

PHENIX
Technical Support '14



October 2014 DC Meeting

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9/10/2014

PHENIX Technical Support '14

- Major Projects This Shutdown:
 - VTX/FVTX Repairs and Maintenance
 - MPC-Ex Prototype removal - Done
 - MPC-Ex North & South Installations
 - MuTr maintenance (all stations)
 - MPC North Repairs and modifications to accommodate MPC-Ex - Done
 - DC East & West maintenance
- Other Detector support as necessary
- sPHENIX project planning and engineering continues



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2014 planned Technical Support & 2014 Shutdown

Procure & Fabricate parts for MPC-Ex North and South	Done
Set up Physics lab for FVTX/VTX east	Done
End of Run Party	Done
MuID Efficiency Measurement (Itaru, requires cooling water & isobutane)	
VTX /FVTX Cold/warm tests & evaluation, MPC-Ex Voltage tests	Done
Start of Shutdown Tasks (purge flammable gas, disassemble and stow shield wall, remove collars, move EC to AH, Move MMS south, etc.)	Done
Remove MMS east vertical lampshade	Done
Troubleshoot intermittent water leak in MMS	Done
Other Maint. In MMS	Done
Summer Sunday prep AH, tours and restore AH	Done
Install scaffolding in Sta 1 South	Done
Remove MPC-Ex prototype	Done
MuTr Sta 1 South troubleshooting and repairs	Done
Remove scaffolding from sta 1 south, Move CM South	Done
Install scaffolding in Sta 1 North	Done
Open MMN hatch, MuTr North Sta 2 & 3 maintenance and repairs	Done
Remove FVTX/VTX East & West to PHYSICS, repair and reinstall	7/14 – 10/15/2014
VTX/FVTX Upgrade cooling lines, chiller preventive maintenance	7/21-10/6/2014
Maint. & Repairs for MPC South, BBC South	Done
Assemble & test MPC-Ex North, ready for installation	Done
MuTr Sta 1 & Sta. North troubleshooting and repairs	Done
Electronic Cooling Water High Temp Alarm	8/11-9/30/2014
Prep MPC-Ex North installation area	Done
MPC North-remove damaged crystals, repair as necessary, re-install	Done
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
Reinstall MMS east vertical lampshade	9/2-11/15/2014
Install new MPC-Ex North, thoroughly test before moving CM north	9/8-10/20/2014
Assemble & test MPC-Ex South, ready for installation	9/2-10/10/2014



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

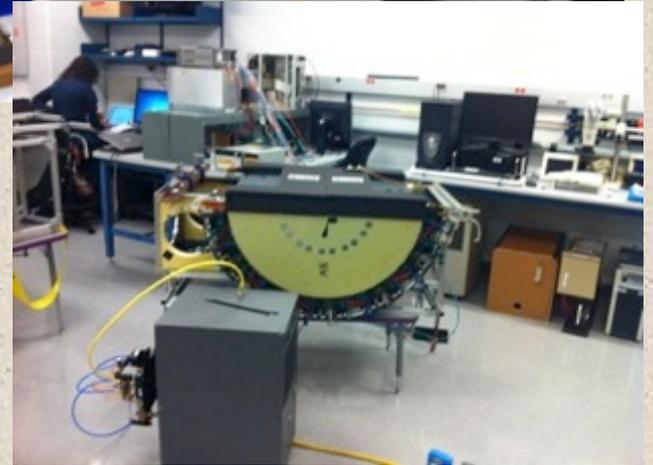
Remove Sta 1 N scaffolds, Move CM North, Install scaffolding in Sta 1 S	10/20- 10/21/2014
Install MPC-Ex South	10/23-11/10/2014
Reinstall, reconnect, re-survey and re-commission VTX/FVTX	10/16-11/26/2014
sPHENIX Support	on-going
End of Shutdown Tasks (Move MS north, roll in EC , install collars, remove 10 ton cart, plates and manlifts, build shield wall, etc.)	12/1-12/12/2014
DC East & West maintenance & repairs	11/17-11/30-12/5
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

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 October?**
- End of Shutdown – need in November

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VTX/FVTX east & west repairs/upgrades
under way

