

# PHENIX WEEKLY PLANNING

4/3/2008

Don Lynch

# Shutdown '08 Schedule

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CM Crane Review	Mar. 22-26
Purge Flammable Gas, Magnet & DAQ Tests	Done
Remove lock-out & open shield wall	Done
IR Crane certification	Done
Mu Trigger Review	Done, Action Items in progress
Disassemble & store shield wall & base	Done
New Beam Pipe Design Review	Done, Action Items in progress
Remove Collars	Done
Disconnect EC & move to AH	Done
Move MMS south	Done
RPC Prototype engineering & safety review	Done, waiting for action items
CM Crane, MMN & sta. 1 scaffolding review	Apr. 4
RPC Prototype C tests (in tent)	in progress
Install/field fit CM access stairs (	Apr 7-11
MuTr FEE upgrade/MuTr decaps WP	Apr. 11
Remove North access & MMN 4 lampshades	Apr. 14 - May 1
Inventory/begin erect MMN scaffold	Apr. 14-May
RPC Prototype D tests (in tent)	Apr-May

# Shutdown '08 Schedule, cont'd

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Design RPC installation fixtures & FEE platforms	Apr-May
Move CM South (MuTr Decaps?)	Apr 15 (tax day)
MuTrgr Platform review	Apr 25
Install Station 1 North scaffolding	May 1-16
Station 1 North decaps	May 19-30
RICH air control move to DC Rack	May 30
Prep work for Mutrgr platforms (water/elec)	May-June
Prep work for RPC proptotype install	May-June
move (7) MuID pipes	
move gap 5 south cable tray	
MMN decaps	May-July
<b>End of run Party</b>	<b>May 30</b>
Prep RPC Prototype, MuTrggr FEE N&S	
Racks	Apr-July (M. Lenz)
Install CM Crane Channel Supports	June-Sept
RPC engineering & safety review	June
MuTrigger FEE N Install	July 1-31
HBD Install	July-August

# Shutdown '08 Schedule, cont'd

TECHNICAL SUPPORT + NOON

RPC prototype gas system	July 1-31
Move shielding for RPC prototype installation	July 1-31 (C. Pearson)
RPC prototype cable routing & support	July 1-31 (M.Rau)
Modify crystal palace & vapor barrier	July 1-31 (C. Pearson)
Install MuTrigger FEE N platform	August 1-15
RPC prototype install	August (RPC3 - C. Pearson) (RPC2 - PHENIX)
Install RPC prototype rack in tunnel south	August (C. Pearson)
Install Mutrigger FEE's in MMS for RPC test	August
Install MuTrigger FEE South platform	August
Install MuTrgr N&S rack cooling & electric	August 1-29
Install MuTrigger N cooling water & air	August
Replace tunnel shielding	Sept (C. Pearson)
Connect electronics/gas/water/air for RPC	Sept.
Install MuTrigger N& S racks	Sept.
PC1 west work (needs planning)	Sept./Oct
DC East?/West Repairs	Oct.
Remove all inst'n equipment(e.g. scaffolds)	Oct.
Prep for shutdown 2009	Oct- Apr '09
Prep for run 9	Oct
Close shield wall start shifts	Nov.
Start physics	Dec.

# Design Reviews

- Mu Trigger FEE N & S Done
- New Beampipe Review Done
- RPC Prototype 3/27 (informal engineering ) Done
- CM Crane & MMN Scaffolding & Station 1 Scaffolding - 4/4
- MuTrigger N & S rack platform 4/24? (On deck for design)
- RPC Stations 1, 2 and 3 ~ 6/22-6/20
- VTX/FVTX review ~ 6/1-8/31
- NCC Review ~ 6/1-8/31
- MMS scaffolding (< 2009)

# Work Permit Requirements

- Standard Shutdown Commencement tasks (covered by approved procedures) Done
- PC1 Repairs
- CM Crane Installation
- MuTrigger FEE Upgrade (North & South) & MuTr Decaps, (including confined space for MMS & MMN and scaffold installation)
- RPC Prototype Installation
- HBD re-installation
- MuTrigger FEE rack platform installation
- (More will be needed - to be added to the list as appropriate)

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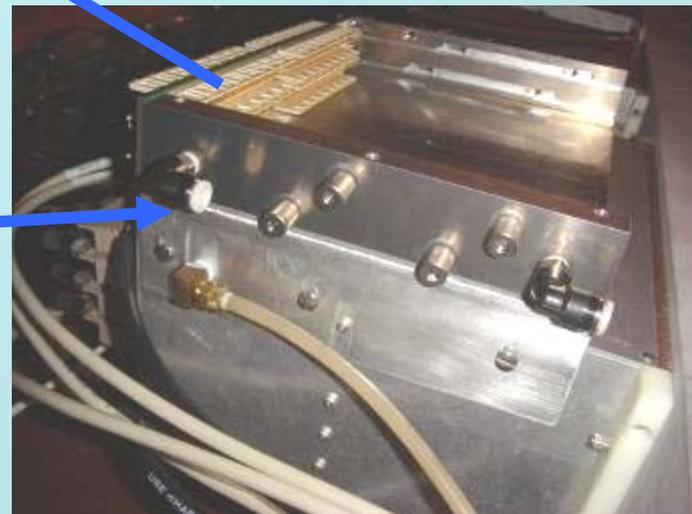
## MuTrigger FEE



