

PHENIX WEEKLY PLANNING

TECHNICAL SUPPORT 2010



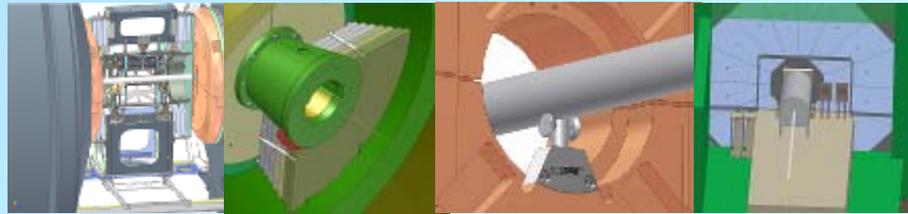
11/04/2010
Don Lynch

2010 Shutdown (Overview)

TECHNICAL SUPPORT 2010

Design, Eng'g, fabrication, procurement and site preparation tasks in support of shutdown tasks

	Start Date	End Date
	In Progress	12/1
Shutdown Startup Tasks	Done	Done
Gas system maintenance, repair and upgrade	In progress	12/1
PHENIX Infrastructure maintenance, repair and upgrade	In Progress	12/1
Remove RPC Prototypes	Done	Done
Remove HBD	Done	Done
Remove RXNP	Done	Done
Remove/Reinstall BBC	In Progress	11/19
Remove Re-install MPC	In Progress	11/19
RPC3N & MuTrigger unfinished business	Done	Done
Remove current BP, install new BP	Done	Done
DC/PC maintenance and repair (mid summer)	Done	Done
Install RPC3S (including Absorbers)	In Progress	12/1
MuTr maintenance, repair and upgrade	In Progress	11/19
Install VTX	In Pogress	12/1



Post Run 10 Tasks

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Task	Start Date	End Date
AH Crane 110 switch for lockout	In Progress	11/30

This Week:

- Complete VTX West assembly & Survey
- Continue Assembly & Survey of VTX East
- Continue VTX Cabling and Piping
- Continue RPC3S services.
- Continue restoring services to CM and MMS
- Complete Bakeout and NEG activation of new BP
- Future upgrades support

Next Week

- Finish Assembly of VTX subassemblies & Survey
- Continue RPC3S services.
- Complete CM, MMS and BP alignment and survey
- Continue restoring services to CM and MMS
- Complete VTX East Assembly and survey
- Survey and align Mated VTX East & West in Chem Lab
- Install VTX West
- Begin VTX West Services installation, test and survey
- Future upgrades support

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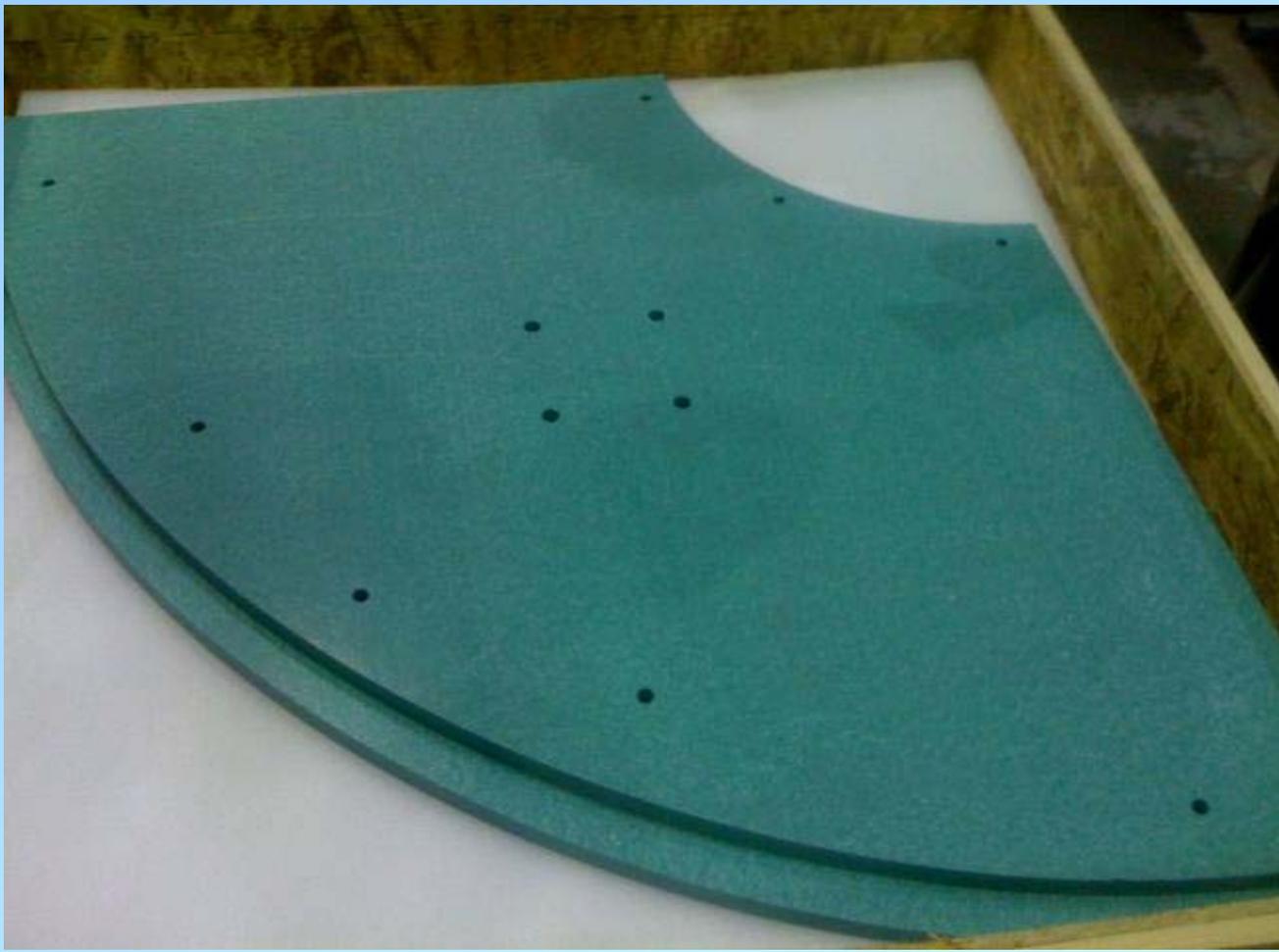


VTX Cable Trays

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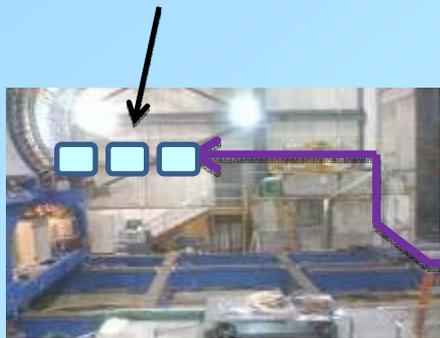
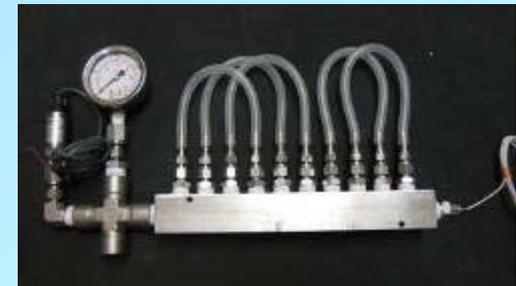
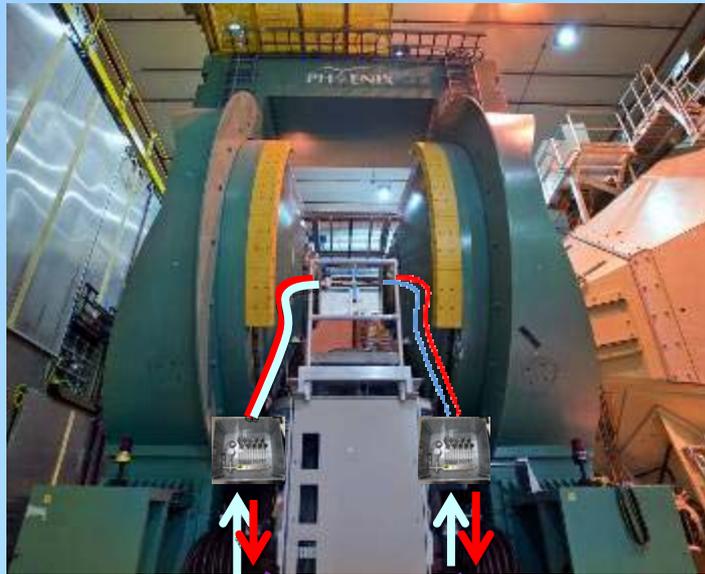
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Borated Poly Absorbers, (Lead Absorbers are below, not seen in picture)

Cooling system installation progress, cont'd

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Shield Wall

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Dry Gas Supply--N₂

- Supply to IR already in place
- Each Half will get two supply lines
- One for each manifold box

Plan to flow 10-50cc to boxes

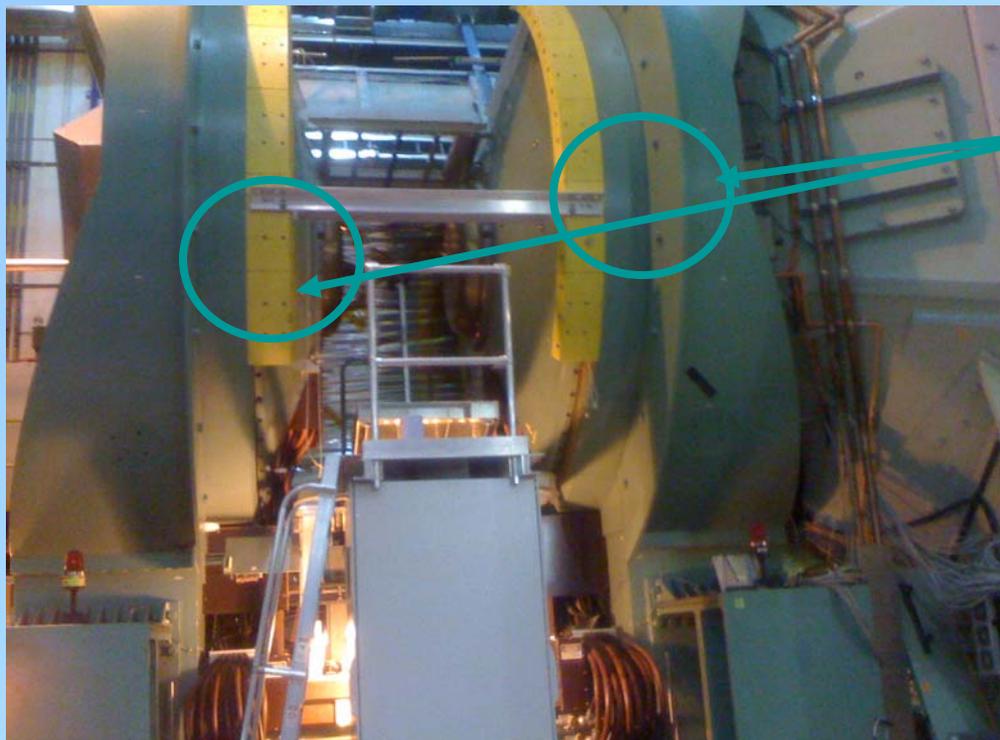
Guessing 2-6 lpm per flowmeter for detector dependent on obtaining some kind of positive pressure (0.25" W.C.").

Question to VTX

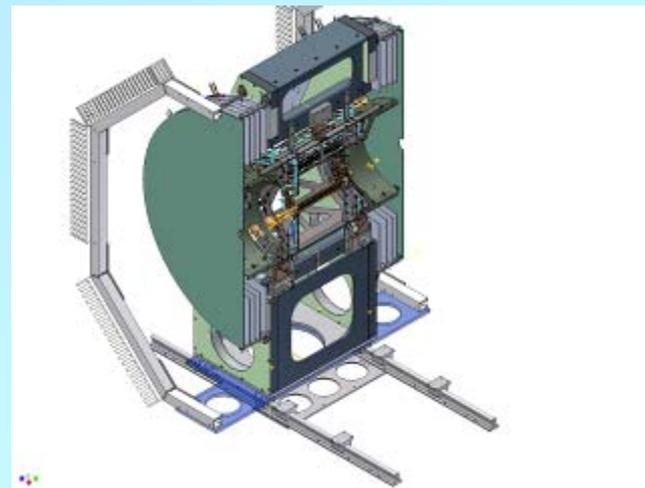
-Can a small tygon line (or 2) be run close to the center of the detector (inside one barrel layer) to supply a very low flow of N₂ to the inside? Even 10ccm would be helpful. Anywhere inside would help.

Final alignment and survey in the IR

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2 Survey telescopes to be mounted on a 6 inch channel which spans between the north east and south east lead absorbers. Angled brackets to mount the channel horizontally will be needed. With a telescope at both ends of the channel and 2 more on the IR base rails will allow the surveyors to get an accurate survey and alignment of the 2 detector $\frac{1}{2}$'s

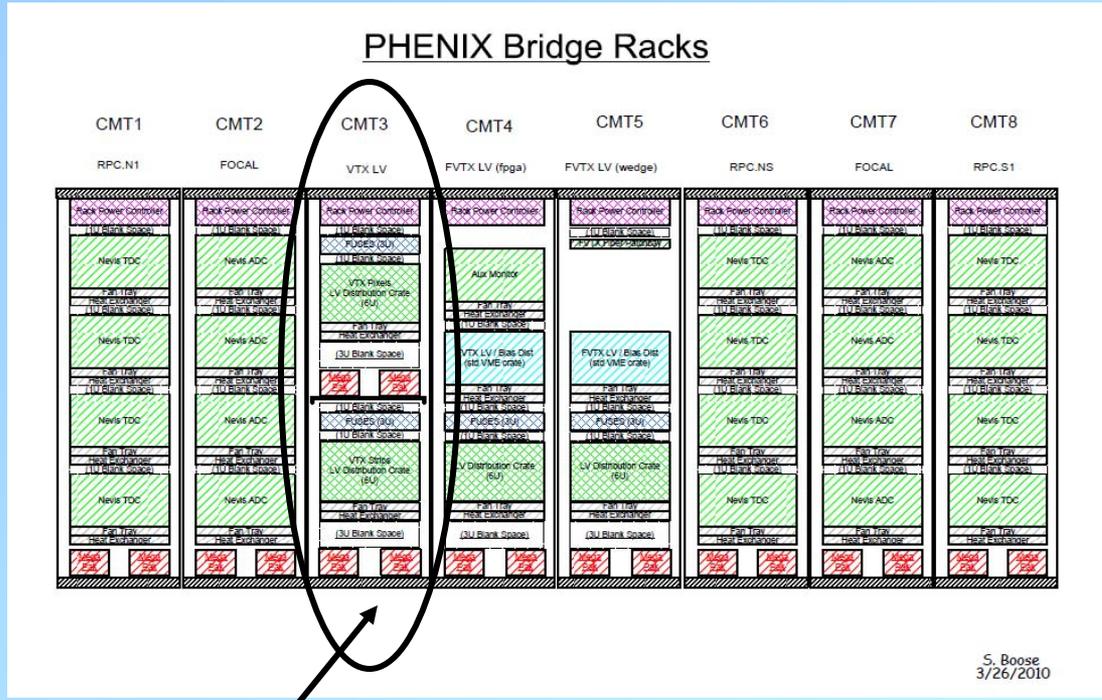


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Bridge Work this shutdown

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This rack installed

1. Reinstall 2 north sections, reconnect plumbing and cable trays to 2 north sections of bridge - Done
2. Upgrade electric service to support 8 racks -In Progress
3. Install 1 or 2 racks for VTX/FVTX/RPC/FoCal electronics - Done

Remaining Shutdown Tasks

TECHNICAL SUPPORT 20-0

<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
PHENIX	Chiller cooling water	10/29/2010	1 day	2 CAD techs	Done
VTX	Assemble west 1/2 detector	10/29/2010	1 day	2 PHENIX techs, designer VTX grp	Done
VTX	Design survey theodolite support brackets for CM lead shield	10/29/2010	1 day	1 PHENIX dsgr	Done
VTX	Route fibers rack room to CME Rack	10/29/2010	3 days	3 PHENIX techs	Done
PHENIX	Bakeout/activate NEG for new BP	11/1/2010	2 weeks	2 PHENIX techs, 2 CAD vac techs	Done
PHENIX	Leak check new BP	11/1/2010	1 day	2 CAD vac techs	Done
VTX	Test west 1/2 detector	11/1/2010	1 day	VTX group	Done
VTX	Survey east barrels 1-4	11/1/2010	4 days	1 PHENIX tech, designer, 3 surveyors	Done
PHENIX	Re-run MuTrigger fiber from MMS to rack room	11/2/2010	1 day	3 PHENIX techs	Done
VTX	Fabricate survey support brackets	11/2/2010	1 day	1 PHENIX Tech	Done
VTX	Bring Support structure to Chem Lab - Done	11/3/2010	1 day	2 PHENIX techs	Done
VTX	Install survey support brackets	11/3/2010	1 day	1 PHENIX tech	Done

Remaining Shutdown Tasks, Continued

TECHNICAL SHUTDOWN 20-0

<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
RPC3S	Build TVB wall	11/4/2010	1 week		In Progress
3 VTX	Survey west 1/2 detector	11/4/2010	1 day	1 PHENIX tech, designer, 3 surveyors	In Progress
RPC1&Abs Proto	Installation plan	11/5/2010	2 weeks	PHENIX ME	In Progress
RPC1&Abs Proto	WP	11/5/2010	3 days	PHENIX ME	In Progress
PHENIX	Remove bakeout equipment	11/5/2010	1 day	2 PHENIX techs, 2 CAD vac techs	In Progress
PHENIX	Install power upgrade to bridge	11/5/2010	1 day	Electrician, PHENIX tech	In Progress
PHENIX	Re-install bridge water manifold and cable trays	11/5/2010	1 day	2 PHENIX techs	After Bakeout equip removed
PHENIX	Chiller platform 480V power	11/5/2010	1 day	PHENIX EE, electrician	ASAP before VTX installed
VTX	Prepare thermocouple map	11/5/2010	1 day	2 PHENIX tech, designer	Done
VTX	Assemble east 1/2 detector	11/5/2010	1 day	PHENIX tech, designer, VTX grp	After all barrels surveyed
PHENIX	Re-install MuTr station 2 channel air distribution	11/8/2010	1 day	2 PHENIX techs	After access to MMS inside installed
3 VTX	Test east 1/2 detector	11/8/2010	1 day	VTX Group	After Assembled

Remaining Shutdown Tasks, Continued

TECHNICAL SUPPORT 20-0

Project	Task	Completion Date	Task Duration	Personnel reqmts	Notes
VTX	Install NOVEC piping from chiller platform area to VTX area	11/8/2010	1 week	2 PHENIX techs	In progress
RPC1&Abs Proto	Installation review	11/8/2010	1 day	PHENIX ME	In Progress
RPC1&Abs Proto	Installation fixtures design and fabrication	11/8/2010	3 days	PHENIX ME, Designer	In Progress
VTX	Receive extension rails/design/modify for installation	11/8/2010	1 day	1 PHENIX tech	On order modify when rec'd
VTX	Survey east 1/2 detector	11/8/2010	1 day	1 PHENIX tech, designer, 3 surveyors	After tested
PHENIX	Install access to inside MMS	11/8/2010	1 day	2 Phenix techs	For station 2 channel install
PHENIX	Survey and align MMS, CM and new BP	11/9/2010	3 days	1 PHENIX tech, 2 Surveyors	After Bakeout may require multiple MMS and CM moves
PHENIX	Install MMS east vert. lampshade	11/9/2010	1 day	3 CAD techs	After channels installed
VTX	Mate east and west 1/2 detectors	11/9/2010	1 day	PHENIX tech, designer, VTX Grp	
VTX	Survey/align east and west detector	11/9/2010	2 days	PHENIX tech, designer, 3 surveyors	
VTX	Modify strongbacks for basket lift	11/9/2010	Done	1 PHENIX tech, designer	Done
VTX	Install extension rails	11/10/2010	1 day	2 PHENIX techs	As soon as possible

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Remaining Shutdown Tasks, Continued

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<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
VTX	Install interlock PLC on bridge	11/10/2010	2 weeks	PHENIX EE, electrician, 1 PHENIX Tech	As soon as PLC is ready
VTX	Route 100 LV cables from bridge rack to near VTX	11/10/2010	2 days	3 PHENIX techs	As soon as possible
VTX	Route 100+ thermocouple extensions from PLC box to near VTX	11/10/2010	1 day	3 PHENIX techs	Concurrent with LV routing
VTX	Route 260 duplex/simplex fibers from CME rack to near VTX	11/10/2010	1 day	3 PHENIX techs	Concurrent with LV routing
VTX	Route 7 Belden 16 pair cable trunks from CME rack to near the VTX	11/10/2010	1 day	3 PHENIX techs	Concurrent with LV routing
PHENIX	Veterans Day Holiday	11/11/2010	1 day	No Work	
PHENIX	Design CM alignment stops	11/12/2010	1 week	ME, designer	As time permits
PHENIX	Fabricate CM alignment stops	11/12/2010	1 week	CS	After design
PHENIX	Re-attach cables, gas piping, water piping and fibers to CM and MMS	11/12/2010	2 weeks	3 PHENIX techs	In Progress
PHENIX	Re-install BBCs cabling/cooling pipes	11/12/2010	1 week	2 PHENIX techs	Concurrent with survey
RPC3S	NRTL cable trays	11/12/2010	1 day	PHENIX EE	In Progress
RPC3S	Finalize cable tray/Cable installation	11/12/2010	1 week	Electrician, PHENIX Tech, RPC Group	In Progress
RPC3S	Final piping	11/12/2010	1 week	1 phenix TECH	In Progress
RPC3S	Thermostats	11/12/2010	1 day	1 electrician	As convenient

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TECHNICAL SUPPORT 20-0

Project	Task	Completion Date	Task Duration	Personnel reqmts	Notes
VTX	Transport west 1/2 detector to IR	11/12/2010	.5 day	2 PHENIX techs, VTX Group	> MMS/CM/BP survey
VTX	Install west 1/2 detector	11/12/2010	.5 day	6 PHENIX techs, VTX Group	11/10, if possible
VTX	Assemble and install NOVEC distribution manifolds near VTX	11/12/2010	2 days	2 PHENIX techs	Immediately after installation
PHENIX	Annual PHENIX Safety Review	11/15/2010	2 days	1 ea PHENIX ME, EE, Scientist	Lynch, Pisani, Giannotti
VTX	Survey/align west 1/2 detector	11/15/2010	3 days	PHENIX tech, 2 surveyors, designr	Immediately after installation
PHENIX	Re-install BBCs	11/19/2010	1 week	2 PHENIX techs	Req CM moves
PHENIX	Re-install MPCs	11/19/2010	1 week	2 PHENIX techs	with BBC installs
PHENIX	WP for DC repairs	11/19/2010	2 days	ME	As convenient
RPC3S	Re-install shielding	11/19/2010	3 days	1 rigging crew	After TVB wall
VTX	Install west 1/2 detector Bias, LV and signal cables	11/19/2010	1 week	2 PHENIX techs	Immediately after survey
VTX	Install one Chiller for QA testing (on ground)	11/19/2010	2 days	2 PHENIX techs	ASAP ready for QA testing
VTX	Connect west 1/2 detector to NOVEC cooling	11/19/2010	1 day	2 PHENIX techs	Immediately after survey
VTX	QA elec test on VTX west 1/2	11/21/2010	2 days	VTX Group	As services are installed
VTX	Transport east 1/2 detector to IR	11/22/2010	.5 day	2 PHENIX techs, scientists A/R	After west QA
VTX	Survey/align east 1/2 detector	11/23/2010	1 day	PHENIX tech, designer, 2 surveyors	after installation

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<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
RPC3S	Re-install FCAL and any other disrupted subsystems	11/24/2010	2 days	2 PHENIX techs, 1 PHENIX EE	As convenient
VTX	Install east 1/2 detector Bias, LV and signal cables	11/24/2010	1 week	2 PHENIX techs	after survey
PHENIX	Thanksgiving Holiday	11/25-26/2010	2 days	No Work	Give Thanks
PHENIX	MuTr and MuTrigger remaining subsystem tasks and tests	11/30/2010	2 weeks	1 PHENIX techs MuTr/Trig Groups	As convenient
PHENIX	Move MuID collars to IR	11/30/2010	1 day	3 PHENIX techs	After BBCsMPCs
PHENIX	Prep EC for move to IR	11/30/2010	1 day	3 PHENIX techs	After BBCs & MPCs & VTX
PHENIX	AH South exit chiller platform installation	11/30/2010	1 week	2 Carpenters	Install when rec'd
PHENIX	Close access to MMN	11/30/2010	1 day	1 PHENIX tech	> MuTr/ Trig < flam gas
RPC3S	RPC gas controllers final installation and RPC subsystem commissioning	11/30/2010	1 week	1 PHENIX tech, RPC Group	As soon as convenient
VTX	Connect east 1/2 detector to NOVEC cooling	11/30/2010	2 days	2 PHENIX techs	Immediately after survey
VTX	Install 3 chillers on chiller platform	11/30/2010	1 day	2 PHENIX techs	> platform is installed
FoCal Proto	Design plan	11/30/2010	2 weeks	PHENIX ME	In Progress
FoCal Proto	Installation plan	11/30/2010	2 weeks	PHENIX ME	In Progress
VTX	In situ QA electronics test on east 1/2 detector	12/1/2010	2 days	PHENIX scientists A/R	As services are installed

Remaining Shutdown Tasks, Continued

TECHNICAL SUPPORT 20-0

<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
VTX	Install humidity sensors (??)	12/1/2010??	1 day	1 PHENIX tech	TBD
VTX	Final VTX survey	12/2/2010	1 day	1 PHENIX tech, designer, 2 surveyors	After east QA
VTX	Final BP survey	12/2/2010	1 day	1 PHENIX tech, designer, 2 surveyors	After east QA
PHENIX	Remove manlifts, decking and 12 ton crane from IR to run storage	12/3/2010	1 day	3 PHENIX techs	After BBCs & MPCs & VTX installed
PHENIX	Move EC to IR	12/3/2010	1 day	3 PHENIX techs	After Prep
PHENIX	Wire dumb waiter	12/6/2010	1 day	Electrician	After dumb waiter installed
PHENIX	Install MuID collars	12/6/2010	1 day	3 PHENIX techs	After EC in IR
PHENIX	Fold down EC platforms and install dumb waiter	12/7/2010	1 day	2 carpenters, 2 riggers	After EC in IR
PHENIX	Re-install EC cables, fibers, water and gas piping	12/7/2010	4 days	3 PHENIX techs, 2 scientists, 1 electrician	After EC in IR
PHENIX	DC repairs	12/10/2010	3 days	1 PHENIX tech, PHENIX scientists A/R	After EC cables, etc. installed
PHENIX	Assemble shield wall	12/10/2010	4 days	1 rigging crew	After EC rolled in

Remaining Shutdown Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
PHENIX	Install plug door	12/10/2010	1 day	1 rigging crew	After shield wall built
PHENIX	Close shield wall	12/10/2010	1 day	3 PHENIX techs	After pink/blue/white sheets
PHENIX	Gas mixing house R-134A shed addition R134A bottle warmers	12/15/2010	1 day	1 PHENIX Tech	Get CAD approval then order. Install when convenient
PHENIX	Pink sheets, blue sheets, white sheets	12/24/2010	2 weeks	2 PHENIX techs, PHENIX scientists A/R	After DC Repairs
PHENIX	Chiller platform fire detection and suppression	12/24/2010	1 week	1 CAD plumbers, 1electrican	ASAP after platform is installed
PHENIX	Install safety interlocks	12/24/2010	1 day	CAD safety	After shield wall closed
PHENIX	Start flammable gas	12/24/2010	1 day	1 PHENIX tech	After shield wall in place
PHENIX	End of shutdown party	12/30/2010	1 day	All of PHENIX	After shutdown completed
PHENIX	Close out all 2010 shutdown WP's	12/31/2010	1 day	1 PHENIX ME	After shutdown completed
RPC1&Abs Proto	Electronics & Gas Support Installation	1/1/2011???	3 days	3 PHENIX techs	Not Scheduled

Remaining Shutdown Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Project</u>	<u>Task</u>	<u>Completion Date</u>	<u>Task Duration</u>	<u>Personnel reqmts</u>	<u>Notes</u>
RPC1&Abs Proto	Installation	1/1/2011???	3 days	3 PHENIX techs	Not Scheduled
FoCal Proto	ESRC review	1/1/2011???	2 weeks	PHENIX ME	Not Scheduled
FoCal Proto	Support structure design	1/1/2011???	3 days	PHENIX ME, Designer	Not Scheduled
FoCal Proto	Support structure fabrication	1/1/2011???	2 weeks	2 PHENIX techs, CS	Not Scheduled
FoCal Proto	Electronics, cooling, gas support design	1/1/2011???	3 days	PHENIX ME, Designer	Not Scheduled
FoCal Proto	Electronics, cooling, gas support fabrication	1/1/2011???	1 week	2 phenix TECHS	Not Scheduled
FoCal Proto	Electronics, cooling, gas support installation	1/1/2011???	3 DAYS	3 phenix TECHS	Not Scheduled
FoCal Proto	Support structure installation	1/1/2011???	2 DAYS	3 phenix TECHS	Not Scheduled

2010 Building Maintenance Issues

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Roof leaks in utility bathroom at northwest corner behind tech offices, over door between rack room and assembly hall and over door between control room and elect. ass'y room.

General maintenance for Trailer Offices (in progress)

Nothing New This Week

Trailer Office Modifications planning in progress (new exterior siding)

Roof leaks in laser room and IR (southeast corner)

Flooding in AH/ Driveway heaving [Lake PHENIX]





Proposed shed addition to Gas Mixing house

Purpose: to house/store larger bottles for R134A to keep up with TOF West & RPC requirements. No flammable gas, standard shed with heat. Barn style doors desirable. Palce on asphalt with no threshold to allow bottle management with pallet lifter.

To be located in front of AC on east side of GMH



Using heated bottle warmers would allow us to achieve the same for a fraction of the cost.

(suggested by C. Biggs)

PHENIX Procedure Review Current Status:

148 Procedures Identified

85 Made Inactive (not currently in use, will require revision to re- activate if and when necessary, available for reference purposes)

9 CAD procedures relevant to PHENIX, all are available and available on the CAD web site

42 Procedures in Progress (1 of these soon needs updating)

11 Proposed/Draft Procedures (never previously formalized) (3 are ready for review)

Nothing New This Week

Web retrieval of latest procedures now available from PHENIX Internal:

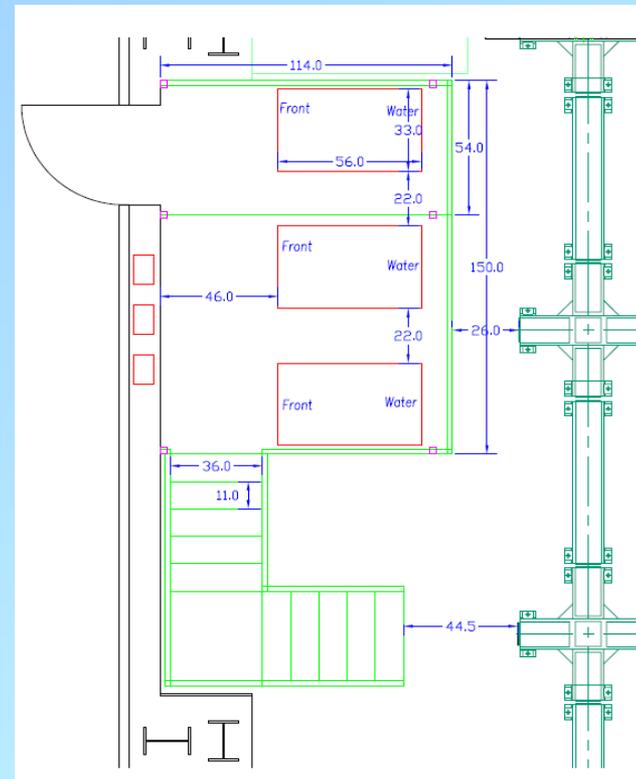
http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm



Propose to remove existing steps to south AH door with a deck and stairs. 3 chillers to be mounted on top of deck. Piston hydraulic units to be stowed under deck. Deck dimensions approx 9 ft (N-S) by 12 ft (E-W) by 7 ft height to doorway with steps at east end. Platform to support 3000 lb (1000 lb per chiller) fixed load plus 1000 lb (4 person) live load

30 gpm water needed (from exp. H₂O). 480 V 3 phase 30 amp service needed. (available from hydraulic piston service panel)

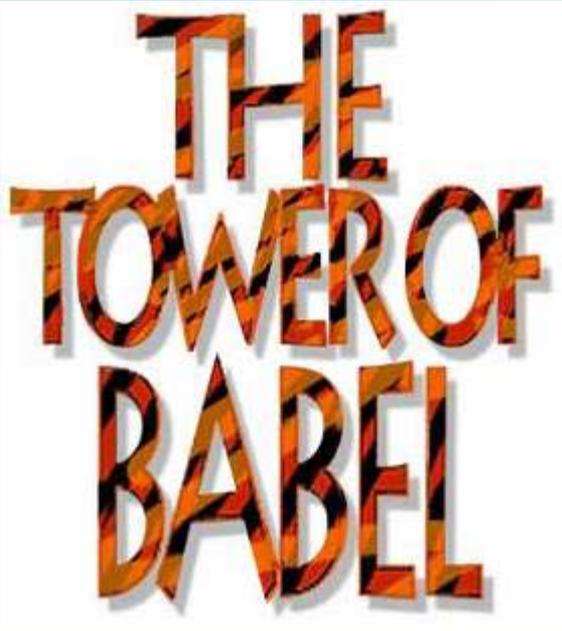
11/04/2010



TECHNICAL SUPPORT 2010

1. Annual PHENIX Safety review
Nov 18 3:30 PM Don, Rob, Paul
2. RPC1 Prototype & Borated Poly/Lead Absorber Review
Detector and absorber info sent to YMakdisi. Need installation plan
3. Focal Prototype Review
Not enough info yet
4. CAD: 2 minor injuries this week:
 - injured wrist getting up from working on the floor
 - Sprained ankle on a 4 inch floor drop to ramp
5. One of CAD Technical Supervisors recently reported receiving a gas cylinder marked permanently on the bottle neck "Oxygen" and marked with the standard paper sticker marking "Compressed Air". He correctly questioned this, placed a tag on the bottle "DO NOT USE - CONTENTS UNKNOWN" and returned the bottle for a replacement since the cylinder contents were unknown. Paying attention to details can prevent potential accidents and injuries.
6. Daylight savings ends this Sunday: Extra hour of sleep.

Where To Find PHENIX Engineering Info



Don't let this happen to us

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

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



TECHNICAL SUPPORT NO-0

BACKUP

Completed Tasks

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Prepare Installation Plan	Done	Done
Design Absorber Installation fixtures & tools	Done	PHENIX Engg & Design
Receive purchased parts	Done	PHENIX Techs
Fabricate PHENIX parts	Done	CS, PHENIX Techs
Receive and inspect CS fabricated parts	Done	PHENIX Techs
Prepare work permit for installation	Done	Currently at CAD Safety Approval
Pre-Assemble base components at PHENIX	Done	PHENIX Techs
VTX Installation Plan	Done	PHENIX Design & Engg
Installation Review (ESRC)	Done	Set up With Y. Makdisi
Specify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	Done	PHENIX Design & Engg
End of run 10 (Party)	Done	Done
Commissioning Tests (HV, Mixed gas and Freon only)	Done	Done
Choreograph removal of old beampipe and installation of new (final)	Done	Done
Beampipe Installation Review (Final)	Done	Done

11/04/2010

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
DAQ Tests	Done	PHENIX
Purge Gas From Detectors	Done	PHENIX, CAD remove LOTO
Install and align VTX rail attachment hardware to CM	Done	Using the HBD I-beam attachment hardware
Install and align VTX rails parallel to beam line	Done	Using the HBD I-beams
Remove BP Collar	Done	Done
Move MMS south	Done	PHENIX Techs
Prep EC for move to EC	Done	PHENIX Techs
Close North and South BP gate valves and lock closed for until new BP is installed	Done	CAD Vac Group
Open and disassemble wall	Done	Done
Remove EC ladder and fold platforms	Done	Carpenters & Riggers
Move EC to AH	Done	PHENIX Techs
Install cart	Done	PHENIX Techs
Move Collars to AH	Done	PHENIX Techs
Install decking	Done	PHENIX Techs
Remove/relocate shielding	Done	Riggers
Remove crystal palace & vapor barrier	Done	CAD
Install Manlift	Done	PHENIX Techs
Send beampipe to CERN for NEG Coating	Done	CAD Vacuum

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Remove RPC2 Prototype, support brackets, cabling & Piping	Done	In Progress PHENIX Techs, CAD Techs , Electrician
Remove MMS east vertical lampshade	Done	CAD Techs
4th of July Holiday & Floating Holiday	Done	
Remove HBD's and HBD cables Remove RXNP's and cables	Done	PHENIX Techs ASAP
Remove/relocate shielding	Done	Riggers
Remove crystal palace & vapor barrier	Done	CAD
Inspect Gap 5 south for legacy items/problems	Done	PHENIX Techs
Design BP installation and survey tools/fixtures	Done	
Receive BP transitions & spool back at BNL from SAES after NEG Coating	Done	
Remove BBC's	Done	PHENIX Techs ASAP
Remove wiring, walkovers, FCAL and scintillator hardware that would otherwise interfere with installation	Done	PHENIX Techs
4th of July Holiday	Done	Enjoy
Address legacy items/problems as convenient prior to shutdown start	Done	PHENIX Techs in progress

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Remove RPC prototype	Done	PHENIX/CAD Techs
Position MMS for Vacuum break	Done	PHENIX Techs
Break vacuum on north side of MMS	Done	CAD Vac Techs
Remove south bellows	Done	CAD Vac Techs
Gas Pad expansion completion (grouting)	Done	Tasks TBD
Remove MPC's	Done	PHENIX Techs ASAP
Install Temporary supports for old BP	Done	Supports TBD
Move MMS north, remove spool and south3-5 transition	Done	PHENIX Techs
Move the MMS south & Prep MMS for move to AH	Done	Begin MMS prep with shutdown start
Move CM south, remove north bellows	Done	PHENIX & CAD Vac Techs
Move old Be bp south into MMS and move CM north	Done	PHENIX Techs
Move MMS to shutdown park position	Done	PHENIX Techs
Remove old Be BP	Done	PHENIX Techs
VTX Survey Plan	Done	Consult w/ F. Karl
Install lighting & relocate sensors as necessary	Done	Electrician in progress

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Temporarily relocate, re-position or otherwise address interfering piping, cable trays	Done	PHENIX (w/ CAD Help?), Electrician
Pre-survey $\frac{1}{2}$ octant reference points	Done	PHENIX Techs & Surveyors
Build/install access and work platforms for walk on top of MuID steel including stairs from MMS eyebrow	Done	Carpenters
Final cleaning and prep of gap 5 for grouting	Done	PHENIX Techs
Position lifting equipment in tunnel	Done	Riggers
Install and align base structures on east and west sides of gap 5	Done	PHENIX Techs & Riggers
Prepare for grouting	Done	PHENIX Techs & Masons
RHIC Summer Sunday Tour	Done	
Fabricate/procure Absorber Installation fixtures & tools	Done	PHENIX Techs
Fabricate Absorber Details	Done	Vendor & CS - RPC Group and PHENIX
Move CM south and east	Done	PHENIX Techs
Pre-installation orientation meeting with masons and riggers	Done	PHENIX Techs Masons & Riggers

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Move east and west base structures into south tunnel and assemble on east and west sides of pedestal respectively.	Done	Riggers & PHENIX techs
Install grout	Done	PHENIC Techs & Masons
Remove north 3 to 5 transition	Done	PHENIX Techs
Test Absorber installation fixture	Done	Hynan & Gaffney to witness
Receive bp back at BNL	Done	Mapes, Riggers to move from rec'g to CAD
Design fixtures, techniques and mockups for installation, alignment and survey	Done	PHENIX Design & Engg
Install upper suspension support hardware	Done	PHENIC Techs
CM Crane	Deleted	Currently on hold for re-evaluation
Assemble, test and burn-in 1/2 octants	Done	In Progress @ RPC Factory
Prepare north 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	Done	PHENIX Techs & CAD Vacuum Techs
Final acceptance and inspection bp and sections	Done	Done
Fabricate BP installation and survey tools/fixtures	Done	Done

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Install North Absorber	Done	Done
Drill and tap ½ octant and rotating piston mounting points	Done	PHENIX Techs
Install pitch control rails on pedestal and gap 5 east & west inner walls	Done	PHENIX Techs
Cooling system procurement	Done	Pisani Coordinate with CAD Cooling Water, Electrician
Weld Absorber support stubs into flower pot exterior cavity	Done	CS Field welding; coordinate with Al Farland
Install north 3 to 5 transition in MMN	Done	PHENIX Techs
Final survey	Done	Surveyors
Preassemble Absorber Segments	Done	
Install South Absorber	Done	
Install new Be pipe in CM on temp supports	Done	PHENIX Techs

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Install $\frac{1}{2}$ octants, 2 at a time in accordance with work plan/work permit		
<i>Transport $\frac{1}{2}$ octants 2 at a time from RPC factory to south tunnel on angled transport carts</i>		
<i>Transfer $\frac{1}{2}$ octants from angled transport carts one at a time to temporary free standing and re-orienting roller fixture (fore and aft wheels and axel)</i>		
<i>Lift (and re-orient if appropriate) $\frac{1}{2}$ octant and install into base structure, previously installed $\frac{1}{2}$ octant or upper suspension hardawre as appropriate per work plan</i>		
<i>Pre-align each $\frac{1}{2}$ octant as installed</i>		
<i>Perform electrical integrity tests before proceeding to next pair of $\frac{1}{2}$ octants</i>		
<i>After all $\frac{1}{2}$ octants are in place and tested, join east and west halves of full south station 3 detector and align to survey markers</i>		

Completed Tasks, Continued

TECHNICAL SUPPORT 2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Beampipe & VTX Installation Work Permits	Done	D. Lynch, CAD Safety Approval
BigWheel Fabrication & Procurement	Done	PHENIX, CS
Receive, inspect, test, rework and qualify components, assembly tools and fixtures, electronics for racks, cables, cable management etc.	Done	PHENIX Design & Engg
Fabricate fixtures, techniques and mockups for installation, alignment and survey	Done	CS, PHENIX Techs
Assemblies, Mock installations/alignments, bench tests	Done	PHENIX Techs
Receive & inspect components (installation, support, alignment & Survey)	Done	PHENIX Techs
Move CM back to beamline & connect new Be BP to 1-5/8 transition and bellows and north 3-5 transition	Done	PHENIX Techs PHENIX Techs
Move CM to run position	Done	PHENIX Techs
RPC3 North unfinished business	Done	Electronics and cabling, grounding issues, environmental controls
MuTrigger FEE unfinished business	Done	MMS cable trays,
Prealign Be/Alum pipe with transitions attached on new BP supports At MPC north, BBC south and north nosecone	Done	Surveyors & PHENIX Techs

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Prepare south 3 to 5 transition for installation with roller guides, bakeout wrap and thermocouples	Done	PHENIX Techs
Install south 3 to 5 transition, bellows and 1-5/8 to 3" transition in MMS	Done	PHENIX Techs
Move MMS back into IR on beamline	Done	PHENIX Techs
Move CM south, slide Transition ass'y in MMS north and connect to new Be BP	Done	CAD Vac & PHENIX Techs
Move CM and MMS north and install south spool. Leak check. Move MMS South	Done	CAD Vac & PHENIX Techs
Install temporary bakeout supports	Done	PHENIX Techs
Install bakeout blankets and monitoring	Done	CAD Vacuum Techs
Install new cable trays and piping supports	Done	Electrician, PHENIX Techs earlier if possible
Re-install MuID gas rack	Done	PHENIX Techs
Send mass flowmeters out for recalibration (DC/PC, MuID, TOF.W)	Done	Done

Completed Tasks

General:

- RPC3N commissioning tests
- Generic start of shutdown tasks (collars, wall, EC prep, EC to AH, DAQ tests, etc.)
- DC (East & West), PC1 (East and West), MuTr (north and South), Mu Trigger North and south maintenance and repair support
- Remove RPC2 & 3 Prototypes, support brackets, cables and piping
- Remove south vertical lampshade
- Gas Pad Expansion
- Summer Sunday Prep
- Move major carriages to wide open positions

Completed Tasks

TECHNICAL SUPPORT 2010

Absorber Related:

- Absorber Installation Plan
- Fabricated and Procured Absorber parts and installation tools
- Absorber work permit
- Absorber lifting fixture, design, analysis, LSC approval, Load test
- North Absorber installed
- South Absorber supports installed & Flowerpot area prepped, $\frac{1}{2}$ of absorbers are installed

Beam Pipe Related:

- Design, fabrication, procurement, acceptance beam pipe components and supports
- Send beam pipes to CERN/SAES Getter for NEG coat
- Remove MPC's and BBC's
- Remove existing beampipe
- North 3"-5" transition installed

Completed Tasks

TECHNICAL SUPPORT 2010

RPC3S Related:

- Remove shielding
- Remove Crystal Palace
- Remove wiring, walkovers, FCAL and scintillator hardware
- Remove all pipes, cables, trays and pipe supports from gap 5, provide minimal life support gases to detectors, special provisions for detector maintenance requirements
- Install new tunnel lighting
- Build access platforms above MuID steel
- Clean gap 5, install, level and align RPC3S bases
- Presurvey, drill and tap alignment and orientation points for $\frac{1}{2}$ octants
- Grout bases into place
- Install west and pedestal pitch control
- Install upper alignment supports
- Install east pitch control
- All $\frac{1}{2}$ octants installed

Completed Tasks

TECHNICAL SUPPORT 2010

VTX Related:

- Design and analyze assembly plan
- Design and analyze survey plan
- Design and analyze installation plan
- Design and analyze cooling plan
- Design VTX installation and support structures and tools, including survey tools
- Order chillers
- Redesign Bigwheels for optimized cooling
- Fabricate VTX assembly, installation, survey components and tools
- Install VTX support rails and attachment hardware