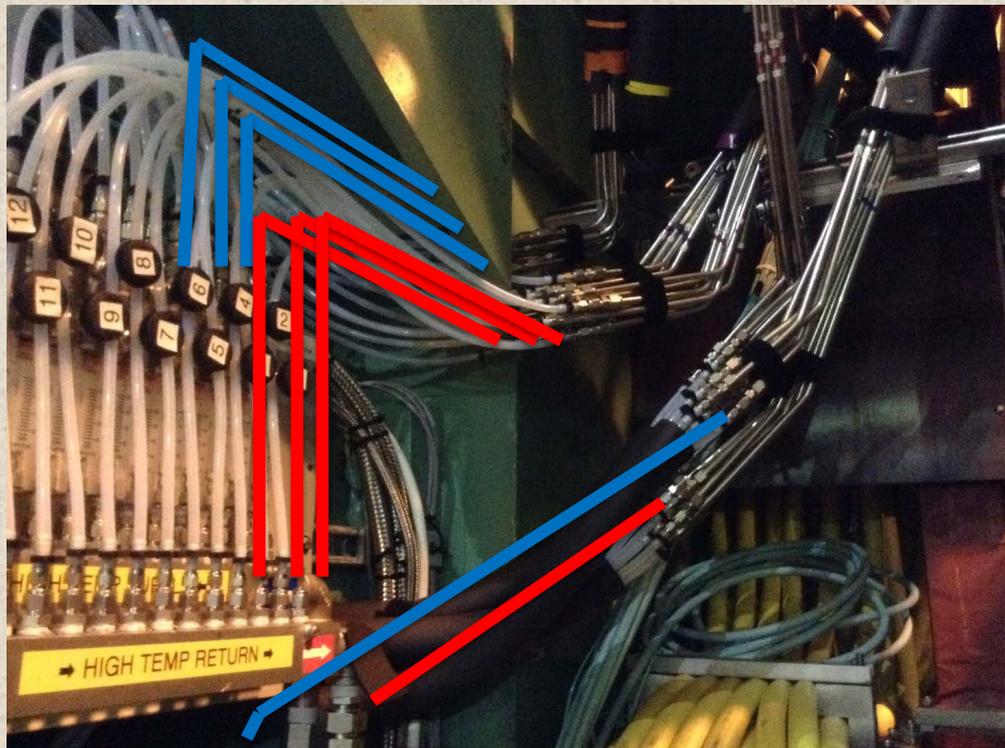


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Top manifold has 13 Supply and 13 return lines.
Both North and south need to be replaced.

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

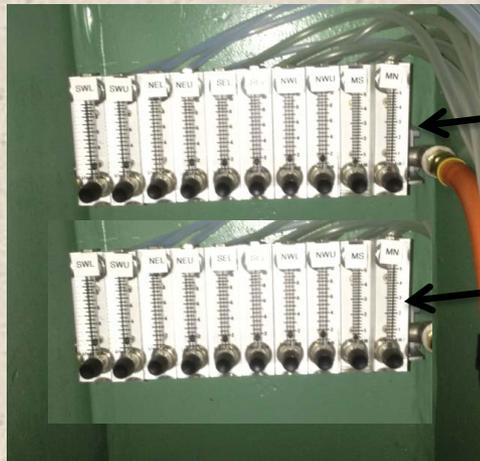
Current labeling on tubes needs
to be maintained and copied to
new lines



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 $\frac{1}{4}$ " 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.