### C-A Safety review done

#### Action items:

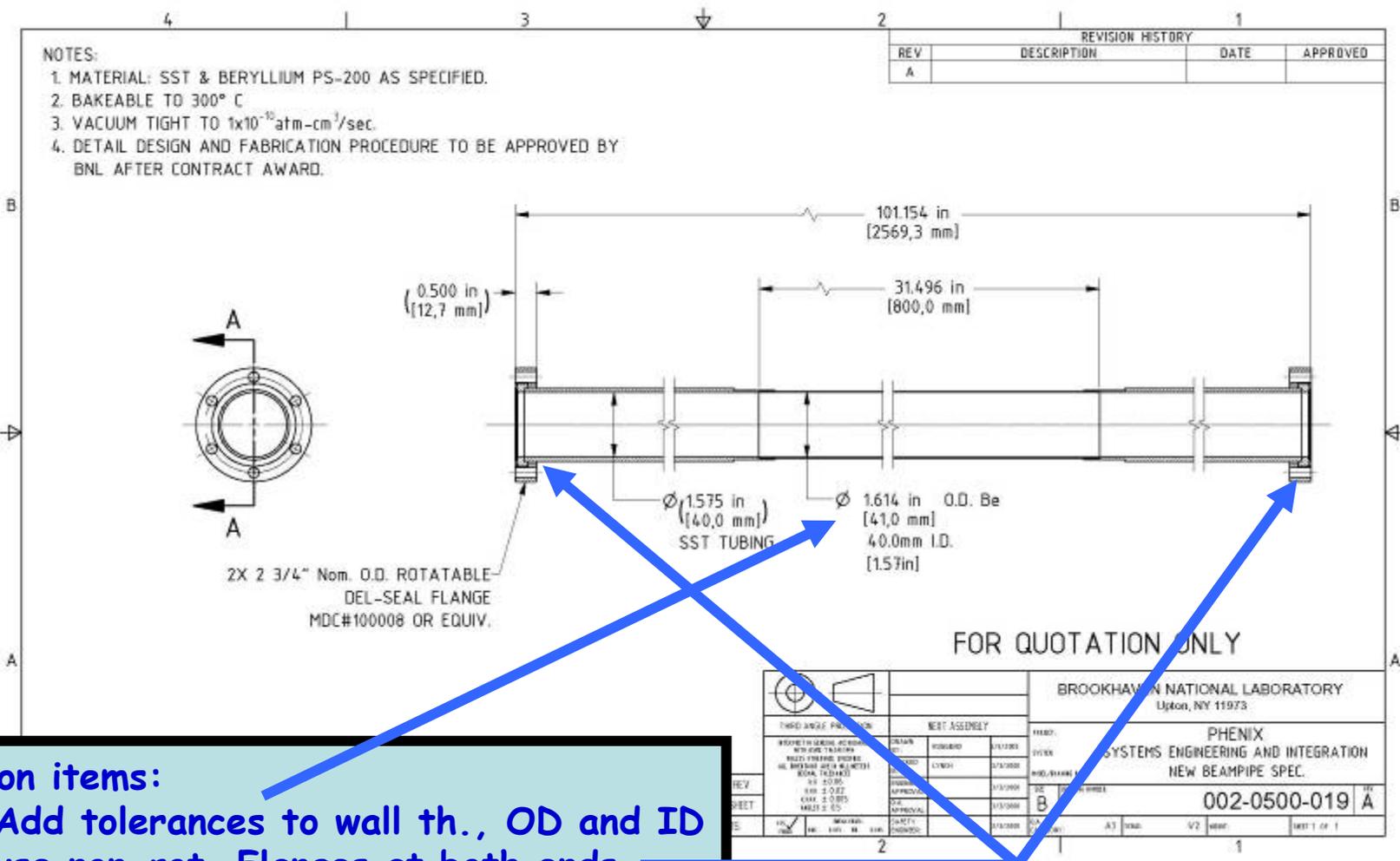
- Test the ADTX board w/o cooling under the above failure condition to determine the maximum temperature the voltage controller reaches.
- Check the cable tray rating of the proposed low voltage cable.
- Present the scaffolding design to an ESRC review
- Present the platform design to an ESRC review.



# Design Review Successful

# New Beampipe Design & Review

TECHNICAL SUPPORT + 2008



**Action items:**

1. Add tolerances to wall th., OD and ID
2. use non-rot. Flanges at both ends

# RPC Prototype Review

Productive meeting

Many action items

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# RPC Prototype Review

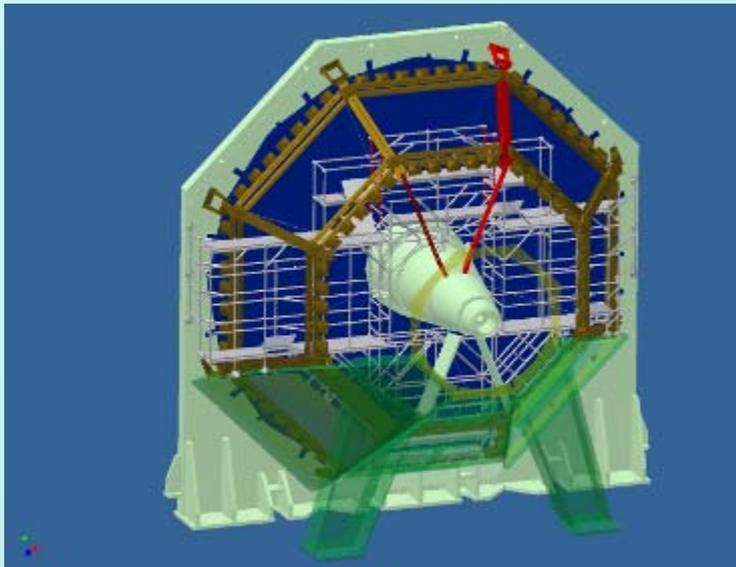
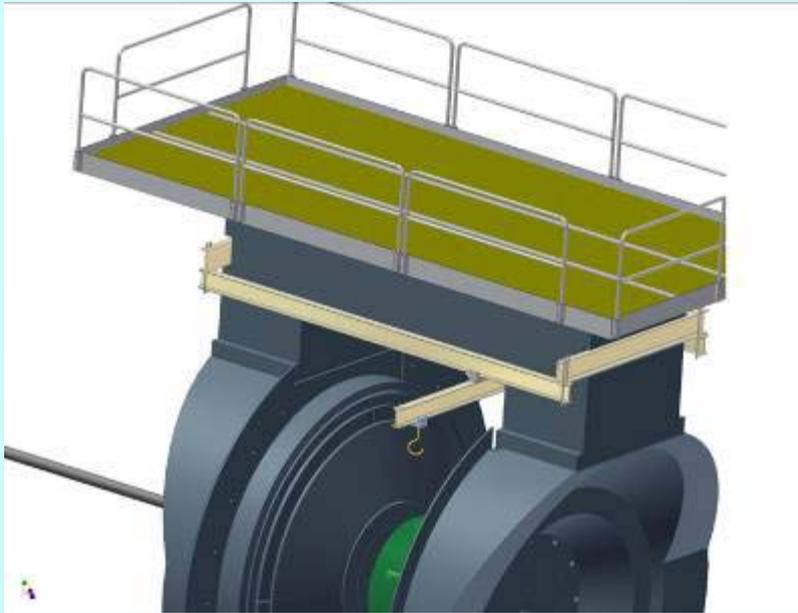
The following are some important notes resulting from the meeting, with assignments as indicated.

- The location of the prototype is changed from the "6 O'clock" position (looking south from the IP) to the "8 O'clock" position to make the prototype installation easier. (Matthias to approve)
- RPC group will provide PHENIX and CA engineers with a final prototype drawing showing prototype envelope dimensions and areas where eyebolts may be attached for handling. (Larry to provide drawing)
- CA and PHENIX engineers will plan, design, fabricate and implement all remaining aspects of the prototype RPC's installation (Don & Charlie)
- PHENIX will arrange to move the (7) MuID pipes and the cable tray which would otherwise interfere with the RPC3 prototype installation (Don & Carter)
- PHENIX management will determine whether the 1st station of MuID South panels can be removed. (Note: if not there is no acceptable plan to install RPC2 South) (Ed)
- The precise longitudinal distances from the IP ("Z" positions) of the MuID steel: north of gaps 5 & 0 south, and south of gaps 5 & 0 north to be provided to Larry, including info on the entire plane of the MuID steel at those positions. (Charlie)
- Information on the minimum vertical distance from the nominal beam orbit to the "floor" at gaps 0 & 5, north and south to be provided to Larry. [Note: the "floor" is to be defined as the lowest clear horizontal plane in the gaps. (Charlie)
- Interfering Cable trays and pipes in gap 5 north to be relocated (Don & Carter)
- RPC group to make decision on prototype absorber (Cu plates or W shot), and implementation scheme to PHENIX engineering. (Matthias & Larry)
- Source and delivery of power and services for RPC prototype rack to be determined and implemented by PHENIX engineering. (Paul)
- RPC safety review action items to be addressed and satisfied by PHENIX engineering. (Don)
- After above items are addressed, RPC group to focus on final design review, tentatively scheduled for mid June 2008.

