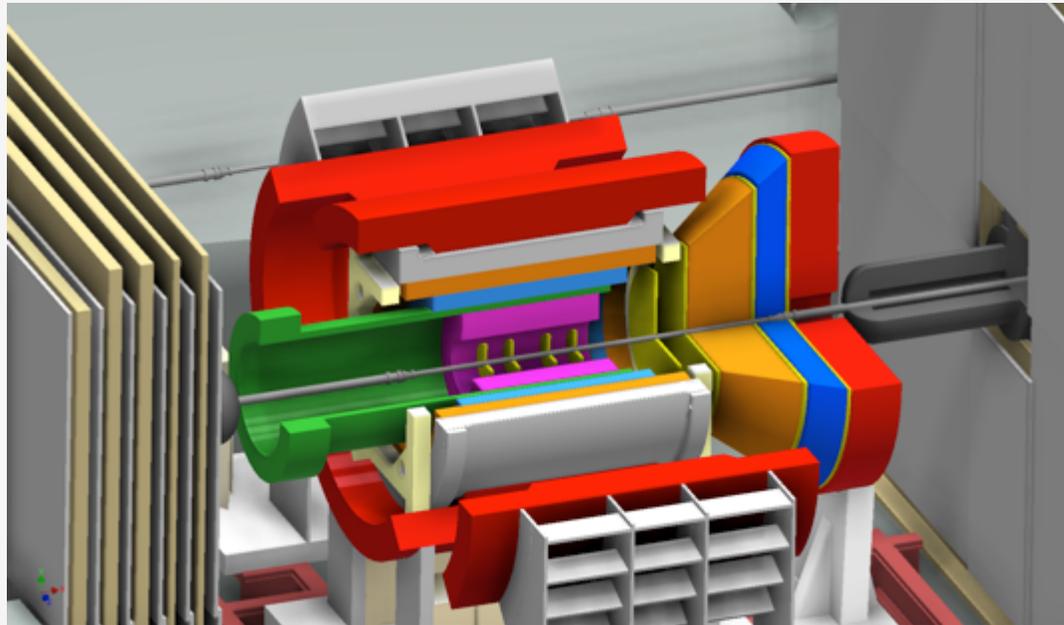
PHENIX NORTH PROJECT REPORT



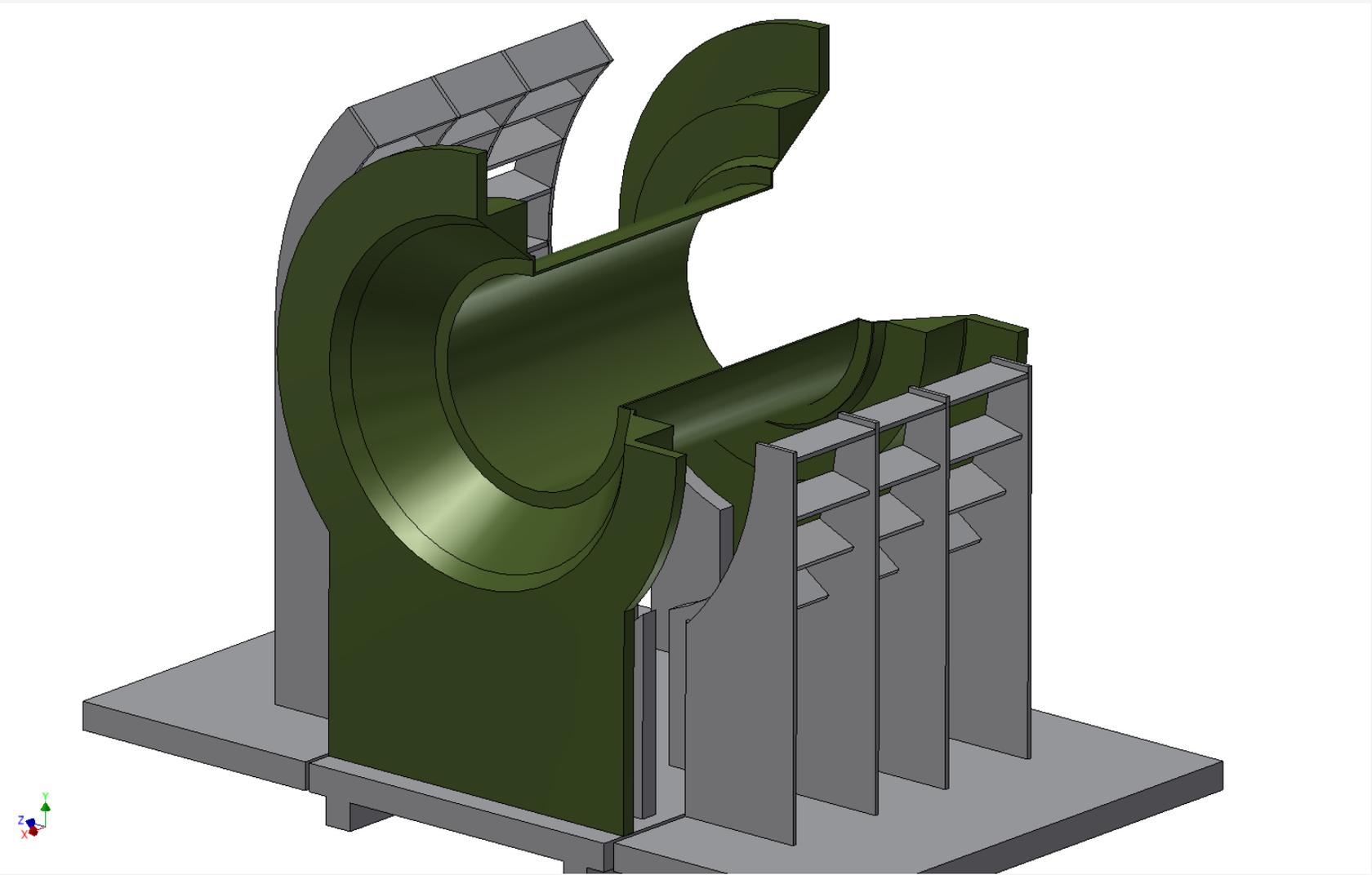
sPHENIX Design

- No recent changes to envelope drawings
 - Expect to add support structure envelop
 - Inner support structure plan is evolving
- sPHENIX Assembly Plan in development
- Design Specification Documents being prepared for:
 - 1) **Global system (includes decommissioning, infrastructure & installation)**
 - 2) **HCal Outer**
 - 3) **HCal Inner**
 - 4) **EMCal**
 - 5) **Calorimeter Electronics**
 - 6) **DAQ/Trigger**
 - 7) **Tracker**
 - 8) **Magnet**

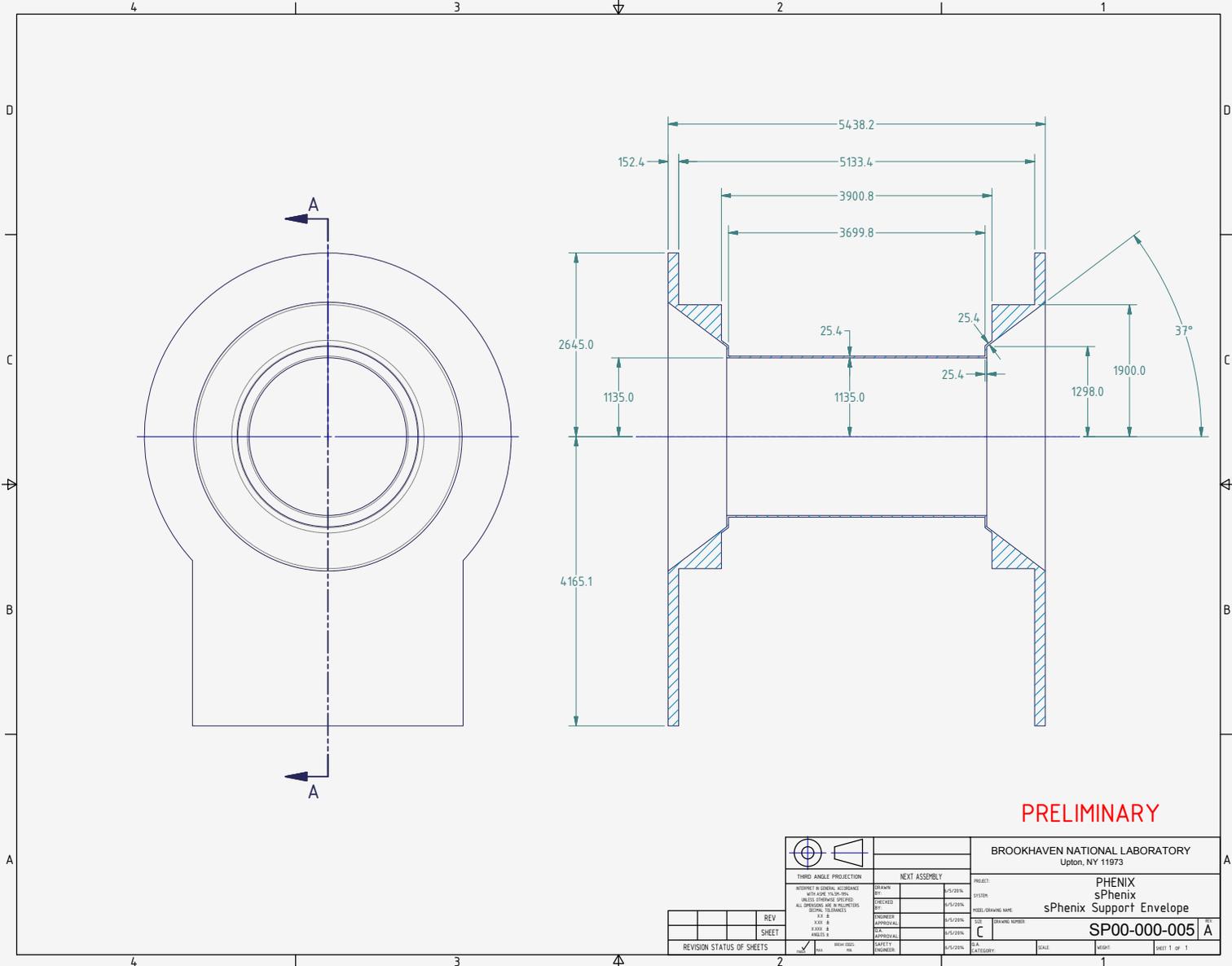
ePHENIX



PHENIX 7 SDAOR 4-ON



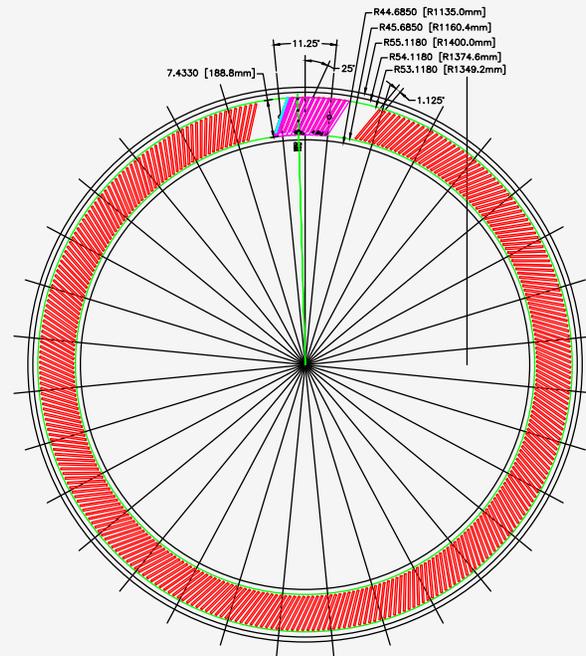
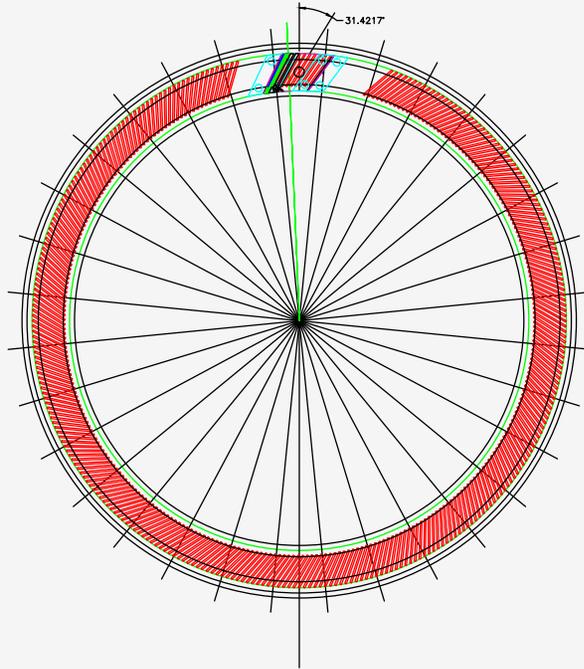
PHENIX SUPPORT ENVELOPE



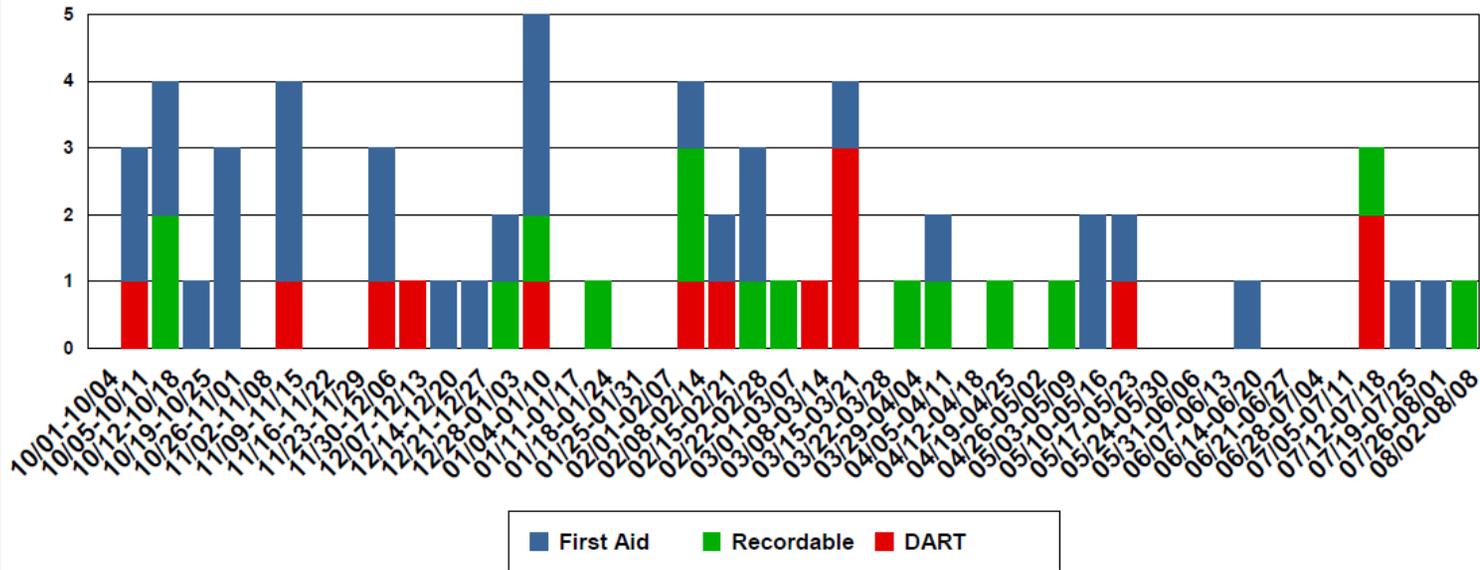
PRELIMINARY

				BROOKHAVEN NATIONAL LABORATORY Upton, NY 11973	
THIRD ANGLE PROJECTION UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED		NEXT ASSEMBLY DRAWN BY: [] CHECKED BY: [] ENGINEER BY: [] APPROVAL BY: [] DATE: []		PROJ. DET.: PHENIX SYSTEM: sPhenix MODEL OR PART NAME: sPhenix Support Envelope DRAWING NUMBER: SP00-000-005 A	
REVISION STATUS OF SHEETS		REVISION NUMBER: [] REVISION DESCRIPTION: []		SCALE: [] SHEET 1 OF 1	

PHENIX UK - SOUTH NORTH



Injuries Per Week (FY)
As of 8/8/2014



Injury Status:

FY14 YTD: DART – 14, TRC – 29, First Aid – 31

FY13: DART – 16, TRC – 38, First Aid – 53

FY12: DART – 19, TRC – 36, First Aid – 69

FY13 Injury Listing: <https://intranet.bnl.gov/esh/shsd/seg/Occlnj/BNLInjuries.aspx>

Recent Injuries		
8/4/14	Recordable	An employee was stung on the finger by a yellow jacket in his office. At the OMC, first aid was given.
7/18/14	Recordable	An employee was turning a valve while making some machine adjustments and injured his elbow. At the OMC, first aid was given and the employee returned to full duty. Update: Later the employee was given a prescription for Physical Therapy making this a recordable case.



Recent Events		
8/1/14	SC-BNL	<p>Facilities & Operations (F&O) was preparing to remove a strobic fan from the roof of Building 480. In order to remove the equipment, the BNL Riggers had set up a mobile crane (boom was extended and hook lowered to the area of the lift) and cordoned off a safe area with red "DANGER" tape. During the F&O safety briefing, an employee from the Condensed Matter Physics Department approached the red "DANGER" tape from the parking lot and began to walk under the barrier. Multiple F&O staff called out to the employee instructing him to stop. The employee continued to enter the building, despite being followed by F&O staff that continued to request that he stop. It is important to note that the removal of the strobic blower had not yet begun and no overhead hazard was present at the time of the incident. No injuries or damage occurred as a result of this incident. (Event Link)</p>



Where To Find PHENIX Engineering Info

2014 Shutdown Continues !



Newest PHENIX Biker

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm