

PHENIX WEEKLY PLANNING



10/28/2010
Don Lynch

10/28/2010

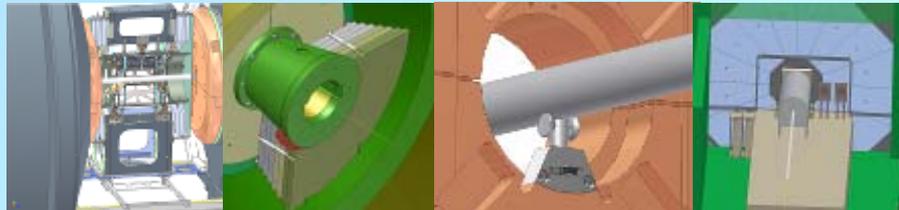
TECHNICAL SUPPORT NO-0

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	11/12
Remove Re-install MPC	In Progress	11/12
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	11/1
Install VTX	10/25	12/1



Post Run 10 Tasks



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Task

Start Date

End Date

Send mass flowmeters out for recalibration (DC/PC, MuID, TOF.W)

Done

Done

AH Crane 110 switch for lockout

In Progress

11/30

This Week:

Continue Assembly of VTX subassemblies & Continue Survey

VTX Cabling and Piping

Continue RPC3S services.

Continue restoring services to CM and MMS

Begin Bakeout and NEG activation of new BP

Future upgrades support

Next Week

Finish Assembly of VTX subassemblies & Survey

Continue RPC3S services.

CM, MMS and BP alignment and survey

Continue restoring services to CM and MMS

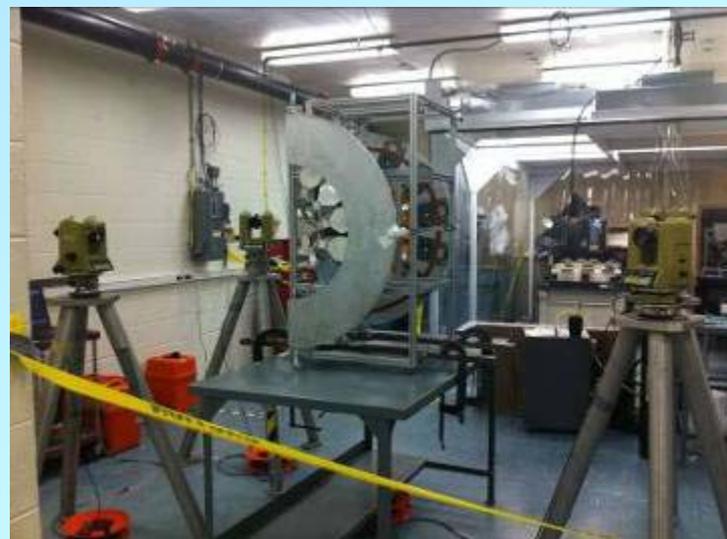
Continue VTX Installation Prep

Future upgrades support

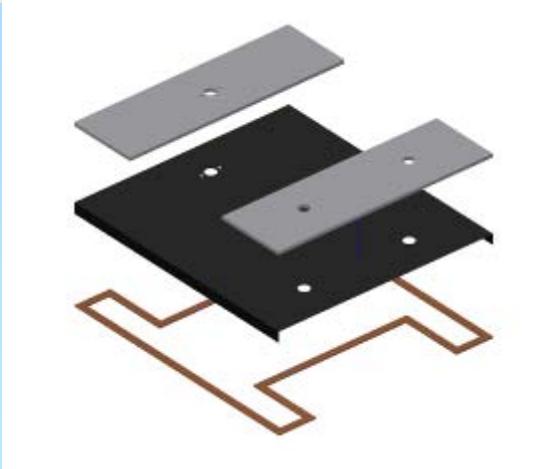
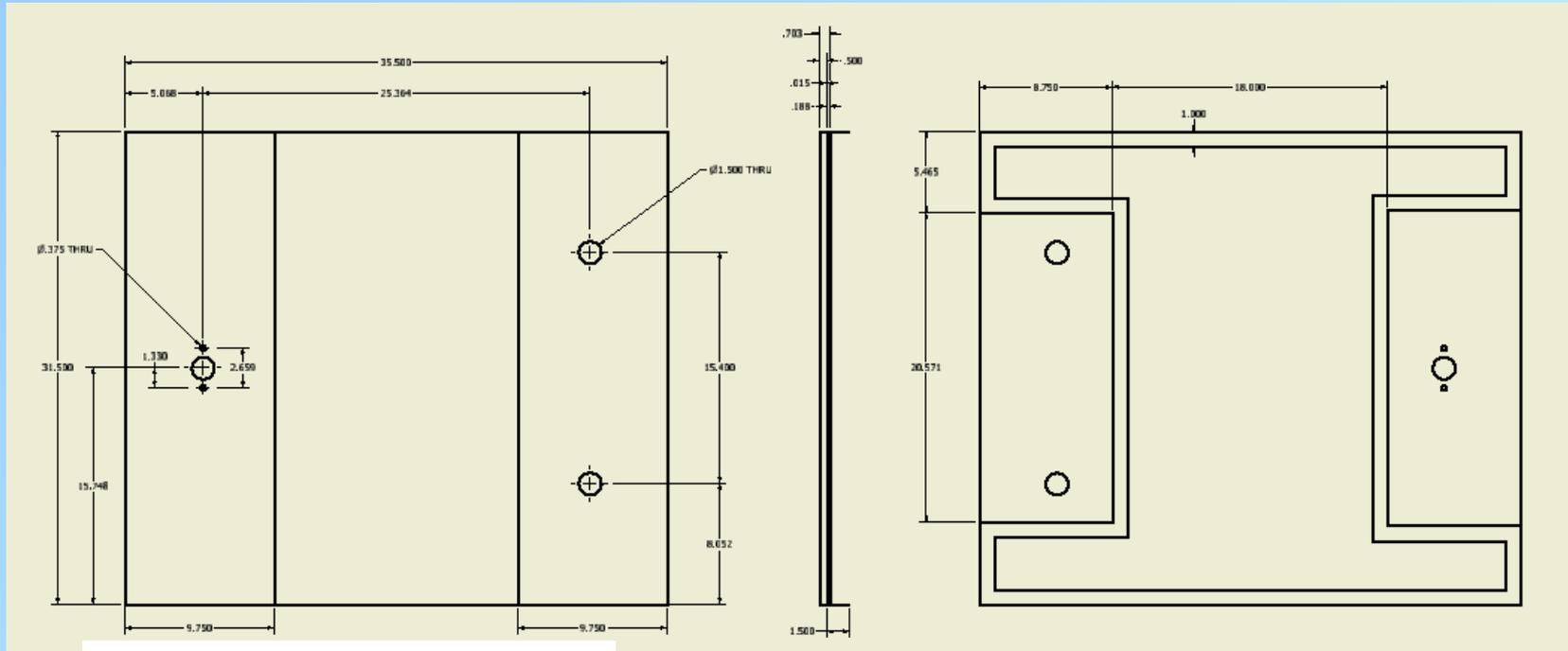
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Survey progress and survey remaining schedule

- West all 4 barrels are pre-surveyed
- East all 4 barrels are at CHEMISTRY Lab ready for survey by 10/27
- Move support structure to CHEM Lab by 10/28
- Pre-survey of East barrels complete by 10/29
- Assemble West half detector on support structure by 11/1
- Survey West $\frac{1}{2}$ detector 11/2
- Assemble East $\frac{1}{2}$ detector on support structure by 11/2
- Survey East $\frac{1}{2}$ detector and East-West assembly by 11/3



10/28/2010



Open position gas enclosure design, fabrication and installation

ТЭУННУАЈ УСААОНТ НО-О



10/28/2010



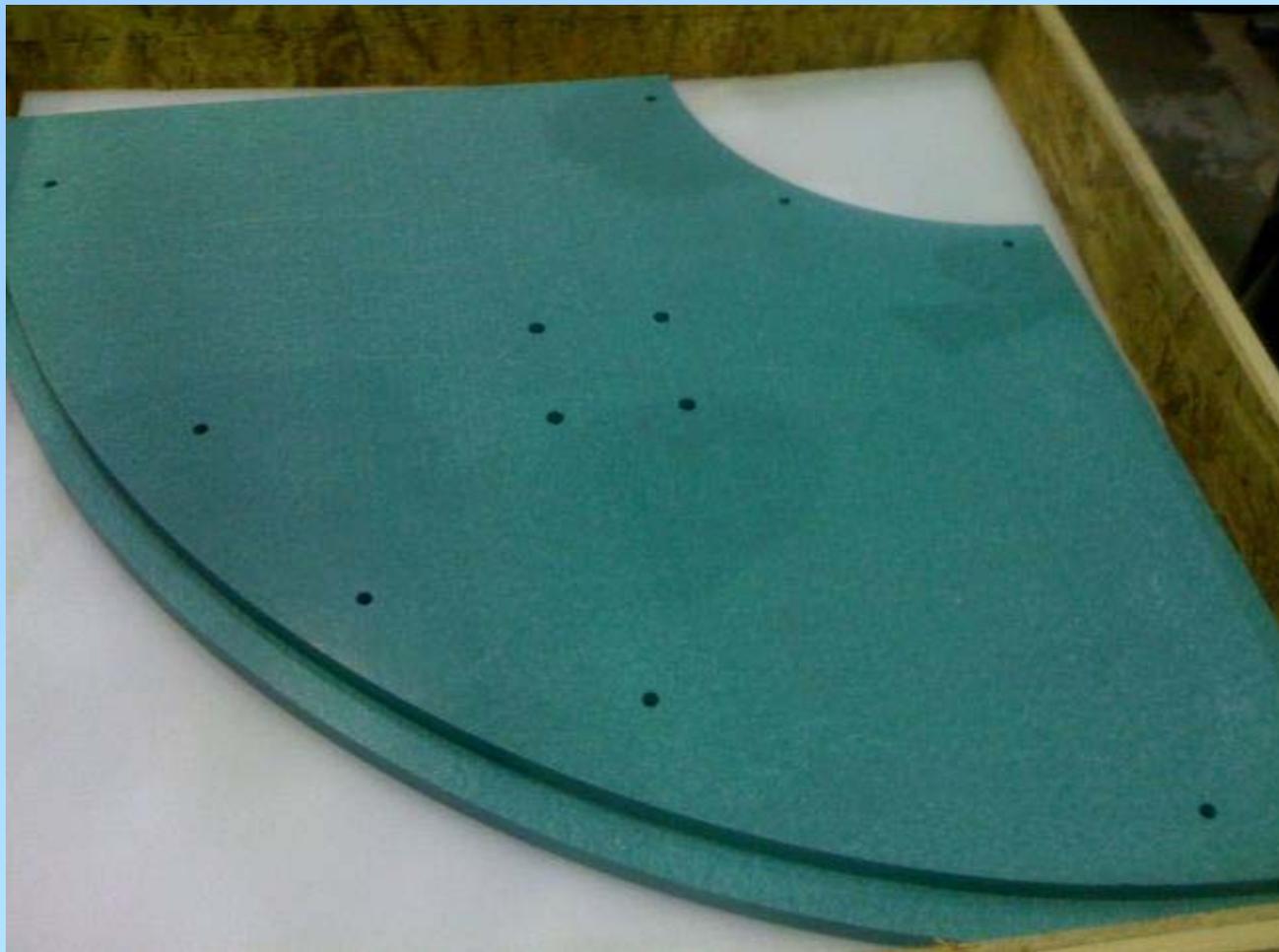
VTX Cable Trays

TECHNICAL SUPPORT NO-0



Absorber lift
fixture painted

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

Support structure integration

- Begin integrating barrels 1-4 into the West $\frac{1}{2}$ detector after pre-survey of west barrels is complete
- Begin integrating barrels 1-4 into the East $\frac{1}{2}$ detector after pre-survey of east barrels is complete
- After both $\frac{1}{2}$ detectors surveyed individually mount and align east to west and note support deflection
- Separate 1/2's, attach dust covers, mount on strong backs, prepare for transport to 1008



TECHNICAL SUPPORT NO-0

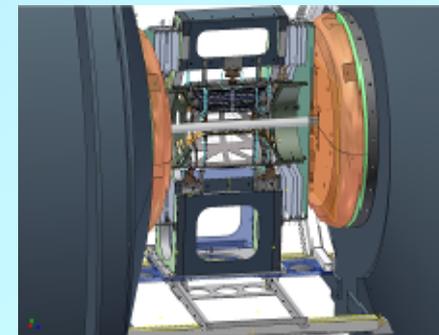
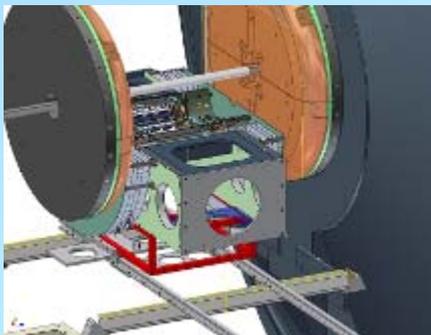
Handling and installation procedure for the move from Chemistry lab to PHENIX IR

- Work permit submitted to ESRC and approved.
- Final rail modifications to be match drilled at assembly in Chem Lab
- Rails and rail extensions to be installed prior to transport of detector $\frac{1}{2}$'s to 1008.
- Detector $\frac{1}{2}$'s to be mounted in strong backs for transport to 1008.
- Transportation to 1008 to avoid jostling or otherwise disturbing, distorting, twisting or shocking the assembly
- Use IR crane with basket lift to place west $\frac{1}{2}$ detector on east rail extensions with the top of the detector facing west and the OD of the detector half facing down
- Slide the west VTX detector half carefully under the Beampipe taking care to avoid any potential snags or pinch points, and taking exceptional care to avoid contact with the beampipe and/or the beampipe protectors (soft and hard)
- after the detector is fully translated west under and clear of the beampipe, install stops to prevent the west half from contacting the beampipe.
- Remove the hard and soft beampipe protectors.
- Attach the IR crane to the lifting point on the VTX installation fixture and carefully rotate the beampipe into its upright and open position.
- Check alignment and make sure the west half has been restored to its aligned position relative to the rails.
- Align/Survey the west VTX detector half relative to the beampipe and PHENIX IR nominal IP, make appropriate corrections to the west half detector stops.
- Retract west VTX to its "open" parked position.

TECHNICAL SUPPORT NO-0

Handling and installation procedure for the move from Chemistry lab to PHENIX IR (cont'd)

- Mount the east VTX detector half on the VTX installation fixture and transport the assembly to the PHENIX AH, taking care not to jostle or otherwise disturb, distort, twist or shock the assembly.
- Rig the west VTX detector half onto the PHENIX 12 ton cart in the AH then roll the cart into the IR.
- Rig the west VTX detector half from the 12 ton cart to the east extension rail in the upright position.
- Slide the east half detector near the beampipe and make precision adjustments as necessary to get it near its final position.
- Slide the west half detector into its aligned position against the rail stops.
- Mate the east VTX detector half to the west half.
- After the VTX east and west detector halves have been joined survey the entire detector by the external reference points established during pre-survey and record all info in the PHENIX survey data base.



Cooling system installation progress, cont'd



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- VTX low temp manifold in dry box
- Return manifold will be in same box
- We will have 4 of them
 - 2 for Big Wheels
 - 2 for VTX/FVTX
- Pressure and temp transmitters to monitor detector drop.



- Dripleless Quick Couplings for each connection

10/28/2010

Cooling system installation progress, cont'd

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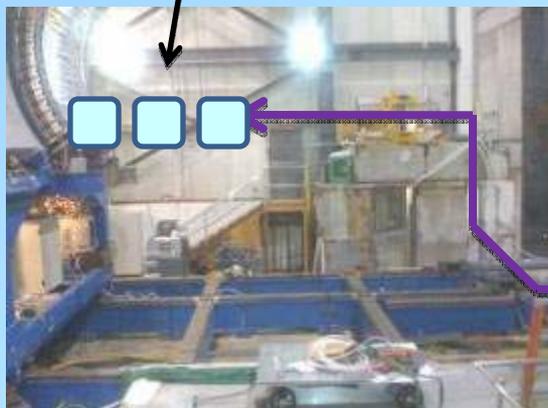


Cooling system installation progress, cont'd

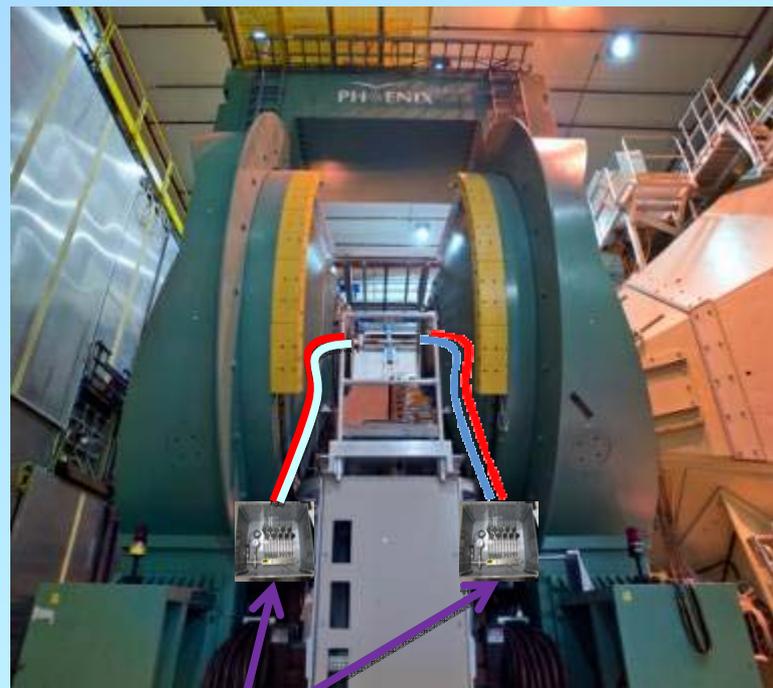
TECHNICAL SUPPORT NO-0

For illustration purpose only

Final location of chillers



Shield Wall



- 1" Insulated Feed for VTX
- 1" Insulated Return for VTX
- 1" Feed for Big Wheel
- 1" Return for Big Wheel

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

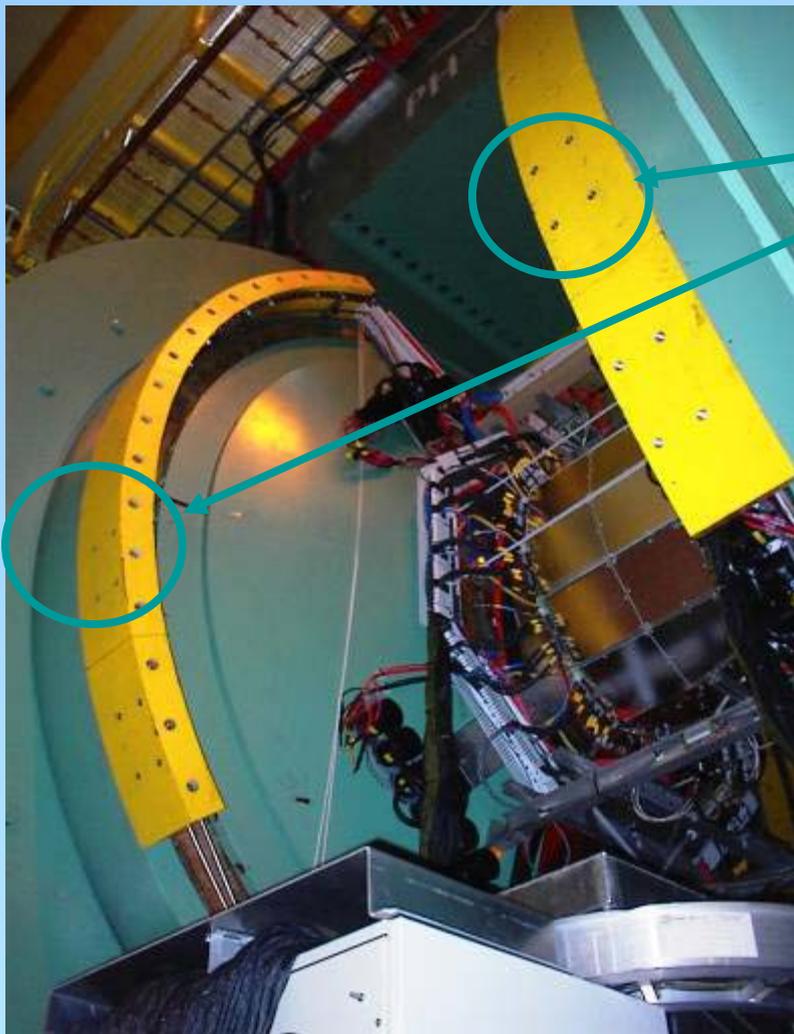
Guessing 2-6 lpm per flowmeter for detector dependent on obtaining some kind of positive pressure (0.25" W.C.").

Question to VTX

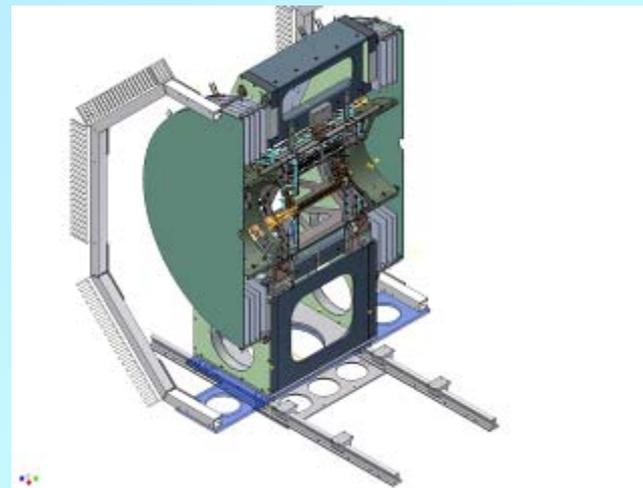
-Can a small tygon line (or 2) be run close to the center of the detector (inside one barrel layer) to supply a very low flow of N2 to the inside? Even 10ccm would be helpful. Anywhere inside would help.

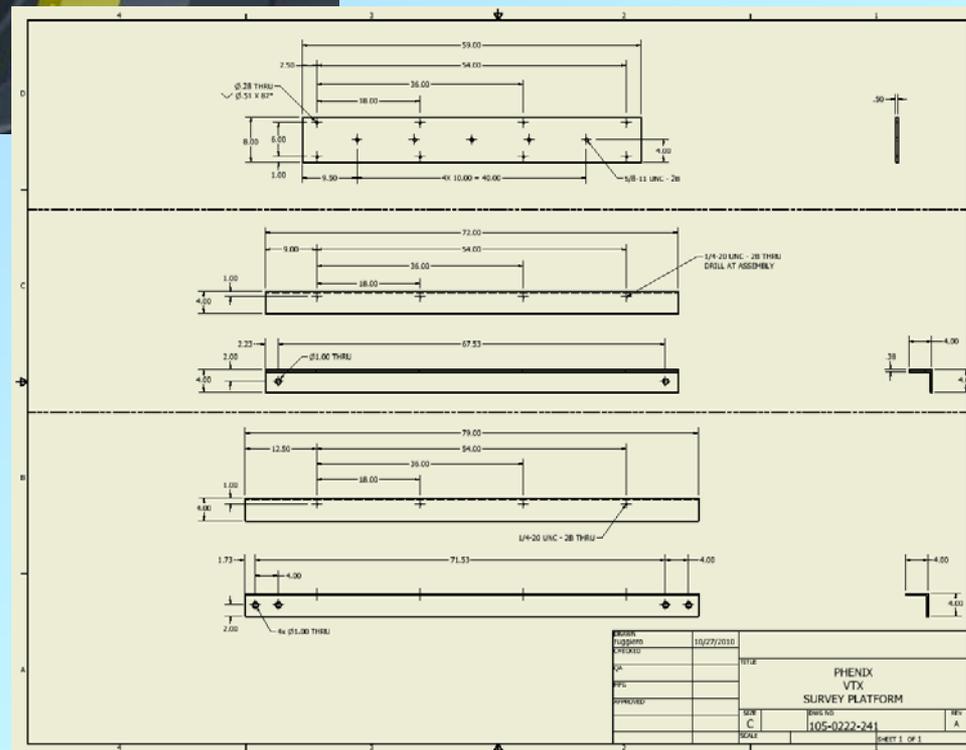
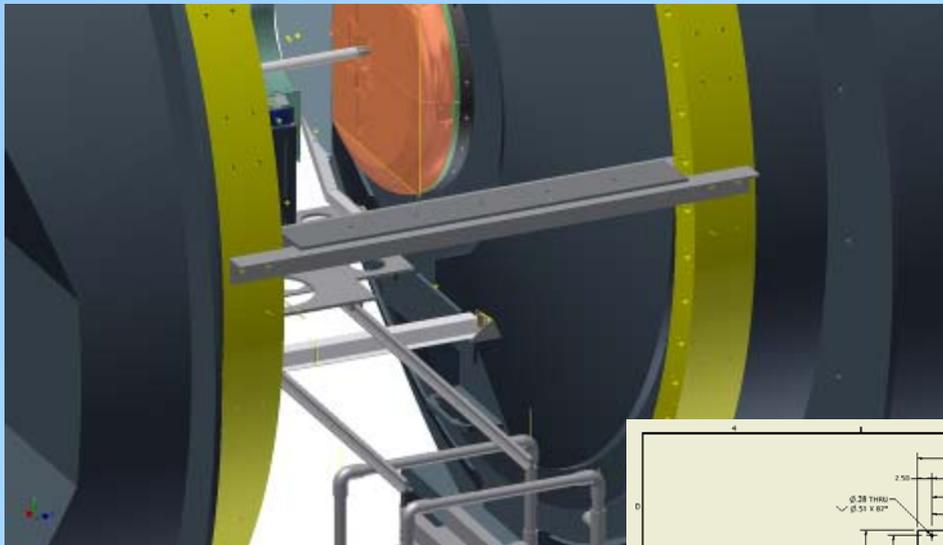
Final alignment and survey in the IR

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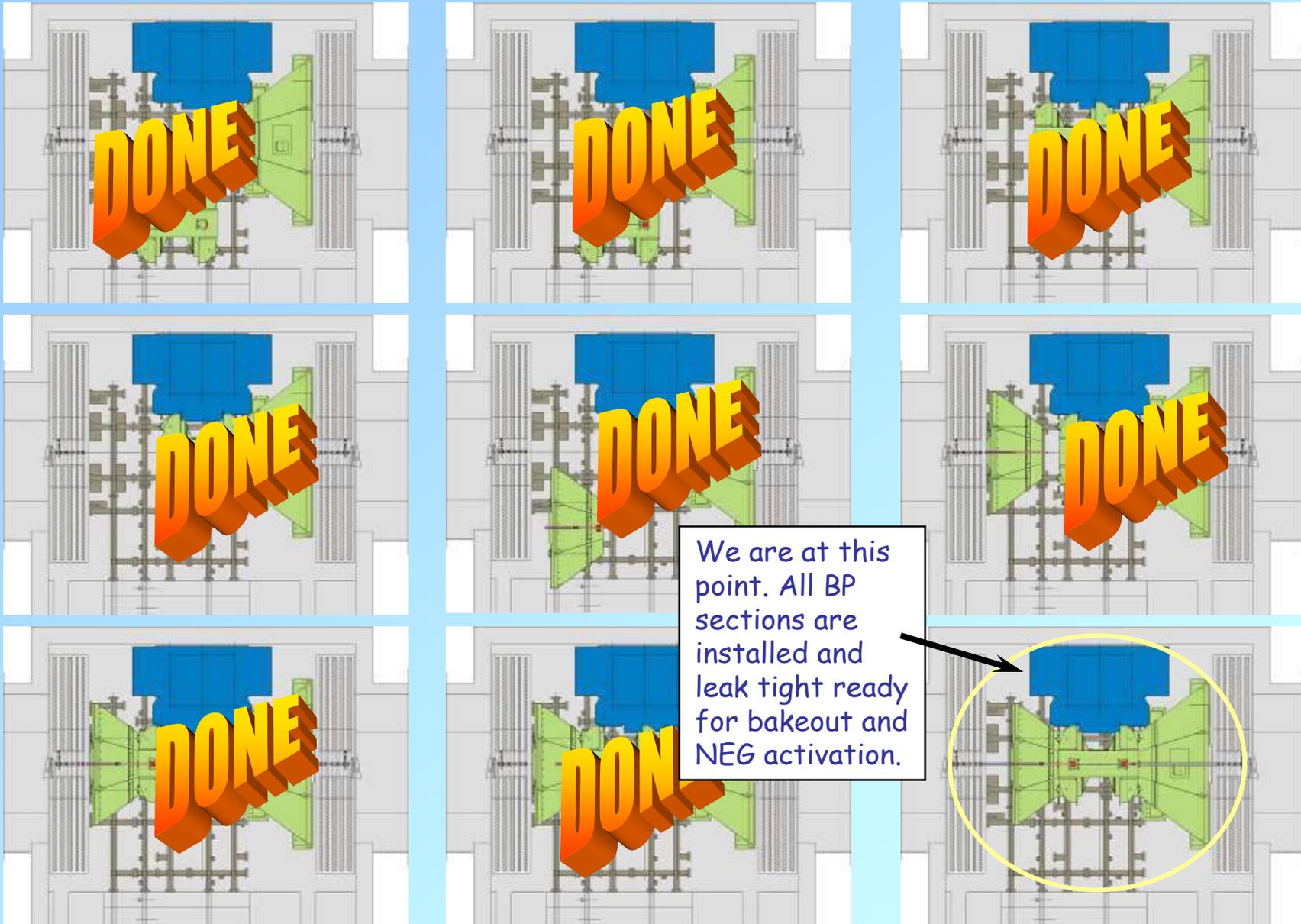
2 Survey telescopes to be mounted on a 6 inch channel which spans between the north east and south east lead absorbers. Angled brackets to mount the channel horizontally will be needed. With a telescope at both ends of the channel and 2 more on the IR base rails will allow the surveyors to get an accurate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





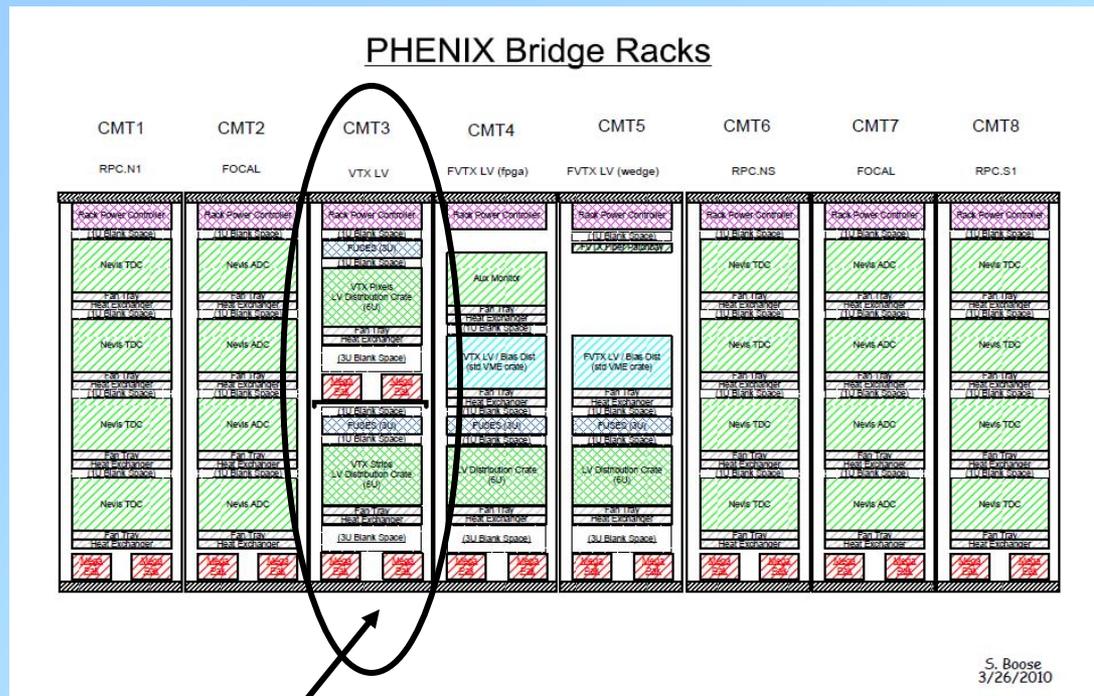
10/28/2010

Installation of New Beampipe



Bridge Work this shutdown

TECHNICAL SUPPORT NO-0



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

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Cooling system installation	11/30/10	
	↓	↓

New Beampipe installation

PHENIX

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Bakeout New BP and activate NEG coating	In Progress	CAD Vacuum Techs →
Leak check BP	11/1/2010	CAD Vacuum Techs →
Re-install MPC's & BBC's including Cables and services	11/19/2010	PHENIX Techs Concurrent →
Move CM to run position	11/19/2010	PHENIX Techs →
Final alignment of new BP	11/19/2010 ↓	PHENIX Techs ↓

VTX Installation, VTX Services and Electronics



TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Presurvey VTX ½ detectors in Chemistry lab	In Progress	PHENIX TECHS and BNL Survey, 1 week
All VTX detector, support, installation, alignment and survey parts and assemblies complete, ready for installation	11/3/2010	All sources
Install and align VTX rails perpendicular to beam line	11/3/2010	PHENIX Techs
Install and align west half detector module	11/10/2010	PHENIX Techs & Survey →
Install and align east half detector module	11/10/2010	PHENIX Techs & Survey →
Install mechanical support structures for VTX services and electronics	11/19/2010	PHENIX Techs Concurrent Effort →
Install Cable trays	11/19/2010	→
Install racks	11/19/2010	→
Install chillers	11/19/2010	→
Install cables, plumbing	11/19/2010	→
Connect cables and plumbing	11/19/2010	V →
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Test, de-bug and commission	12/17/2010	PHENIX Techs

RPC3 South Integration

TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Re-install MuID wiring and pipes	Done ??	PHENIX Techs
Install south thermal/vapor barrier	11/15/2010	CAD contractor →
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
Commissioning and final acceptance tests	11/30/2010	RPC Group →
Install RPC3 HV, LV and signal wiring and gas lines	11/30/2010	PHENIX Techs
Install RPC3 South gas distribution rack	11/30/2010	PHENIX Techs
Re-install shielding	11/30/2010	Riggers
Install RPC3 South environmental controls (heaters and thermostats)	11/30/2010	Electrician

Shutdown 2010 Other Work

TECHNICAL SUPPORT 2010

<u>Task support</u>	<u>Due By</u>	<u>NOTES</u>
DC/PC maintenance/repair (after EC is in)	11/22/2010	FEM and wire troubleshooting and repairs, major efforts will require longer shutdown
Thanksgiving and Black Friday Holiday	11/25 & 11/26/2010	Enjoy
PHENIX Survey Review	11/30/2010	PHENIX Techs & Survey
Procedure Updating	11/30/2010	PHENIX Engineering
Gas Mixing House maintenance & Repair	11/30/2010	Tasks TBD
PHENIX Infrastructure maintenance, repair, upgrade	11/30/2010	TBD
Gas Pad: new gas storage details	11/30/2010	Tasks TBD
Gas Pad services for new dewar support, maintenance and improvements	11/30/2010	TASKS TBD

Shutdown 2010 Other Work (Cont'd)

TECHNICAL SUPPORT NO-0

<u>Task support</u>	<u>Due By</u>	<u>NOTES</u>
AH Flood prevention improvements	11/30/2010	Tasks TBD
IR Bridge Electrical service upgrade	11/30/2010	Support for 4 full racks in 2010, 4 more (8 total) in future, PHENIX Techs & Electrician
RPC Factory Support	11/30/2010	Tasks TBD
Rack Room upgrade	11/30/2010	Includes New EB Switch
PHENIX Design Documentation	11/30/2010	PHENIX Engineering
CM alignment stops	11/30/2010	TBD
Gas System maintenance, repair, upgrade	11/30/2010	Tasks TBD
Other subsystem maintenance, repair/upgrade	11/30/2010	Tasks TBD
Future upgrade support	11/30/2010	RPC1, FVTX, FOCal, other Tasks TBD
Prepare for Run 11: EC platforms fold up in AH, fold down in IR, EC Equipment lift take down in AH, Install in IR, Install shielding wall base and build shielding wall & Install MMS Lampshade	11/30/2010	Normal end of shutdown tasks, typically taking 3-4 weeks: Riggers & Carpenters, CAD Techs
Run 11 Start	12/1/2010	
End of Shutdown Party	~12/3/2010	

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)

• 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:

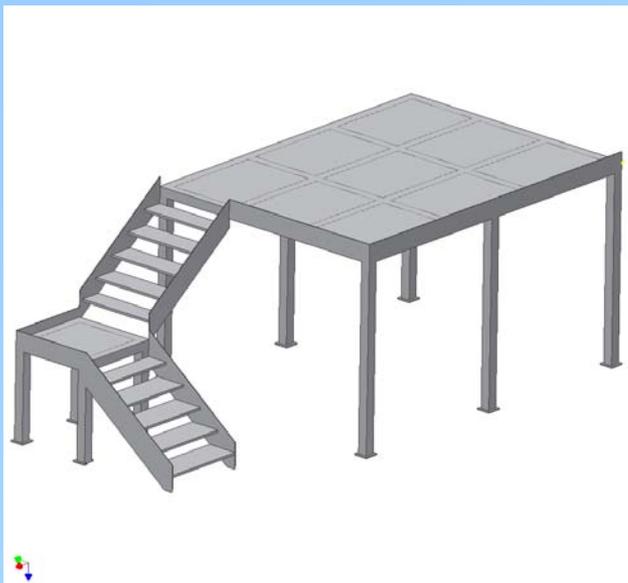
http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_procedures.htm

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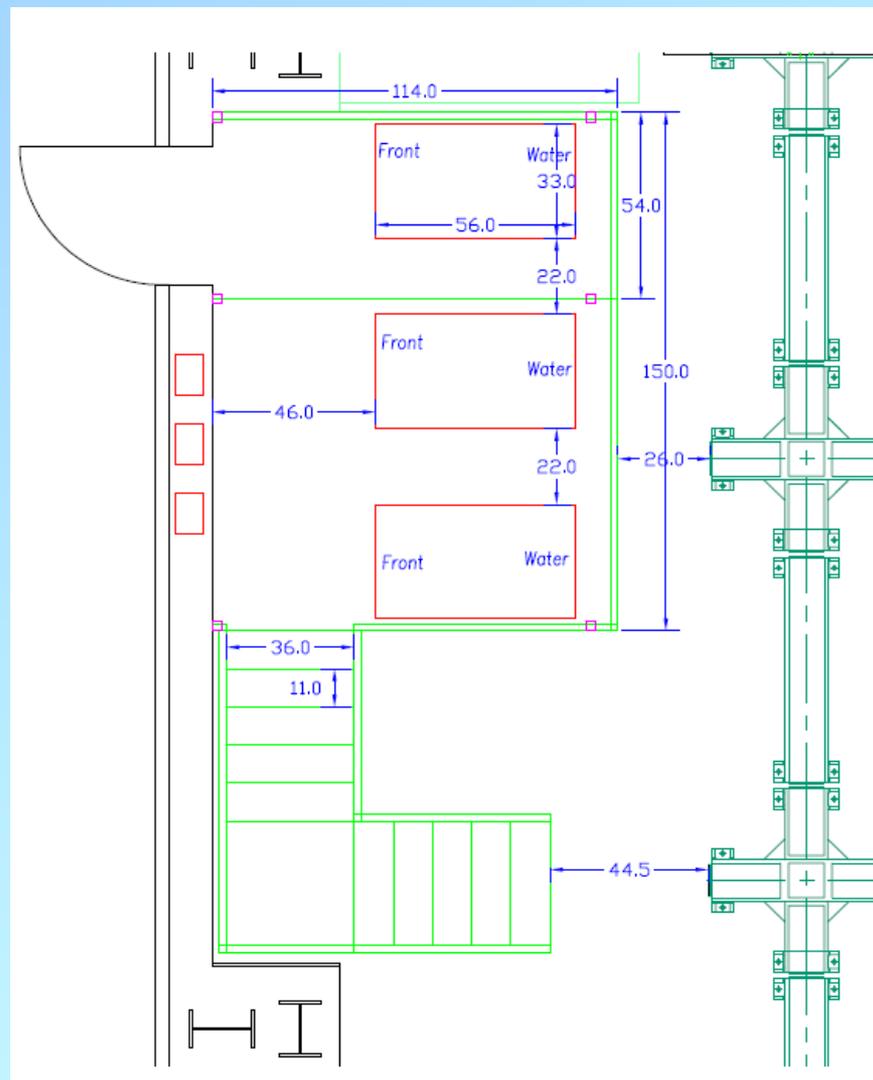
VTX Chillers (3) installation proposal: Remove existing platform, stairs and HBD hutch. Replace with larger platform and new stairs. Chillers to be located on platform, Hydraulics to be stowed under platform.





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)



1. Annual PHENIX Safety review

Date TBD

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. Crane ORPS

"This occurrence points out two areas for improvement: 1) improving crane inspection to include visual inspection for wear on all components that could fail, and 2) improving user training so that workers become fully aware of the crane limitations and the effects of side loading, and the wear caused by normal use." ... "Lessons Learned:

Cranes need to be chosen, operated and designed for the purpose and types of lifts made in specific areas. Limitations of the crane design should be considered when the lift is evaluated during the lift planning process. As work areas evolve and change, the limitations of a crane may become more acute.

Workers need to be aware of these limitations by reading and understanding the crane or hoist operators manual."

Where To Find PHENIX Engineering Info

TECHNICAL SUPPORT 2010



In order to save time, energy and water

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



Draft Revised Schedule

Remaining Shutdown Tasks Checklist: General



TUESDAY 10/28/2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Install access to inside MMS	Done	For station 2 channel installation
Chiller cooling water	10/29/2010	In progress
Bakeout & activate NEG for new BP	11/1/2010	In Progress
Leak check new BP	11/1/2010	After Bakeout
Remove bakeout equipment	11/2/2010	After Bakeout
Install power upgrade to bridge	11/2/2010	In Progress
Re-install MuTr station 2 channel air distribution	11/5/2010	After access to MMS inside installed
Re-run MuTrigger fiber from MMS to rack room	11/5/2010	In Progress
Survey and align MMS, CM and new BP	11/5/2010	After Bakeout equip removed, may require multiple MMS and CM moves
Re-install bridge water manifold and cable trays	11/5/2010	After Bakeout equip removed
Chiller platform 480V power	11/5/2010	ASAP before VTX installed
Design CM alignment stops	11/5/2010	As soon as time permits
Install MMS east vertical lampshade	11/9/2010	After channels installed
Fabricate CM alignment stops	11/12/2010	After design

10/28/2010

Remaining Shutdown Tasks Checklist: *General*



TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Re-attach cables, gas piping, water piping and fibers to CM and MMS	11/12/2010	In Progress
Re-install BBCs' cabling and cooling pipes	11/12/2010	Concurrent with survey
Annual PHENIX Safety Review	11/15/2010	Lynch, Pisani, Giannotti
Re-install BBCs	11/19/2010	Requires CM moves
Re-install MPCs	11/19/2010	Concurrent with BBC installs
WP for DC repairs	11/19/2010	As soon as convenient
MuTr and MuTrigger remaining subsystem tasks and tests	11/30/2010	Fit in where convenient
Move MuID collars to IR	11/30/2010	After BBCs & MPCs installed
Prep EC for move to IR	11/30/2010	After BBCs & MPCs & VTX installed
Remove manlifts, decking and 12 ton crane from IR to run storage	11/30/2010	After BBCs & MPCs & VTX installed
Move EC to IR	11/30/2010	After Prep
AH South exit chiller platform installation	11/30/2010	Parts in CS Install when rec'd
Close access to MMN	11/30/2010	After MuTr/MuTrigger work completed, before flammable gas
Install MuID collars	12/2/2010	After EC in IR
Fold down EC platforms and install dumb waiter	12/3/2010	After EC in IR

10/28/2010

Remaining Shutdown Tasks Checklist: General



TUESDAY 11:00 AM
 WEDNESDAY 11:00 AM
 THURSDAY 11:00 AM
 FRIDAY 11:00 AM
 SATURDAY 11:00 AM
 SUNDAY 11:00 AM

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Wire dumb waiter	12/3/2010	After dumb waiter installed
Re-install EC cables, fibers, water and gas piping	12/7/2010	After EC in IR
DC repairs	12/10/2010	After EC cables, etc. installed
Assemble shield wall	12/10/2010	After EC rolled in
Install plug door	12/10/2010	After shield wall built
Close shield wall	12/10/2010	After pink/blue/white sheets
Gas mixing house R-134A shed addition R134A bottle warmers	12/15/2010	Get CAD approval then order. Install when convenient
Pink sheets, blue sheets, white sheets	12/24/2010	After DC Repairs
Chiller platform fire detection and suppression	12/24/2010	ASAP after platform is installed
Install safety interlocks	12/24/2010	After shield wall closed
Start flammable gas	12/24/2010	After shield wall in place
Close out all 2010 shutdown WP's	12/31/2010	After shutdown completed
End of shutdown party	???	After shutdown completed

10/28/2010

Remaining Shutdown Tasks Checklist: RPC3S



TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Build TVB wall	11/2/2010	In Progress
NRTL cable trays	11/5/2010	In Progress
Finalize cable tray installation & cable routing	11/5/2010	In Progress
Final piping	11/5/2010	In Progress
Thermostats	11/12/2010	As soon as convenient
Re-install shielding	11/19/2010	After TVB wall is built
Re-install FCAL and any other disrupted subsystems	11/24/2010	As soon as convenient
RPC gas controllers final installation and RPC subsystem commissioning	11/30/2010	As soon as convenient

10/28/2010

Remaining Shutdown Tasks Checklist: VTX



TUESDAY 10/28/2010

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Prepare thermocouple map	Done	Done
Bring Support structure to Chem Lab - Done	Done	Done
Assemble west 1/2 detector	10/29/2010	In progress
Design survey theodolite support brackets for CM lead shield attachment	10/29/2010	In progress
Route fibers from rack room to CME Rack	10/29/2010	In progress
Test west 1/2 detector	11/1/2010	After assembled
Survey west 1/2 detector	11/2/2010	After tested
Survey east barrels 1-4	11/1/2010	In Progress 1 - 3 done
Assemble east 1/2 detector	11/2/2010	After all barrels surveyed
Receive extension rails/modify for installation	11/3/2010	On order modify when rec'd
Install survey support brackets	11/3/2010	
Test east 1/2 detector	11/4/2010	After assembled
Fabricate survey support brackets	11/5/2010	In progress
Survey east 1/2 detector	11/5/2010	After tested
Install NOVEC piping from chiller platform area to VTX area	11/5/2010	In progress

10/28/2010

Remaining Shutdown Tasks Checklist: VTX



TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Mate east and west 1/2 detectors	11/8/2010	
Survey/align east and west detector	11/9/2010	
Modify strongbacks for basket lift	11/9/2010	Sooner if time permits
Install extension rails	11/9/2010	As soon as possible
Install interlock PLC on bridge	11/10/2010	As soon as PLC is ready
Route 100 LV cables from bridge rack to near VTX	11/10/2010	As soon as possible
Route 100+ thermocouple extensions from PLC box to near VTX	11/10/2010	Concurrent with LV routing
Route 260 duplex/simplex fibers from CME rack to near VTX	11/10/2010	Concurrent with LV routing
Route 7 Belden 16 pair cable trunks from CME rack to near the VTX	11/10/2010	Concurrent with LV routing
Transport west 1/2 detector to IR	11/10/2010	After MMS/CM/BP survey
Install west 1/2 detector	11/10/2010	
Assemble and install NOVEC distribution manifolds near VTX	11/10/2010	Immediately after installation
Survey/align west 1/2 detector	11/12/2010	Immediately after installation

10/28/2010

Remaining Shutdown Tasks Checklist: VTX



LEUCHEZHUAKJMSADPOLT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Install west 1/2 detector Bias, LV and signal cables	11/16/2010	Immediately after survey
Install one Chiller for QA testing (on ground)	11/16/2010	As soon as possible...to be ready for QA testing
Connect west 1/2 detector to NOVEC cooling	11/16/2010	Immediately after survey
In situ QA electronics test on west 1/2 detector	11/19/2010	As soon as services are installed
Transport east 1/2 detector to IR	11/19/2010	After west QA
Install east 1/2 detector	11/19/2010	After west QA
Survey/align east 1/2 detector	11/19/2010	Immediately after installation
Install east 1/2 detector Bias, LV and signal cables	11/23/2010	Immediately after survey
Connect east 1/2 detector to NOVEC cooling	11/23/2010	Immediately after survey
In situ QA electronics test on east 1/2 detector	11/29/2010	As soon as services are installed
Install humidity sensors (??)	??	TBD
Final VTX survey	11/30/2010	After east QA
Final BP survey	11/30/2010	After east QA
Install 3 chillers on chiller platform	11/30/2010	As soon as platform is installed

10/28/2010

Remaining Shutdown Tasks Checklist: RPC1 Prototype and borated poly/lead absorber prototype



TECHNICAL SUPPORT NO-0

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Installation plan	11/3/2010	In Progress
WP	11/3/2010	In Progress
Installation review	11/5/2010	In Progress
Installation fixtures design and fabrication	11/5/2010	In Progress
Electronics & Gas Support Installation	??	Not Scheduled
Installation	??	Not Scheduled

Remaining Shutdown Tasks Checklist: FoCal Prototype

<u>Task</u>	<u>Due By</u>	<u>NOTES</u>
Design plan	11/30/2010	In Progress
Installation plan	11/30/2010	In Progress
ESRC review	??	Not Scheduled
Support structure design	??	Not Scheduled
Support structure fabrication	??	Not Scheduled
Electronics, cooling, gas support design	??	Not Scheduled
Electronics, cooling, gas support fabrication	??	Not Scheduled
Electronics, cooling, gas support installation	??	Not Scheduled
Support structure installation	??	Not Scheduled

10/28/2010

BACKUP

Completed Tasks

TECHNICAL SUPPORT NO-0

<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

10/28/2010

Completed Tasks, Continued

LEUCHEMOUNT 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

10/28/2010

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<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

10/28/2010

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<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 NO-0

<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	PHENIX 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	PHENIX 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

10/28/2010

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 $\frac{1}{2}$ octant and rotating piston mounting points	Done	PHENIX Techs
Install pitch control rails on pedestal and gap 5 east & west inner walls	Done	PHENIC Techs
Cooling system procurement	Done	Pisani Coordinate with CAD Cooling Water, Electricain
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>	Done	Riggers & PHENIX Techs

Completed Tasks, Continued

TECHNICAL SUPPORT NO-0

<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

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

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

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

TECHNICAL SUPPORT NO-0