# Combined CM Crane, MMN & Station 1 scaffolding Review



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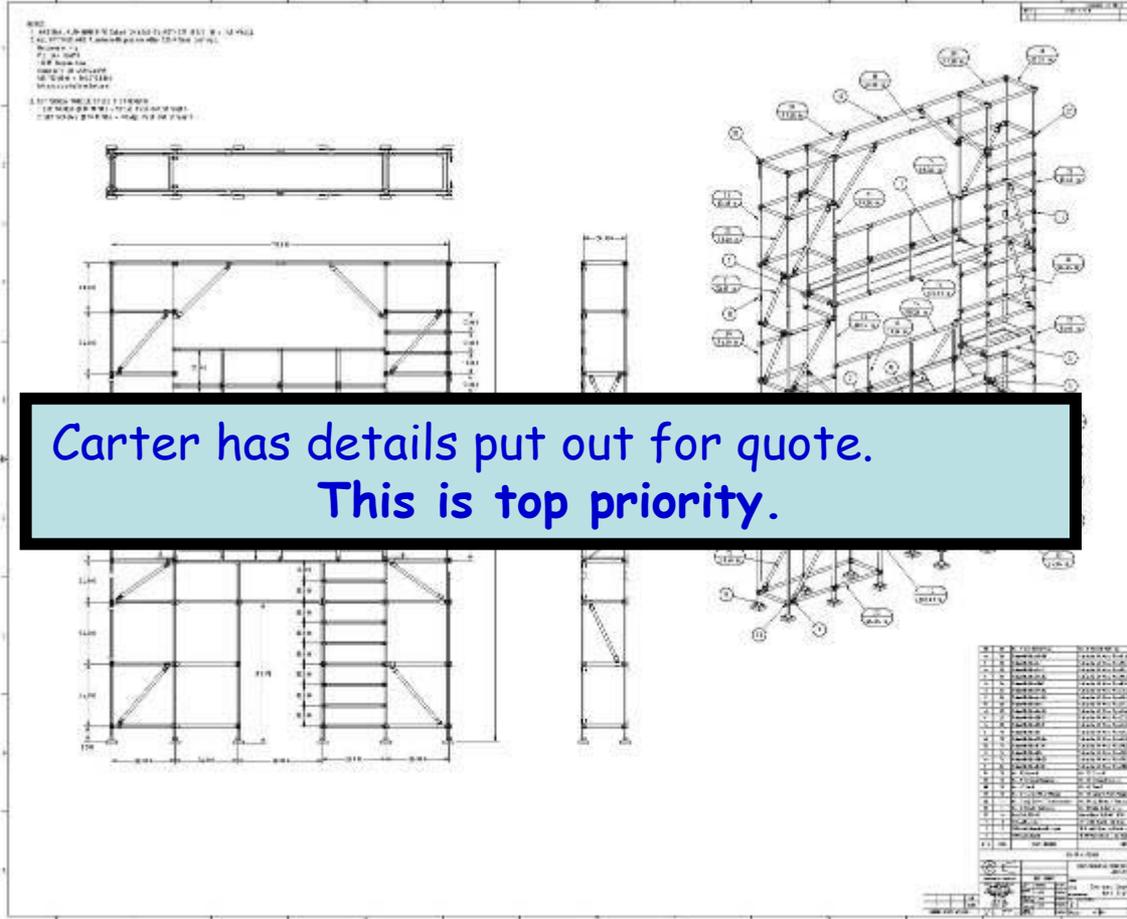
Crane and MMN analyses submitted,  
Station 1 analyses this week. Review  
tomorrow afternoon

# Station 1 scaffolding

TECHNICAL SUPPORT 800200

BOM prepared

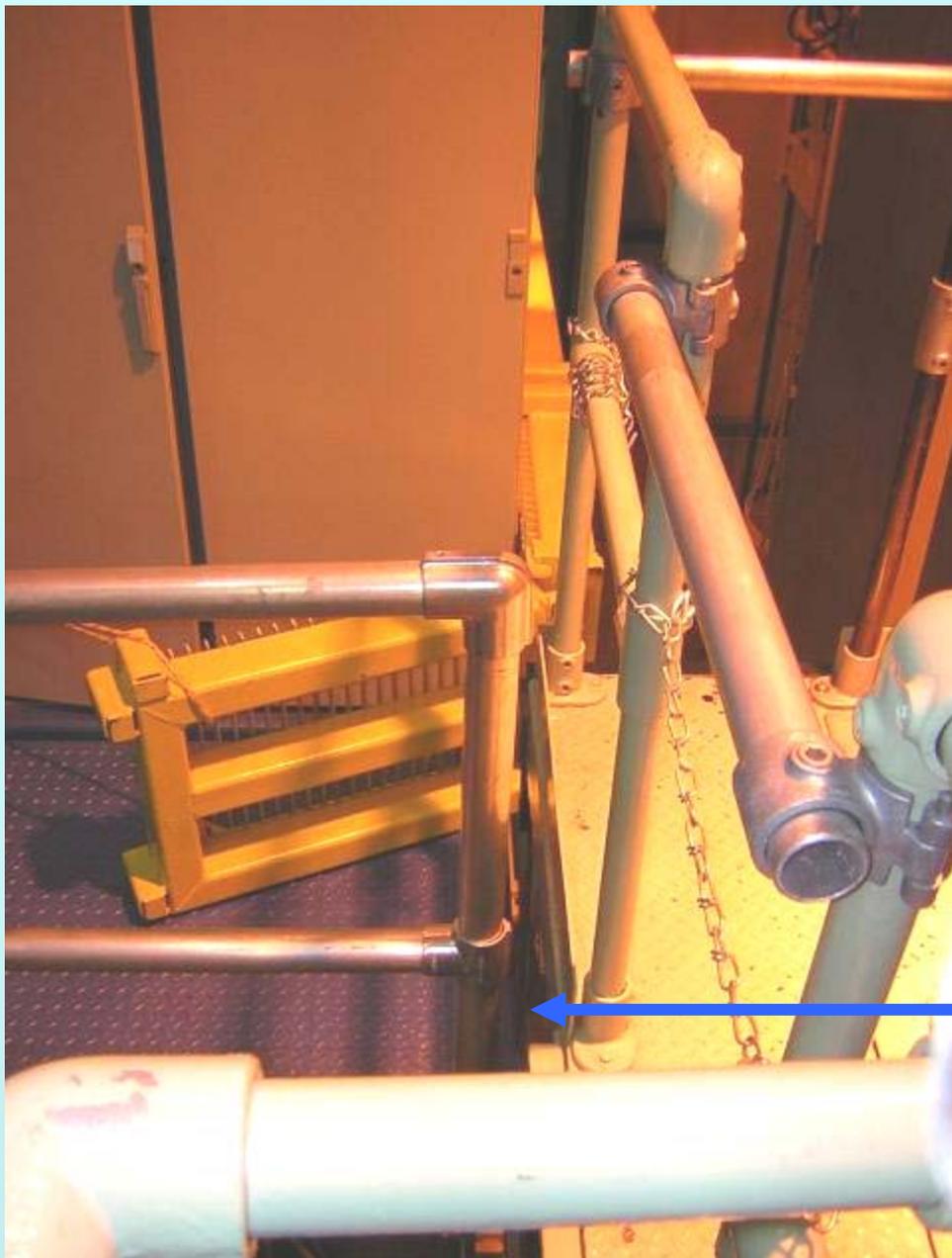
Drawing is Done



QTY	PART NUMBER	DESCRIPTION
1	10R-walk-board	10 ft Walk Board - On Hand
1	10R-walk-board-with-hatch	10ft Walk Board w/Hatch - On Hand
1	3ft-walk-board	3ft Walk Board - On Hand
12	BASE-BLOCK-10	Base Block DWG# 017511-17
12	No. 13 Side Outlet Cross	No. 13 Side Outlet Cross
52	No. 17 Adj. Elbow / Tee Assembly	No. 17 Adj. Elbow / Tee Assembly
12	No. 45 Square Floor Flange	No. 45 Square Floor Flange
68	No. 5E Tee-E	No. 5E Tee-E
12	No. 70 External Coupling	No. 70 External Coupling
18	No. 7E Cross-E	No. 7E Cross-E
8	Sched40-Pipe103-67	Schedule 40 Alum. Pipe 103.67"
4	Sched40-Pipe119-34	Schedule 40 Alum. Pipe 119.34"
2	Sched40-Pipe124	Schedule 40 Alum. Pipe 124.00"
12	Sched40-Pipe19-34	Schedule 40 Alum. Pipe 19.34"
42	Sched40-Pipe22-34	Schedule 40 Alum. Pipe 22.34"
6	Sched40-Pipe30	Schedule 40 Alum. Pipe 30.00"
4	Sched40-Pipe32-75	Schedule 40 Alum. Pipe 32.75"
6	Sched40-Pipe33-13	Schedule 40 Alum. Pipe 33.13"
54	Sched40-Pipe34-34	Schedule 40 Alum. Pipe 34.34"
10	Sched40-Pipe39-5	Schedule 40 Alum. Pipe 39.50"
2	Sched40-Pipe46-34	Schedule 40 Alum. Pipe 46.34"
3	Sched40-Pipe78-34	Schedule 40 Alum. Pipe 78.34"
4	Sched40-Pipe83-67	Schedule 40 Alum. Pipe 83.67"
6	Sched40-Pipe90-34	Schedule 40 Alum. Pipe 90.34"
4	Sched40-Pipe95-17	Schedule 40 Alum. Pipe 95.17"
8	Sched40-Pipe96	Schedule 40 Alum. Pipe 96.00"
4	Sched40-Pipe97-375	Schedule 40 Alum. Pipe 97.38"
56	No. 11 Side Outlet Tee	No. 11 Side Outlet Tee
235		
Hollaender Mfg.		
P.O. Box 156399		
10285 Wayne Ave.		
Cincinnati, OH 45215-6399.		
513.772.8800 / 800.772.8800		

Carter has details put out for quote.  
This is top priority.

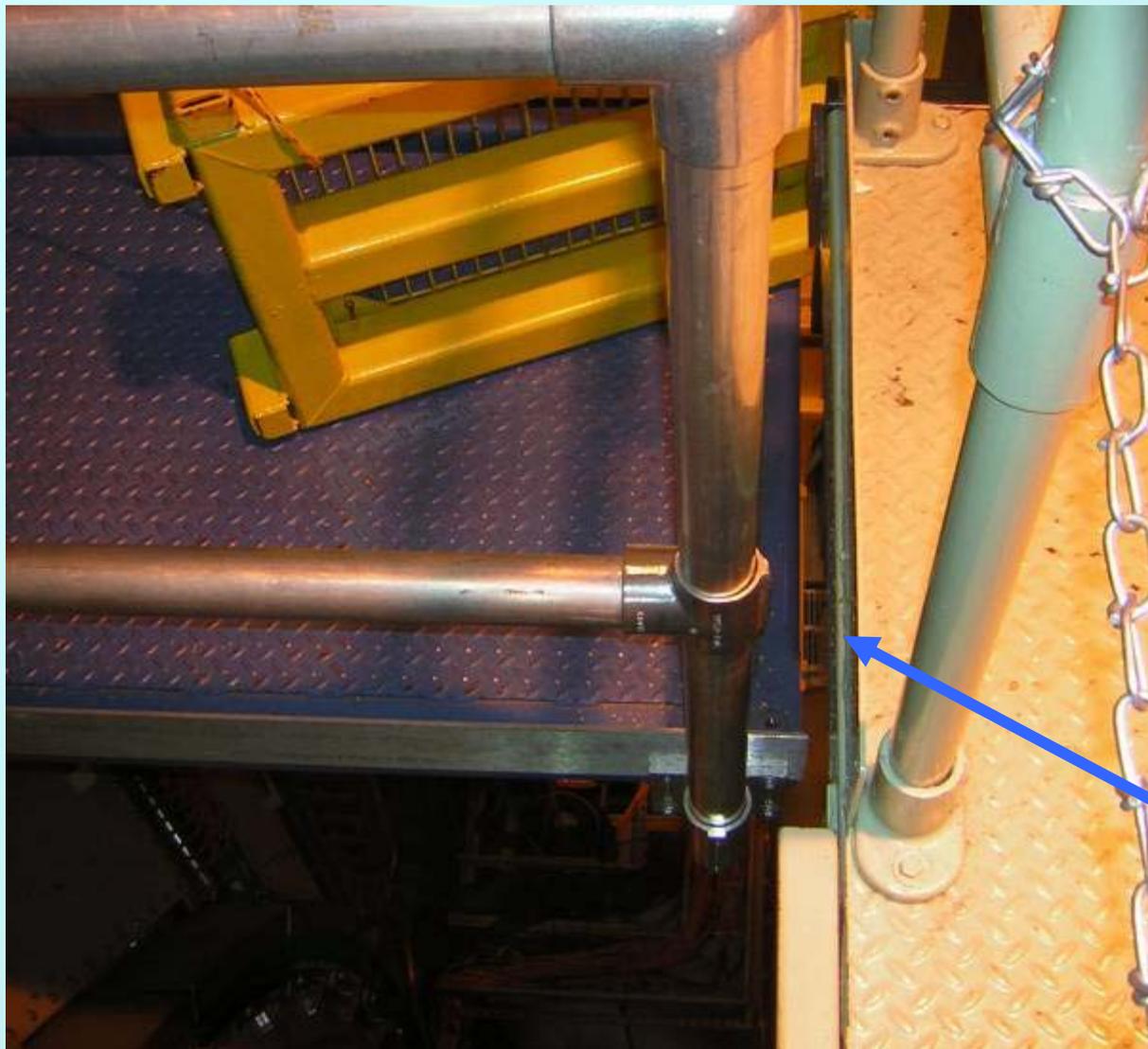
Need ~ (35) 20' lengths  
Of 1-1/2 sched 40  
6061-T6 alum pipe  
&  
230 assorted  
joints/couplings/tees  
&  
12 fabricated base  
blocks



One of the reasons why the MMS needs to be as far south as possible.

MMS is moved as close as possible to MuID panels (support roller touches MuID cable tray)

This is clearance when EC is moving to AH.



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MMS is moved as close as possible to MuID panels (support roller touches MuID cable tray)

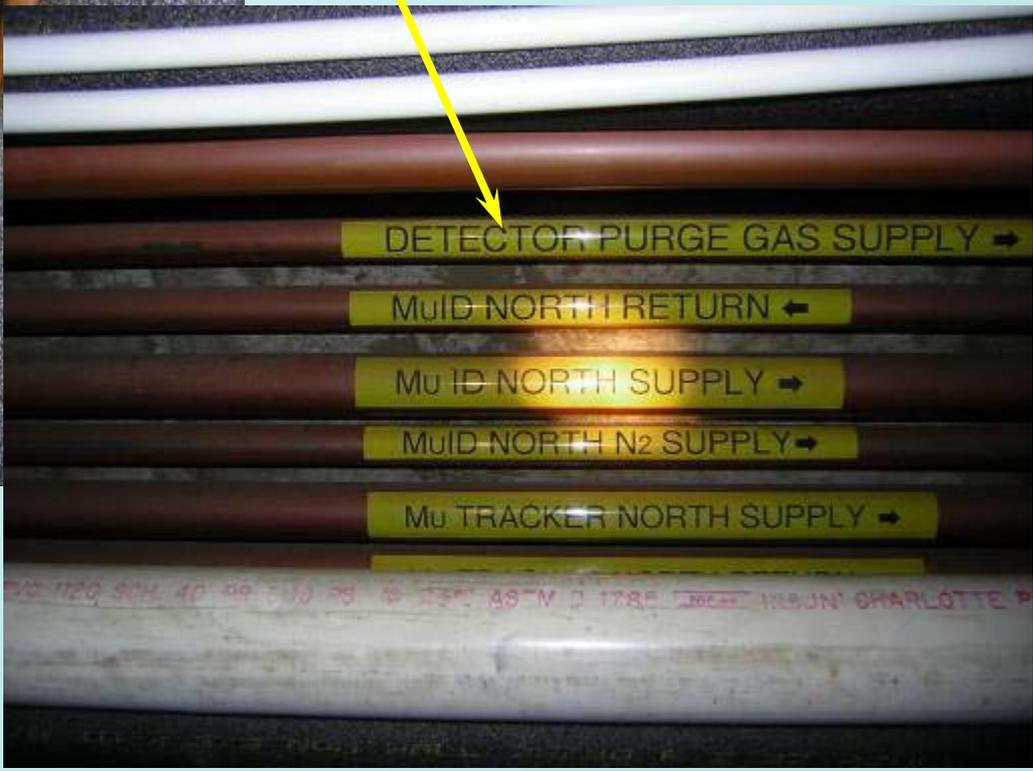
This is clearance when EC is moving to AH.



Looking directly down we can see there is actually no clearance

South Tunnel, East Side

MuID pipes, (4) 1" and (3) 1/2" pipes  
~3.5" off gap 5 steel



120 SCH 40 89 500 PS 15% ASTM D 1785 INJUN CHARLOTTE P

## South Tunnel, West Side



Access to pedestal is ~170". 90" pedestal to west wall. Enough room for 3 full racks with 30" door opening clearance on all sides. 2 stacked close and 1 nearer to stairs. Cable tray on top?

IR, southeast Side



Gap 5 from southeast side  
Pipes have ~6" clearance.  
Probably OK

Cable tray < 2"  
clearance - must be  
moved to create 6"  
clearance

IR, southwest corner looking into gap 5

Floor in gap 5 is not continuous, raised areas are not flat some junk is also present



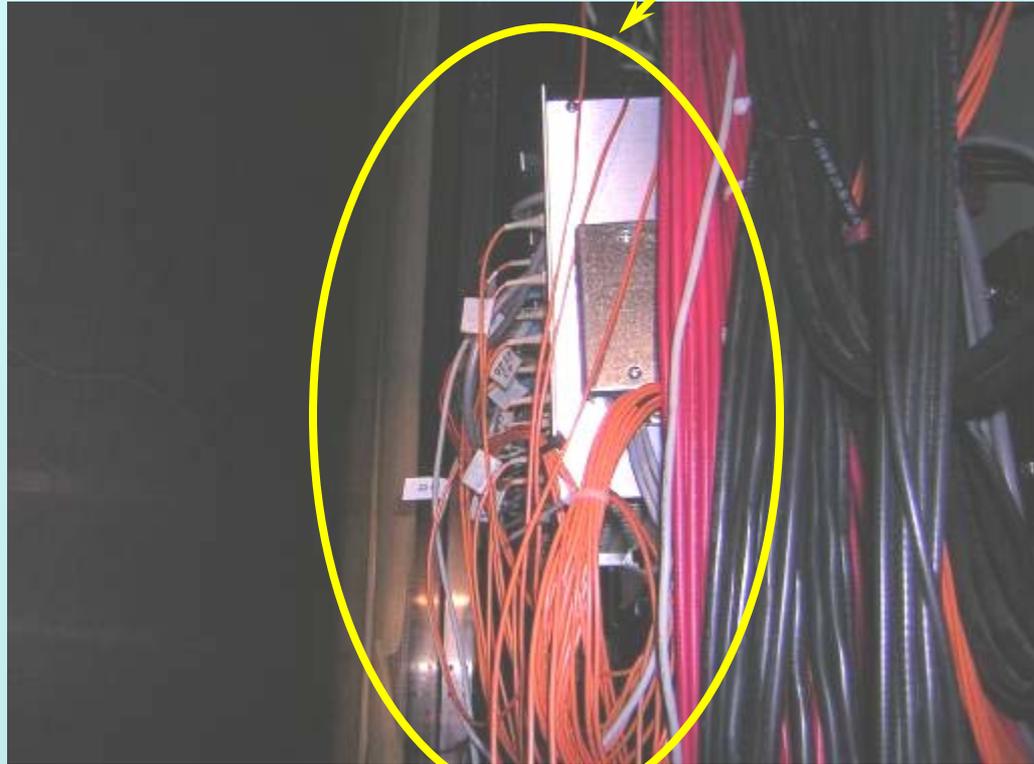
IR, south station 2 MMS moved South

TESTING REPORT 2008

Limiting interferences:  
1. Pipes against middle panel

2. roller assembly touches cable tray

3. MuTr Crate & signal wires have 0 horizontal clearance to 1<sup>st</sup> plane of 1<sup>st</sup> MuID panel.  
Probably O.K. if we don't move MMS full south after prototype is installed



*If shutdown goes long.....*

IR, northeast corner by gap 5 & gap 0

PHENIX - 800-200-8000



Gap 5, cable tray a few cables and 2 pipes interfering with space

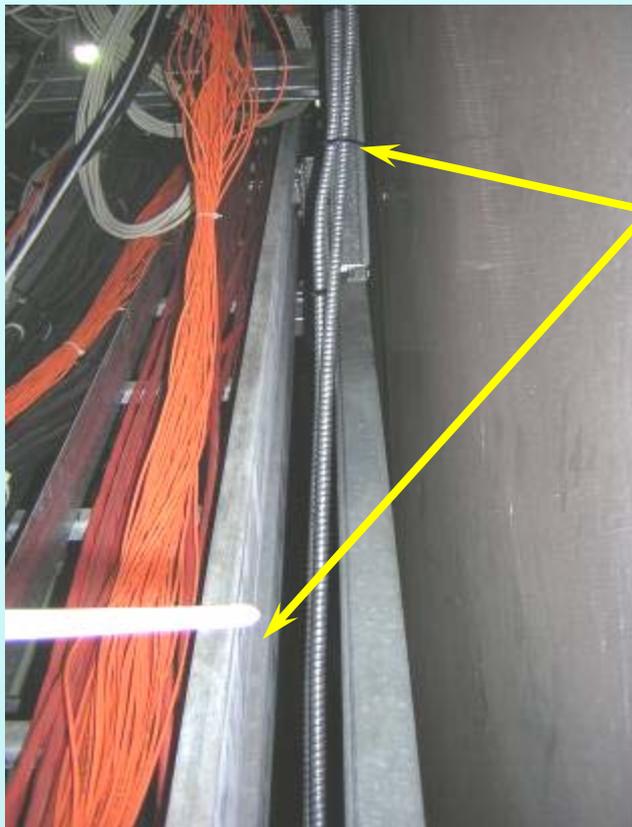


Gap 0 below BP, a few cables hanging down from shield, but not much else interfering

*If shutdown goes long.....*

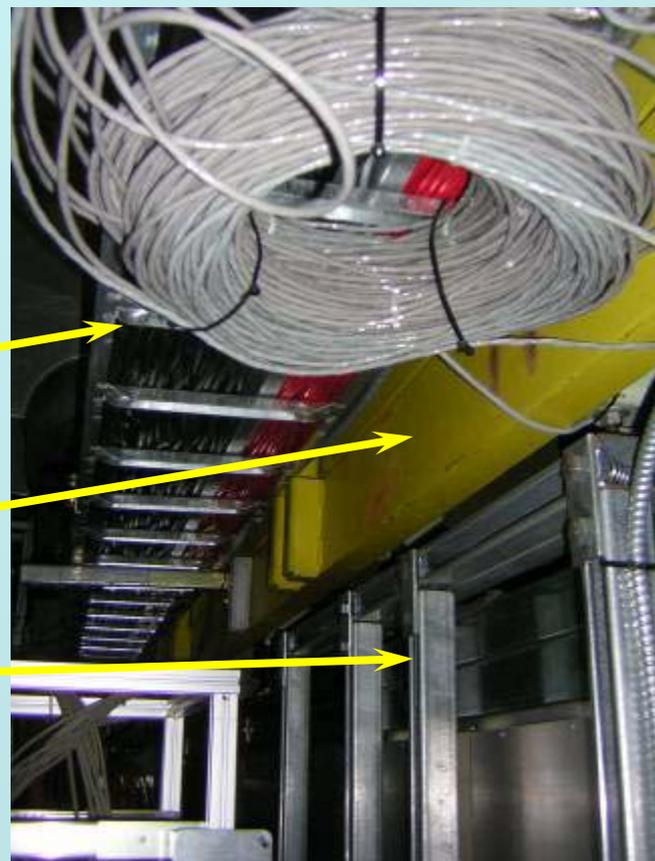
**IR, north above/along gap 0**

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Cable trays, cable tray supports, and MuTr crates protrude in gap 0 space along back plane of MMS

Above gap 0, cable tray completely blocks vertical space above gap 0, safety rails for area above MuID steel and MuTr crate supports partially block access to gap 0



*If shutdown goes long.....*

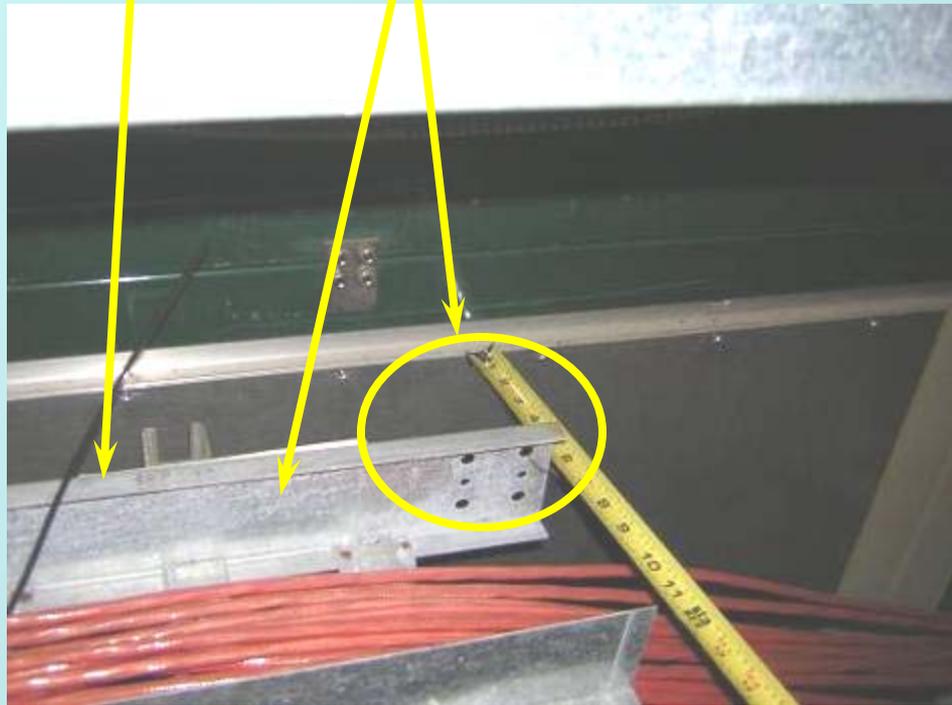
**IR, north above/along gap 0**

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Cable trays mounted on MMN back plane have almost 6" clearance. Support structure (unistrut) for these trays however blocks gap 0



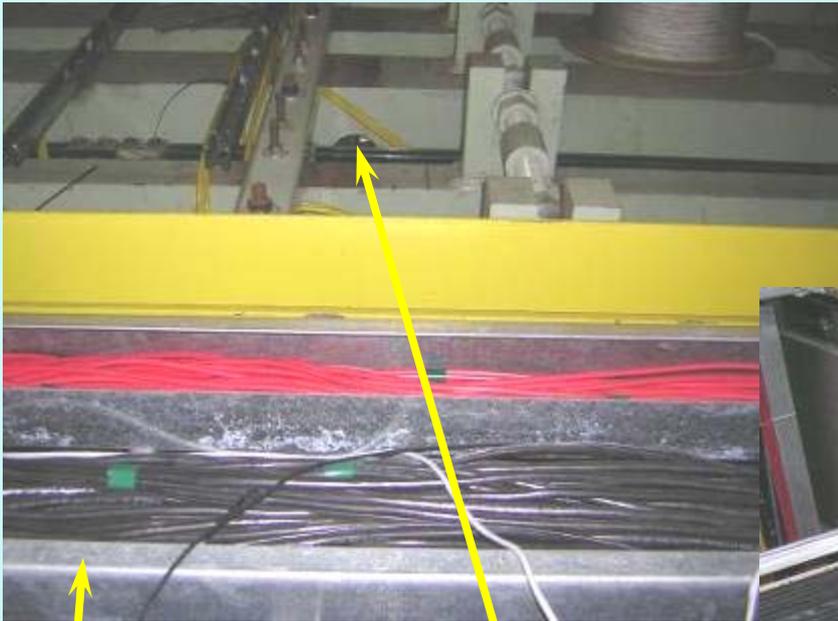
MuTr crate supports blocking access to gap 0



*If shutdown goes long.....*

IR, north above/along gap 0

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Another view of upper cable tray and MuTr crate support blocking access to gap 0



Upper cable tray & top of MuID North steel

*If shutdown goes long.....*

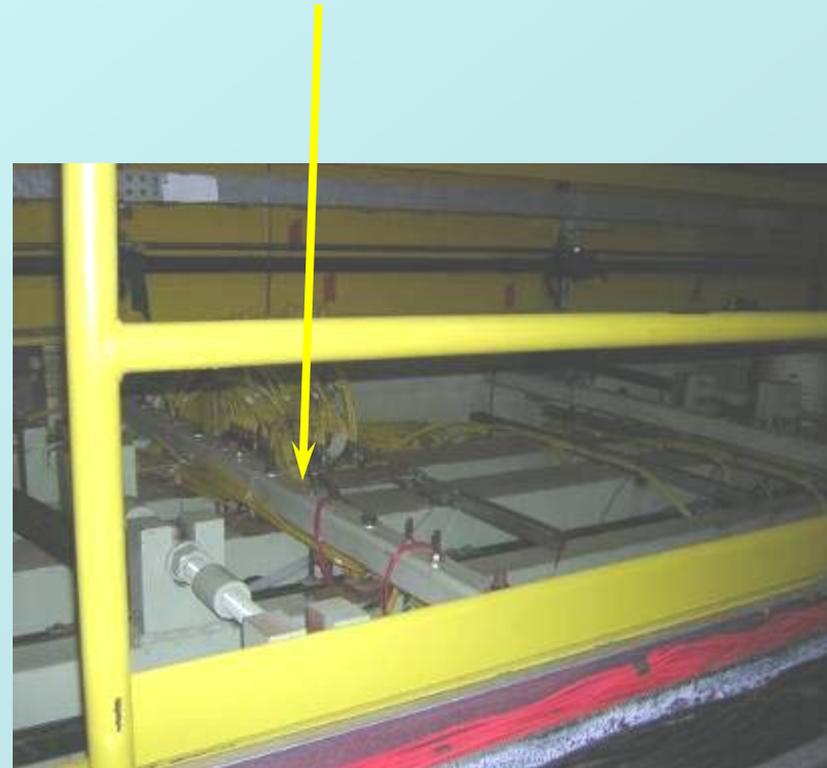
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Cable trays on MMN backplane have support structure on north side. South side is flush with lampshade to allow removal.



IR, north above/along gap 0

Above MuID north steel



*If shutdown goes long.....*

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**IR, northwest along gap 5**



Cable tray and pipes in Gap 5 northwest going into tunnel

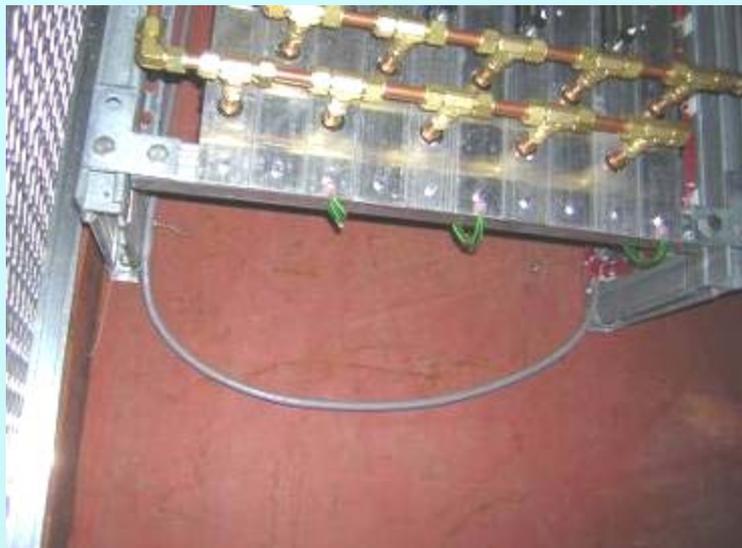
**Tunnel side, northeast along gap 5**



Cable tray with only a few cables and 2 pipes below it

*If shutdown goes long.....*

TUNNEL - SOUTH SIDE



Note: it is not yet clear whether or not we need to move tunnel south gas distribution rack this shutdown, but if the shutdown goes lon we need to do that for sure.

Tunnel north side inside crystal palace



*If shutdown goes long....*

Tunnel northeast side

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Some basket tray and a few cables that will need to be moved

*If shutdown goes long.....*

Tunnel northwest side

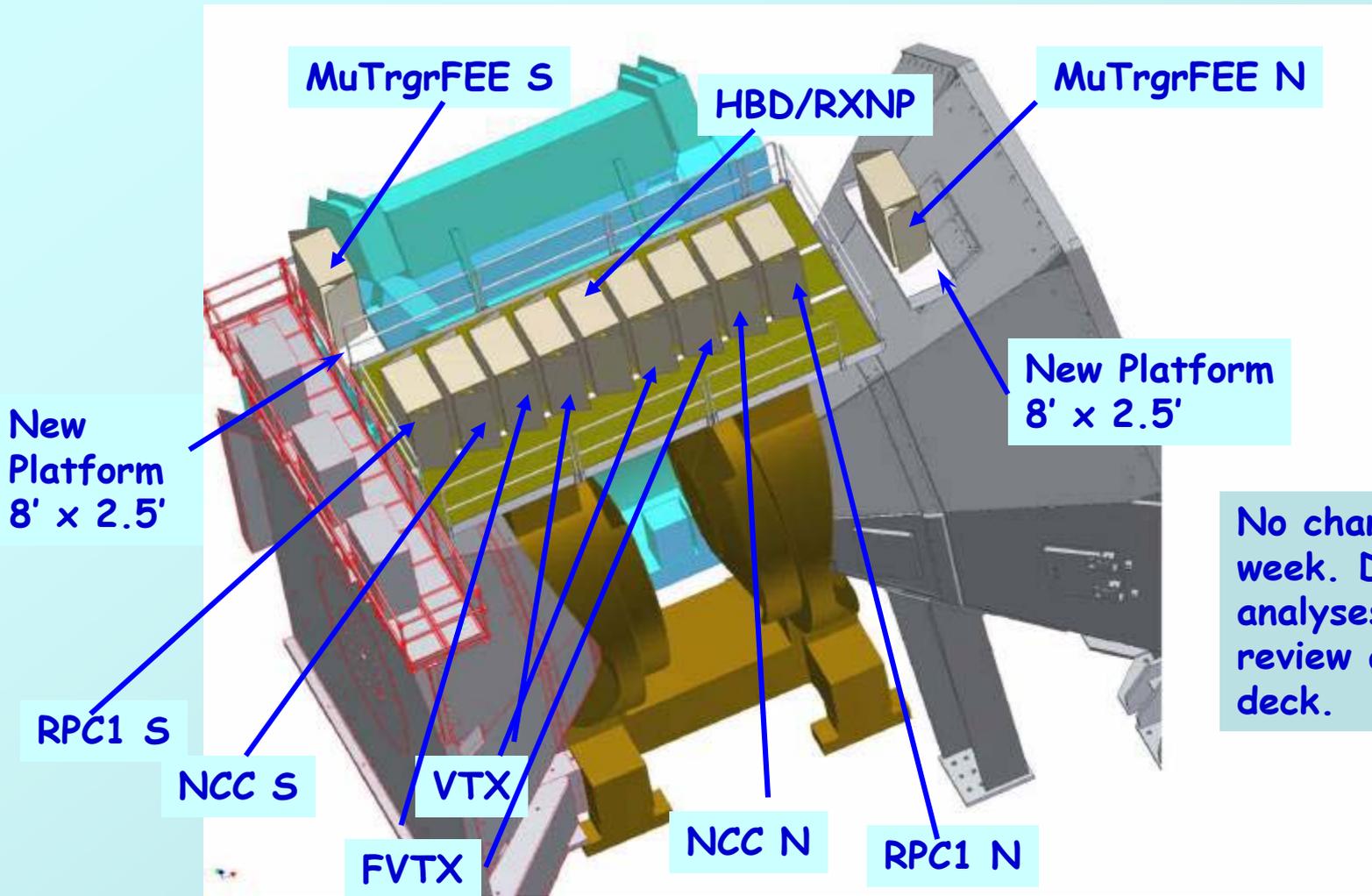
Cable trays on north west interfere with gap 5 north. These trays are full.