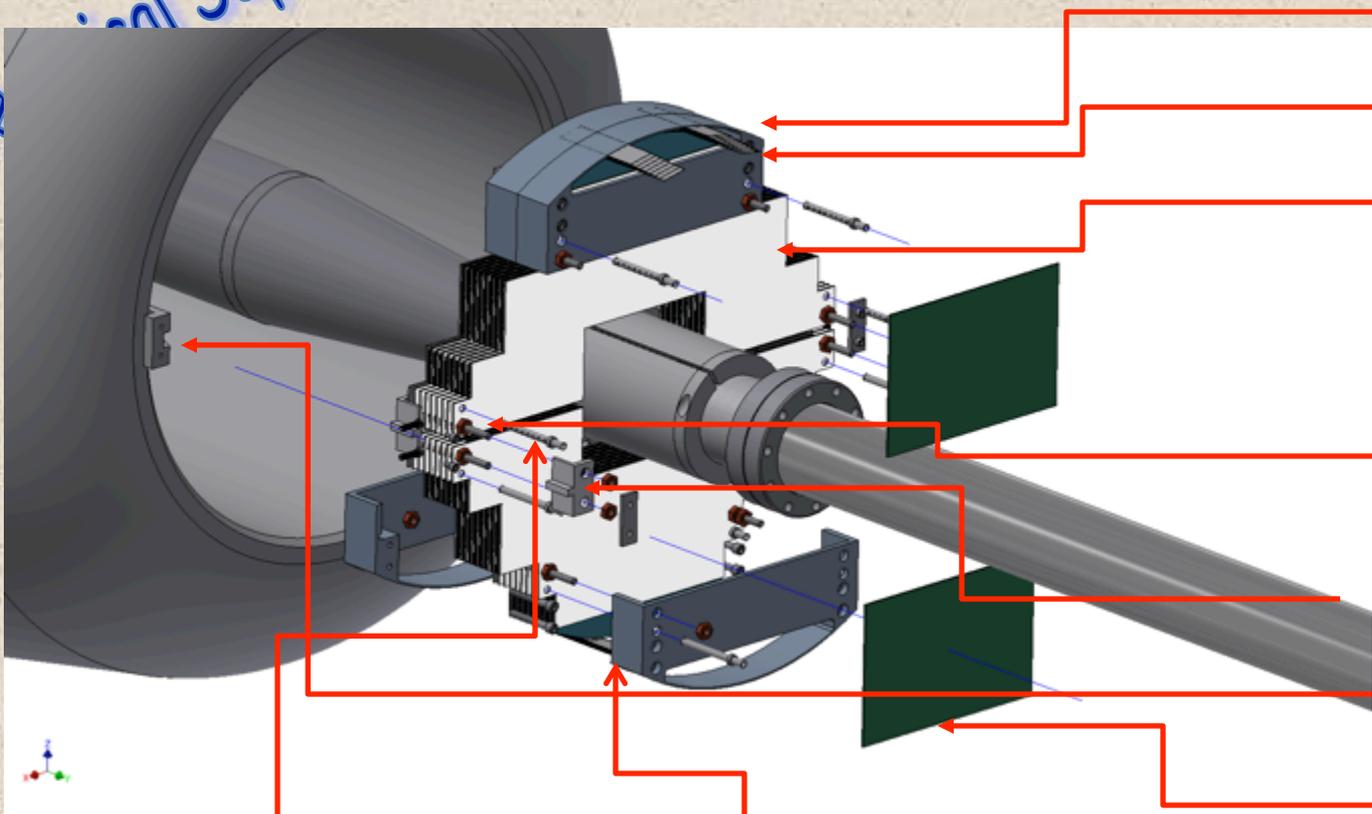
Manifold Location

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)

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MPC-Ex Exploded view



- Upper covers
- Signal Cable pigtails
- 8 layers of tungsten & detector electronics backed by Delrin cover (top and bottom halves)
- Threaded rods and spacers
- Mounting tabs
- Mounting clips
- LV distribution boards

Lower covers

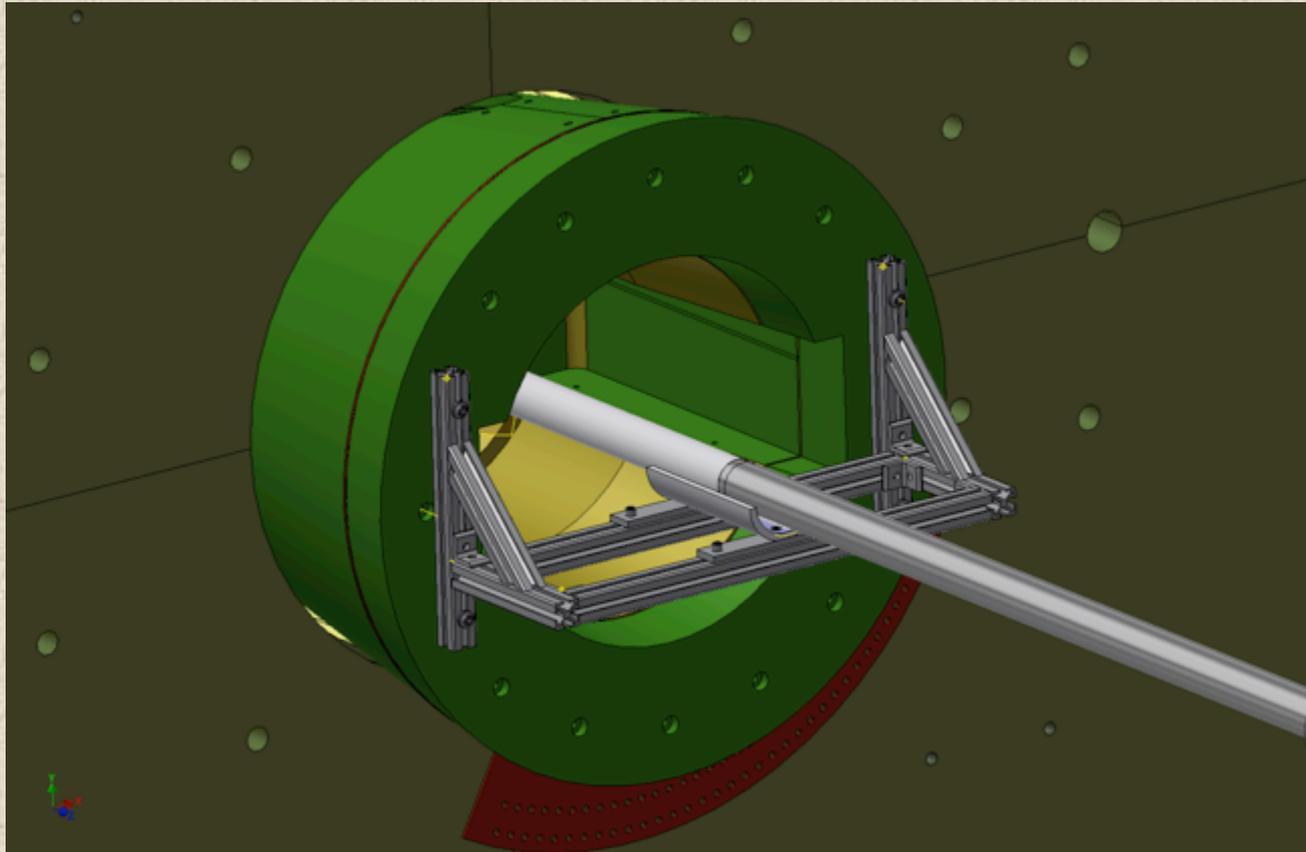


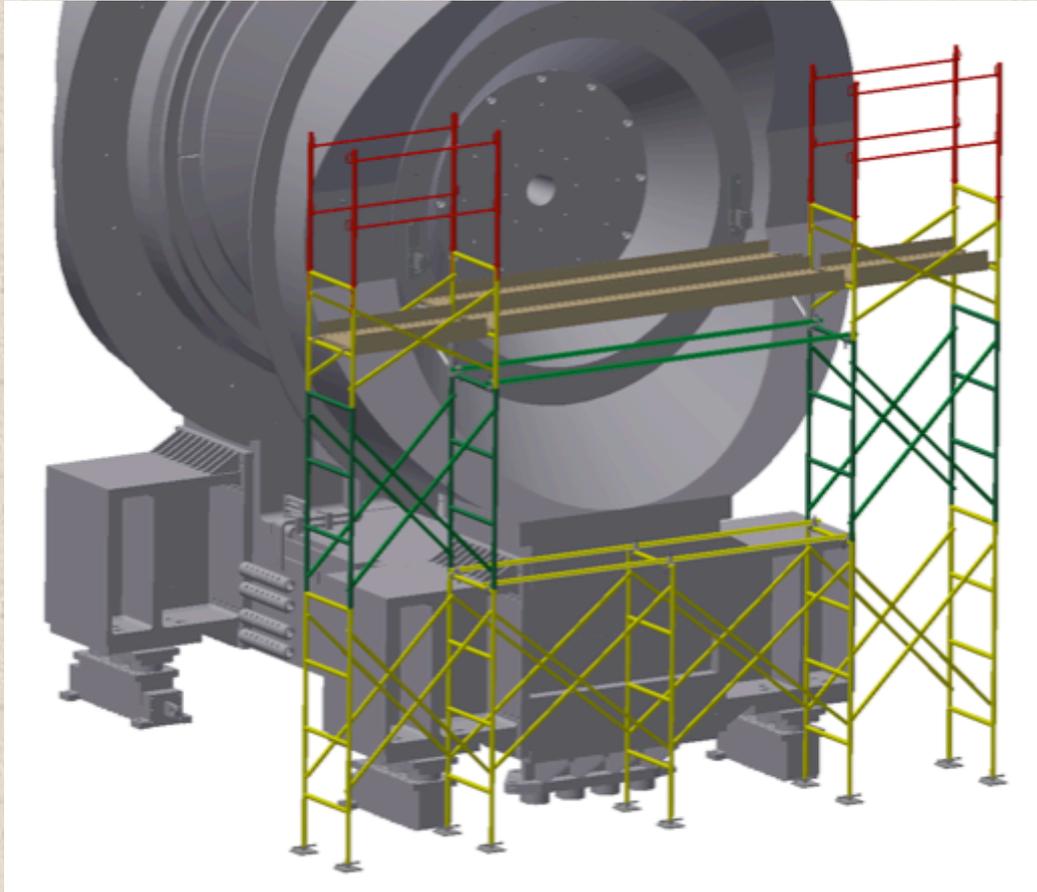
Cooling air manifolds

9/4/2014

Work at 1008 summary:

- We should be ready to install MPC-Ex North by 10/15
- We expect to be ready to run some commissioning tests by 10/22
(with North station 1 open)
- Need to remove scaffolding by 10/22 if we want accommodate window for Vlad to work on DC
We should be ready to install MPC-Ex South by 10/25
- Need to have a Installation/Safety review with CAD ESRC. John LaJoie suggests 9/16 or 9/17 when he will be at BNL ?

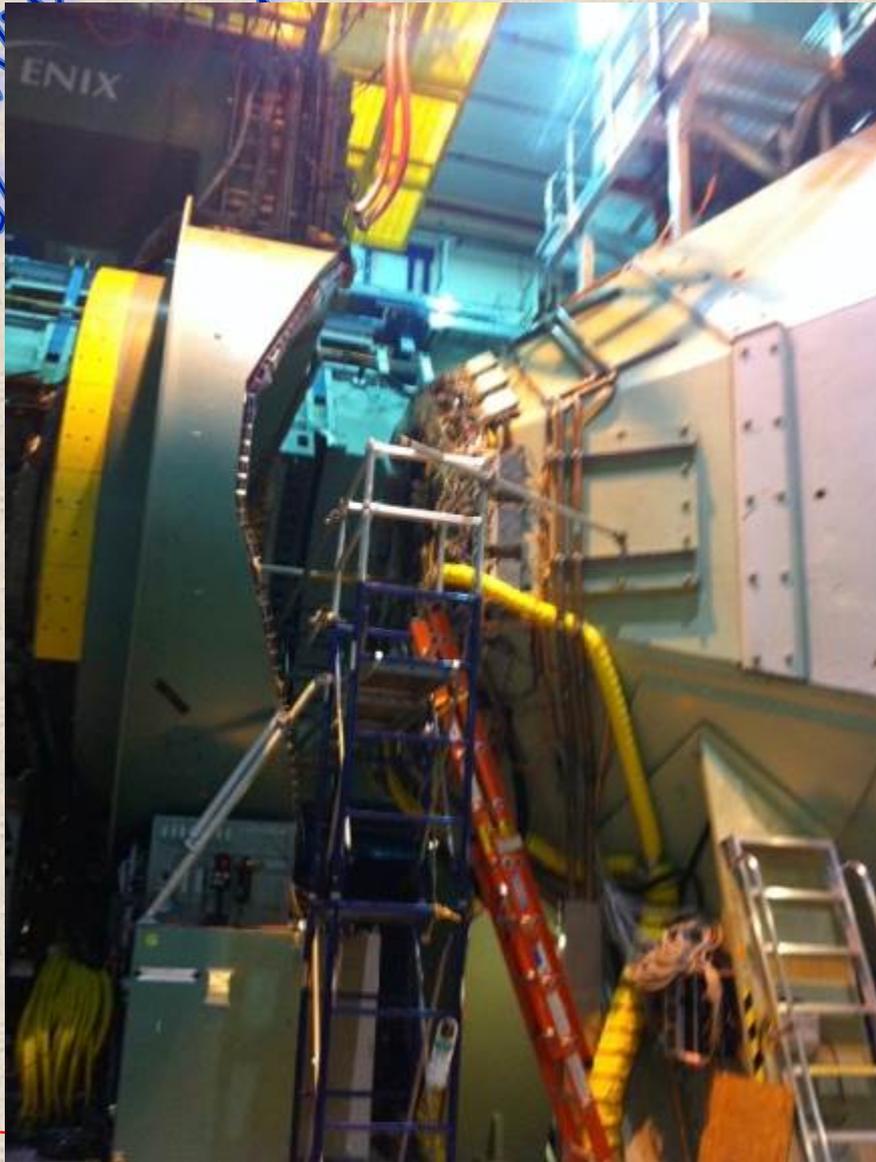




Scaffolding arrangement for upper access. Ladder and MMN not shown for clarity.

Configuration required for space between CM and MMS is similar.

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Scaffolding in north station 1

Electronics Cooling Water High Temperature Alarm

Display showing temperature of cooling water

Add Alarm to Panel



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Where To Find PHENIX Engineering Info

Shutdown 2014 Continues

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