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# New Rack Allocations

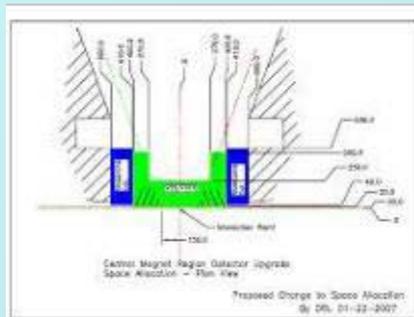
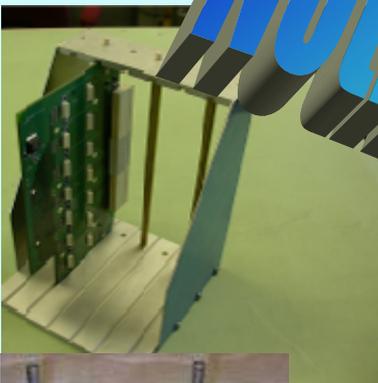
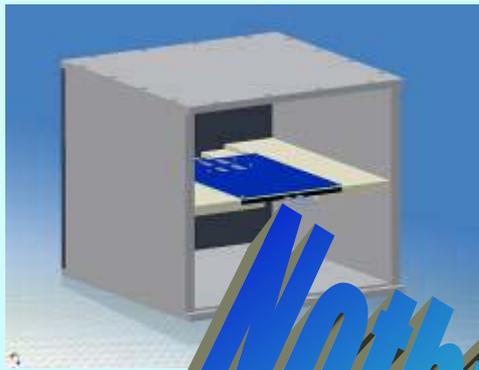
TECHNICAL SUPPORT ROOM



No changes this week. Design, analyses and review are on deck.

# Other Work

- VTX, FVTX and NCC prototype support
  - Integration
  - Physical and Rack space
  - Infrastructure upgrades
- New Counting House Door
- VTX Prototype for run 8 ?



Nothing New This Week

Prototype C tests underway

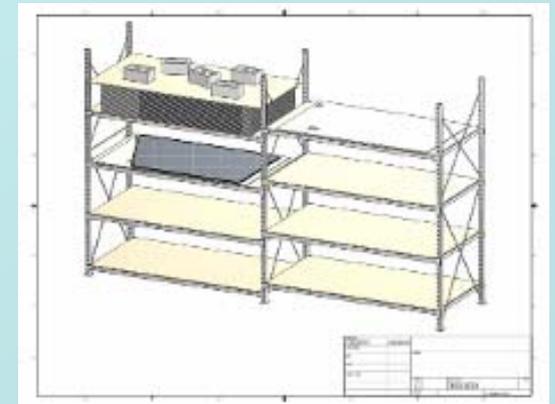
Prototype D in design/fabrication

Additional equipment needed:

- transport table

- $\frac{1}{2}$  octant/module/gap storage racks

- $\frac{1}{2}$  octant handling and transport fixtures



1. Here is a link to a video produced by the U.S. Chemical Safety Board related to nitrogen hazards. Please view to increase your awareness of this hazard. It is about 10 minutes long.

[http://events.powerstream.net/002/00174/player/iPlay.asp?contID=Valero\\_Nitrogen](http://events.powerstream.net/002/00174/player/iPlay.asp?contID=Valero_Nitrogen)

2. Based on a recent BNL Occurrence Report on Suspect/Counterfeit items found on anchor shackles and turnbuckles, do not purchase lifting items using personal credit cards or cash. Please utilize the purchasing processes available through Procurement (Web requisitions or Laboratory credit card).
3. The BNL Electrical Safety Committee has a web site where they post both Interpretations and Equivalencies. Their decisions may be viewed at:

[Interpretations](#)

[Equivalencies](#)

# The O'Brien Tour Doctrine

- Notify the following people via e-mail prior to the tour
  - Carter Biggs, Don Lynch, Paul Giannotti, Martin Purschke and me
  - cc: Yousef Makdisi and Charlie Pearson
- No entry into the Assembly Hall or IR if the crane is in operation
- Access of small groups to the sill at the base of the shield wall requires permission of Carter Biggs or Don Lynch
- No people wearing open-toed shoes on the sill
- No members of tour groups can go beyond the sill into the IR
- Large groups should stay on the assembly hall floor and not be brought onto the sill
- The tour guides need to stay with the people touring at all times.

Our goal is for no one to get injured while still allowing people to view, appreciate and hopefully understand our great scientific facility.

- 2008 Install stations 1& 2 of MuTr FEE upgrades (north), 1 octant Cu absorber (S), 1 half otants each RPC2/3 S, MMN sta. 2 scaffolding, MuTr Sta 1 N&S scaffolding, 1 octant of MuTrigger FEE upgrades (south, sta 1 & 2), MuTr N stn. 1 & 3 decaps, MuTrigger rack platforms (N&S), CM crane, remove/replace beampipe, infrastructure upgrades & repairs, misc. subsystem work, 1 RPC rack in South tunnel, MuTrgr FEE N & S racks
- 2009 Remove HBD & RXNP, scaffolding in MMS, MuTr S stn. 1 & 3 decaps, RPC2 N, RPC3 N, north Cu absorbers, partial VTX, iFVTX, MuTrgr S sta 1 & 2, MuTrgr S rack, 2 racks in N tunnel, infrastructure upgrades & repairs, misc. subsystem work
- 2010 Remainder of VTX barrel, partial FVTX, south Cu absorber completed, MuTrgr FEE stn. 3 S, any remaining MuTr decaps, infrastructure upgrades & repairs, misc. subsystem work
- 2011 RPC1 N&S, NCC N, remainder of FVTX, DC West upgrade/repair, remove absorbers, infrastructure upgrades & repairs, misc. subsystem work
- 2012 NCC S, upgrades contingency & wishlist, infrastructure upgrades & repairs, misc. subsystem work, TBD new and improved upgrades

*\* Years refer to the shutdown year and follow the run with the similar number (i.e. work in 2008 is to be done in the shutdown that follows run 8, and so on)*

# Where To Find PHENIX Engineering Info

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*Thinking "outside the locks"*

Links for the weekly planning meeting slides, long term planning, pictures, videos and other technical info can be found on the web site:



[http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL\\_SSint-page.htm](http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm)