

PHENIX WEEKLY PLANNING



12/10/2009

Don Lynch

PHENIX
WEEKLY
PLANNING

Remaining Tasks for Shutdown 2009

Task

Start Date

End Date

Install new gap5 N cable & pipe supports, cables and piping and leak test piping

in progress

12/3

Install rack components in RPC3 N racks

in progress

12/30

Attach cables to RPC3 N racks and to Detector $\frac{1}{2}$ octants

in progress

12/30

Install heaters and thermostat(s) for RPC3N thermal control

in progress

12/30

HBD Magnetic Field Hall probe test

Done

Done

PHENIX
 12/3/2009

Just a few more items to clean up



PHENIX Startup Checklist Status



Item

Responsibility

Status

Item 1: ESRC relevant items completed

Settle CM magnet issue

Wood Stairs

Update Work procedures

Lynch, Philips,
Makdisi

Done

Phillips

Post Start

Cirnigliaro, Lynch

Post Start

Item 2: Bypass Switch Arc Label

Giannotti

Post Start

Item 3: Storage Area lighting/signage

Lynch

Post Start

Item 4: HBD Mock Up

Lynch

Post Start

Item 11: Fire Pull Box

Philips

Post Start

Item 12: Dumb Waiter

Lynch

Post Start

PHENIX STARTUP

Continuing Tasks currently underway

Task

Start Date End Date

AH Crane 110 switch for lockout

In Progress

?

Get AC's installed in mixing house

Done

Done

Run gas lines to North tunnel

Done

Done

Design and build gas humidifier

Done

Done

Layout and build North distribution panel

Done

Done

Design and build heat exchanger for HBD system

Done

Done

Replace/ regenerate HBD purifier and driers (late Fall)

Done

Done

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

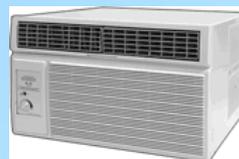
In Progress

12/31

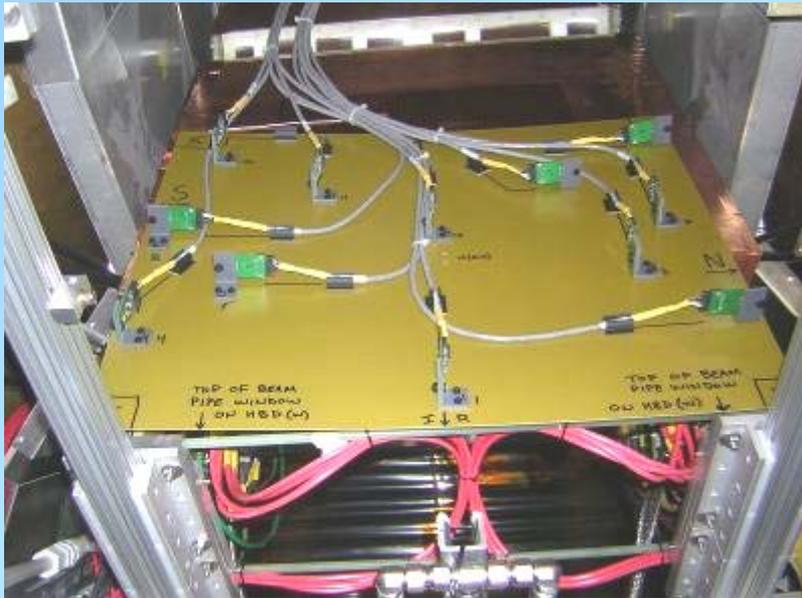
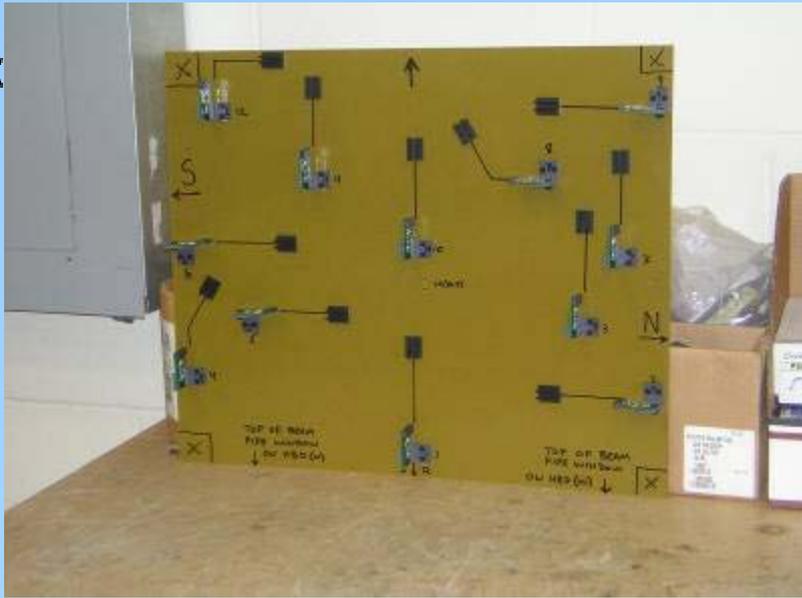
Replace/upgrade gas house PC's

Done

Done

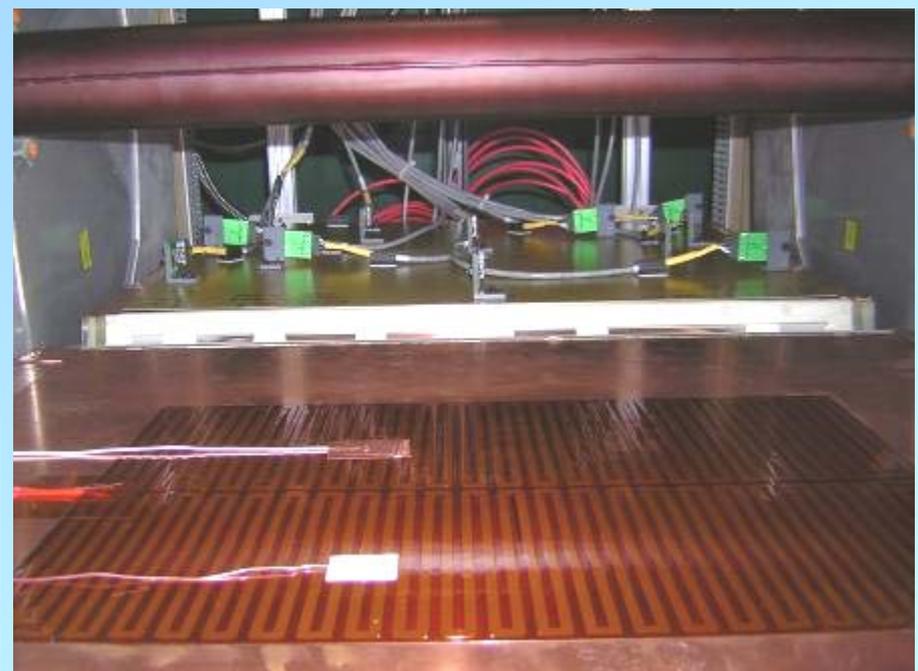


PHENIX LABORATORY



HBD

Magnetic Field Hall Probe test



4. PHENIX Procedure Review Current Status:

147 Procedures Identified

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

12 CAD procedures relevant to PHENIX, all are current and up-to-date
All currently under review, 3 to be de-activated

40 PHENIX approved procedures.
6 are currently under review
34 are current and up-to-date

15 Proposed/Draft Procedures (never previously formalized)

Technical Support during Run 10:

- *Mechanical, Electrical & Gas system support*
- *Design, engineering, fabrication and testing for new beampipe*
- *Design, engineering, mechanical, electrical and gas system support for VTX, VTX support structure, VTX survey and VTX installation*
- *Mechanical, electrical & gas system support for RPC factory*
- *Engineering, design, procurement & fabrication for RPC3 South installation*
- *Facility planning maintenance & upgrade*
- *Mechanical, electrical and gas system support for future maintenance, repair & upgrades*

Technician Assignments during Run 10 :

Carter - Overall supervision, 1008 facility management, 2010 shutdown planning, gas system expert

Frank - RPC3 N elect. Installation support, 1008 electrical/electronics run support, 2010 shutdown prep (all projects)

Kenny - RPC Factory tech support, RPC3 South installation planning and prep

Jimmy - 1008 IR mechanical support, VTX installation planning and prep

John T. - 1008 & RPC Factory Gas systems tech support, 2010 shutdown prep (all projects)

Mike L. - HBD run support, VTX assembly tech support, VTX integration planning, all upgrades mech tech support at 510

Sal - 1008 electrical/electronics run support, all upgrades elect. tech support at 510

<??> - 1008 general tech support, 2010 shutdown prep general tech support

Run 10 and shutdown 2010 Tasks

Start Date End Date

TECHNICAL SUPPORT NOON

Run 10	12/1	6/1
VTX Fabrication and Installation Plan	12/1	12/31
RPC3 South Fabrication and Installation Plan	12/1	12/31
Receive New Beampipe	12/1	12/31
Design Beam pipe supports	12/1	12/31
Update RPC3 N design for RPC3 S	12/1	12/31
Design support structure, alignment scheme for VTX	12/1	1/31
Star of Run Party	12/11	12/11
Fabricate beam pipe supports	1/1	4/1
Beampipe NEG coating (CERN)	1/1	5/1
Fabricate/procure parts for RPC3 S installation	1/1	4/1
Fabricate/procure parts for VTX installation	2/1	5/1
End of run 10	6/1	6/1
Prep IR for shutdown	6/1	7/1
Complete unfinished business for MuTrgr FEE & RPC3 North	6/1	8/1
Install Beam pipe	7/1	10/1
Install VTX	8/1	10/1
Install RPC3 South	6/1	10/1

12/3/2009

RPC 3 South Installation:

1. Make assessment of gap 5 south area and compare items to corresponding items on north side including:
 - Dimensions of east and west troughs
 - Clearances of piping and cable trays
 - Items on pedestal which need to be removed/relocated Items on ceiling, outer walls, pedestal walls and gap 5 steel which need to be removed/relocated
 - Items in gap 5 below pedestal and trough east and west of outer tunnel walls and above tunnel ceiling
 - Crane tracks and crane coverage

2. Review all aspects of RPC north installation
 - Handling at RPC factory
 - Pre-survey and drilling in gap 5 steel
 - Tilt table, handling aids, transport carts
 - Transport to tunnel, through tunnel
 - Lifting fixtures
 - Temporary parking/rotating wheels
 - Electrical isolation
 - Installation procedure for each $\frac{1}{2}$ octant
 - Pins as rotating fixture, hydraulic cylinders, come-along as safety wire, etc.
 - Interferences in upper gap 5
 - HO7&8 height adjustments
 - Final fit-together
 - Final Survey

3. Prepare for summer 2010 installation:

- Make list of installation components, tools and $\frac{1}{2}$ octant mounting and interconnection detail parts
- Get current drawing of each
- Review each drawing with PHENIX tech staff, update/improve as appropriate
- Prepare a detailed installation plan
- Get parts into CS
- Order purchased components
- Receive and inspect parts
- Pre-assemble base components at PHENIX
- Prepare work permit

4. Perform Initial Site Preparation

- Remove wiring, walkovers, FCAL and scintillator hardware that would otherwise interfere with installation
- Remove/relocate shielding
- Remove crystal palace & vapor barrier
- Install lighting & relocate sensors as necessary
- Temporarily relocate, re-position or otherwise address interfering piping, cable trays
- Remove RPC prototype
- Build/install access and work platforms for walk on top of MuID steel
- Pre-survey $\frac{1}{2}$ octant reference points
- Drill and tap $\frac{1}{2}$ octant and rotating piston mounting points
- Final cleaning and prep of gap 5 for grouting
- Pre-installation orientation meeting with masons and riggers

5. Install RPC3 South

- Position lifting equipment in tunnel
- Move east and west base structures into south tunnel and assemble on east and west sides of pedestal respectively. Include translation control fixtures
- Install and align base structures on east and west sides of gap 5
- Prepare for grouting
- Install grout
- Install pitch control rails on pedestal and gap 5 east & west inner walls
- Install upper suspension support hardware
- Install $\frac{1}{2}$ octants, 2 at a time in accordance with work plan/work permit
 - Transport $\frac{1}{2}$ octants 2 at a time from RPC factory to south tunnel on angled transport carts
 - 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)
 - Lift (and re-orient if appropriate) $\frac{1}{2}$ octant and install into base structure, previously installed $\frac{1}{2}$ octant or upper suspension hardware as appropriate per work plan
 - Pre-align each $\frac{1}{2}$ octant as installed
 - Perform electrical integrity tests before proceeding to next pair of $\frac{1}{2}$ octants
- 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
- Final survey

6. Install RPC3 South Support and Ancilliary Items, Restore Site and Commission the detector

- Install new cable trays and piping supports
- Re-install MuID wiring and pipes
- Re-install MuID gas rack
- Install RPC3 HV, LV and signal wiring and gas lines
- Install RPC3 South gas distribution rack
- Install RPC3 South environmental controls (heaters and thermostats)
- Install south thermal/vapor barrier
- Re-install shielding
- Commissioning and final acceptance tests

1. New PHENIX Beampipe

PHENIX BEAMPIPE

<u>Task</u>	<u>Status</u>	<u>Due By</u>
Design central beam pipe and new transition sections	Done	---
Order beampipe	Done	---
Order new design transitions	CA	?
Order replacements for existing transitions and spools	CA	?
Conceptual and mechanical design beampipe supports	In progress	1/31/2010
Beampipe fabrication	In Progress	1/31/2010
Receive bp and all beampipe sections	After Fab	1/31/2010
Bp and sections acceptance tests and inspection	After receipt	2/14/2010
Send beampipe to CERN for NEG Coating	After tests	2/28/2010
Fabricate beampipe supports	After Design	5/31/2010
Receive bp back at BNL	After NEG	5/31/2010
Choreograph removal of old beampipe and installation of new	In Progress	6/1/2010
Final acceptance and inspection bp and sections	After receipt	6/15/2010
Test and inspect beampipe supports	After Fab	6/15/2010
Beampipe Installation Review	To Be scheduled	6/15/2010

2. VTX Fabrication and assembly

<u>Task</u>	<u>Status</u>	<u>Due By</u>
Design assembly workspace, tools and fixtures	In progress	12/31/2009
Fabricate/procure tools and fixtures	In progress	1/15/2010
Test, rework and qualify tools and fixtures	In progress	1/31/2010
Specify installation design parameters:	In progress	12/31/2009
– Survey beamline and IP accuracy		
– CM mechanical alignment to survey		
– CM magnetic field alignment to CM mechanical		
– Beampipe to CM mechanical alignment		
– East & west detector external survey target alignment to internal components		
– East & west detector external survey target alignment to beampipe and/or CM mechanical		
– Allowable tolerance stackup		
Conceptual and mechanical design of installation, structural support and detector alignment followed	In progress	1/31/2010
Installation Review (ESRC)	To Be Sched'd	3/15/2010
Fabricate/procure detail components for installation, support and alignment	After ESRC	6/30/2010
Design mockups for installation and alignment	TBD	6/30/2010
Final ass'y of VTX detector 1/2 's. Mock installations/alignments on bench and in IR	After Fab	7/31/2010

3. VTX Installation

PHENIX PROJECT

<u>Task</u>	<u>Status</u>	<u>Due By</u>
VTX Mechanical Installation		
• Install and align CM to VTX rail attachment hardware	Planning/Modeling	8/15/2010
• Install and align VTX rails parallel to beam line	Planning/Modeling	8/31/2010
• Install and align VTX rails perpendicular to beam line	Planning/Modeling	8/31/2010
• Install and align west half detector module	Planning/Modeling	9/15/2010
• Install and align east half detector module	Planning/Modeling	9/30/2010
VTX Services and Electronics		
• Install mechanical support structures for VTX services and electronics	Planning/Modeling	10/7/2010
• Install Cable trays	Planning/Modeling	10/14/2010
• Install racks	Planning/Modeling	10/21/2010
• Install chiller	Planning/Modeling	10/28/2010
• Install cables, plumbing	Planning/Modeling	10/28/2010
• Connect cables and plumbing	Planning/Modeling	10/31/2010
• Test and commission	Planning/Modeling	11/30/2010

VTX Major Procurement Items and Tasks:

Be Beampipe (Brush Wellman)

Inner BP Transitions, Outer BP Transitions & BP Spool (CS Outsource)

NEG Coating of all BP parts (CERN)

BP Supports (BNL/CS)

Assembled VTX Barrel $\frac{1}{2}$'s (BNL/LANL PHENIX)

Chiller (TBD)

VTX support structure (PHENIX)

Electronics (PHENIX)

Racks (Commercial)

3 new beampipe sections

TECHNICAL SUPPORT NOON

Alum/SS/Be
central section

North 1-5/8" to
3" transition

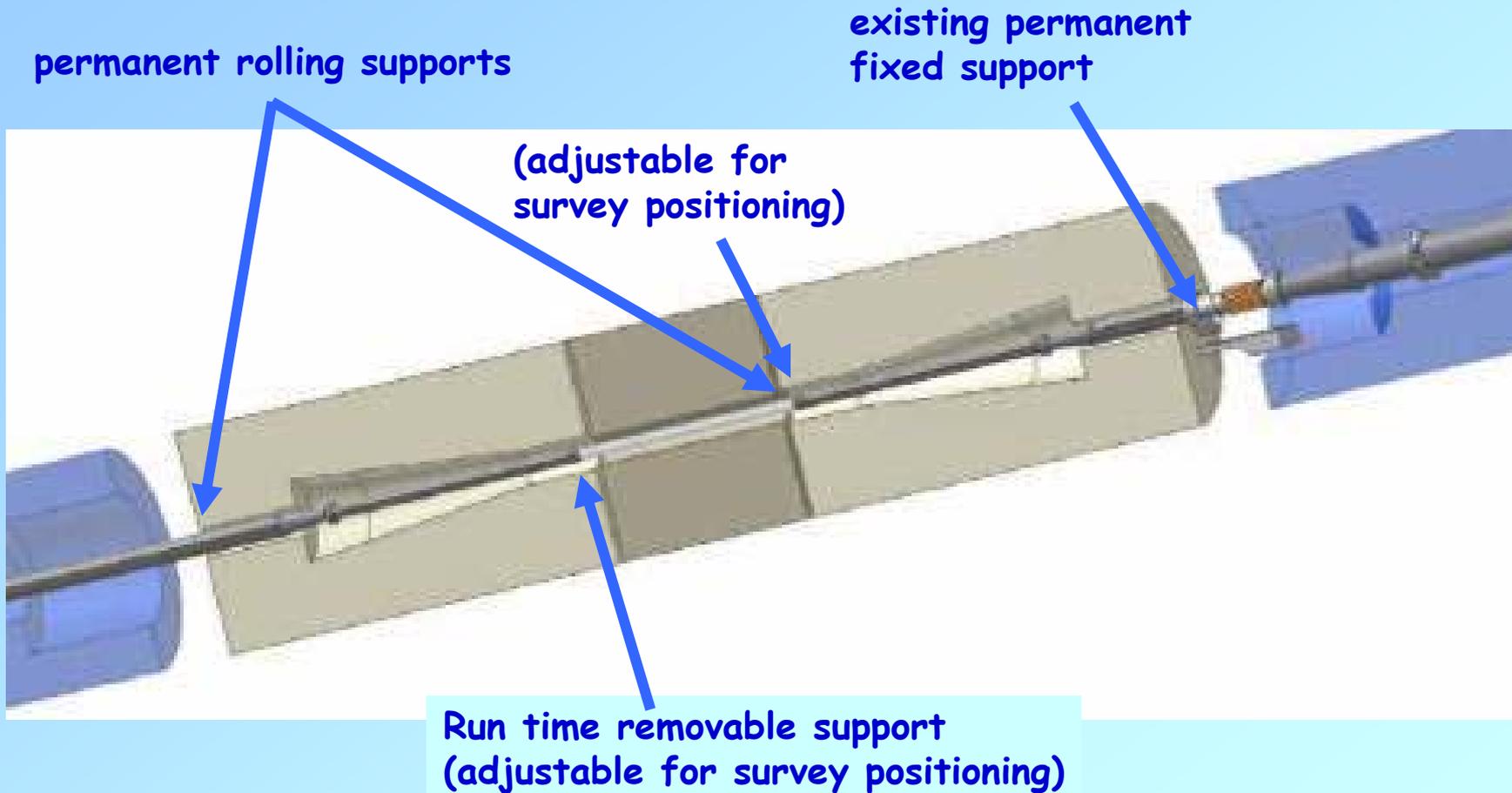
South 1-5/8" to
3" transition

Existing bellows
and components
south of here

Existing bellows
and components
north of here

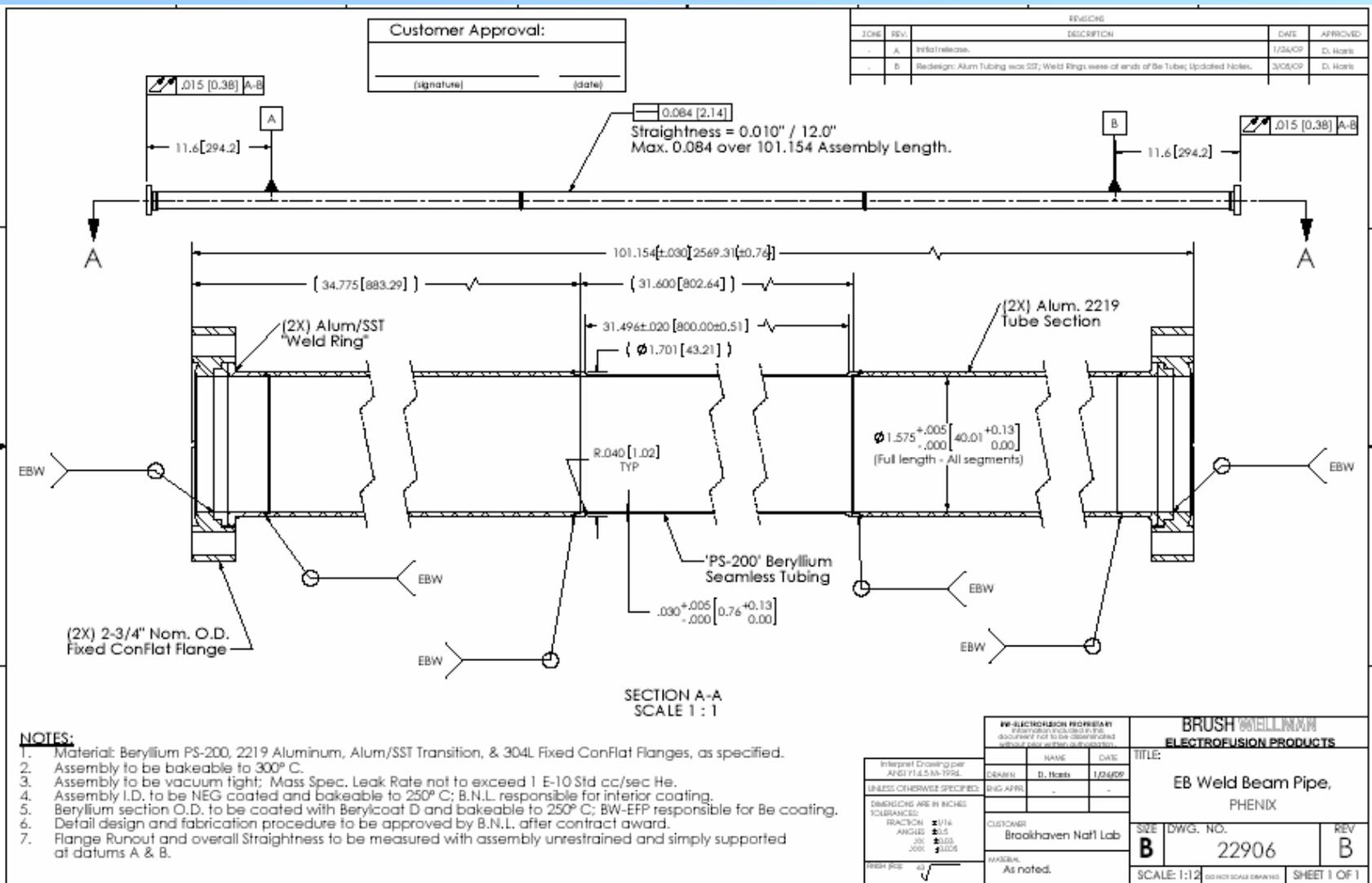
Beampipe supports

PHENIX TECHNICAL SUPPORT NOON



B/W CAP Drawing

PHENIX TECHNICAL SUPPORT

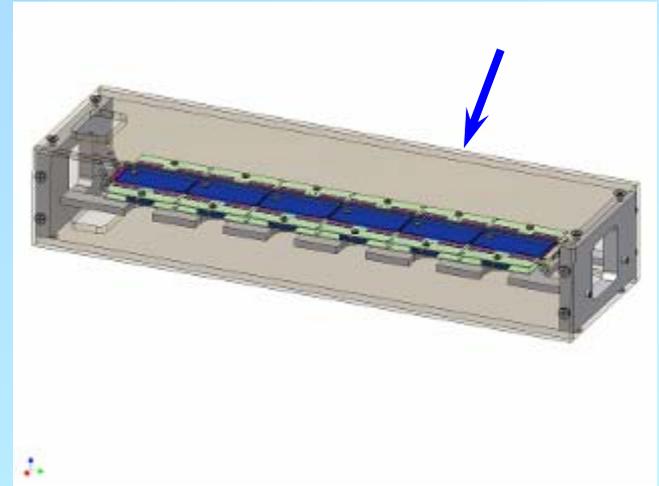


TECHNICAL SUPPORT NOTES

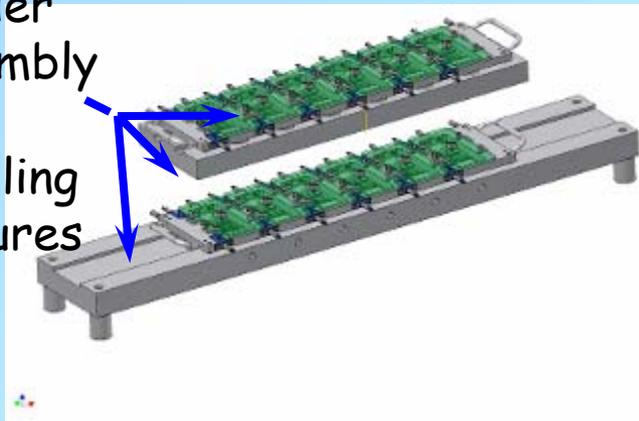
Test Enclosure



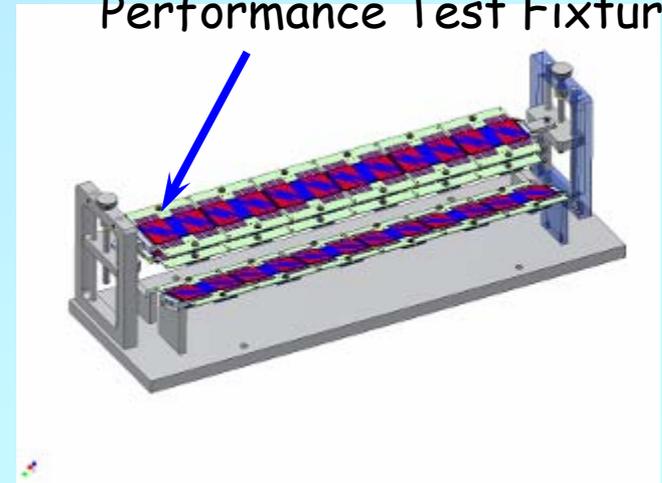
Transport/acceptance test fixture



ROC & Ladder assembly and handling fixtures



Performance Test Fixture



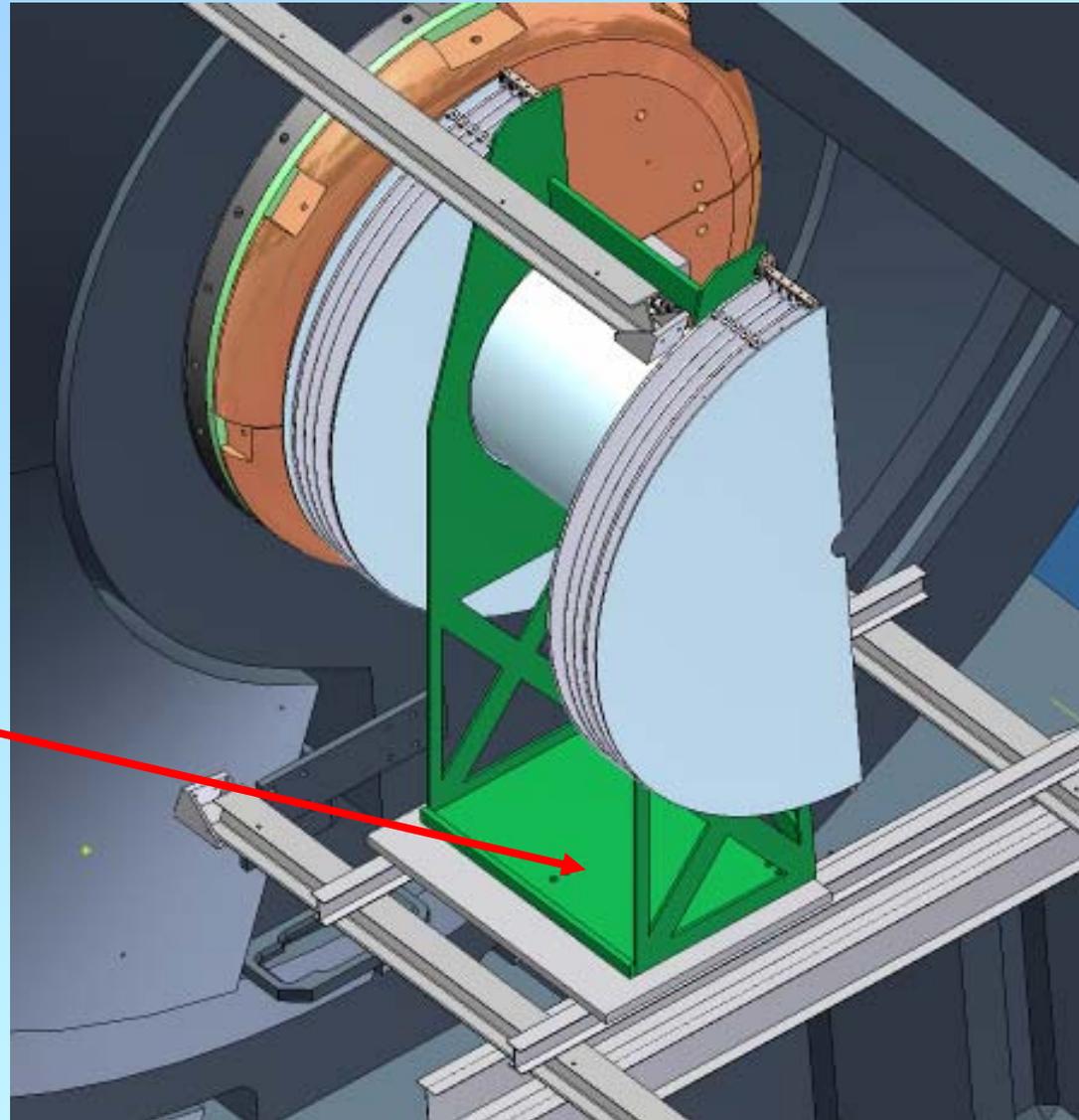
Installation

PHENIX

concept for support
truss

PHENIX
WEST
DETECTOR
SLED
ADJUSTMENT
TRUSS

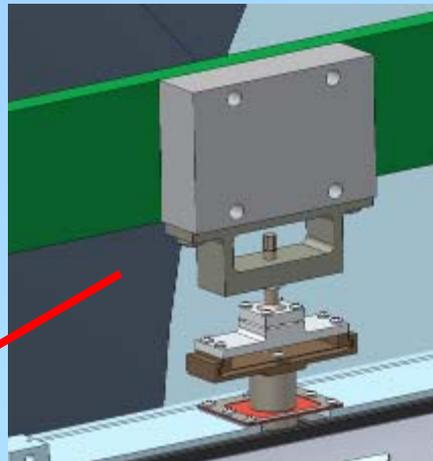
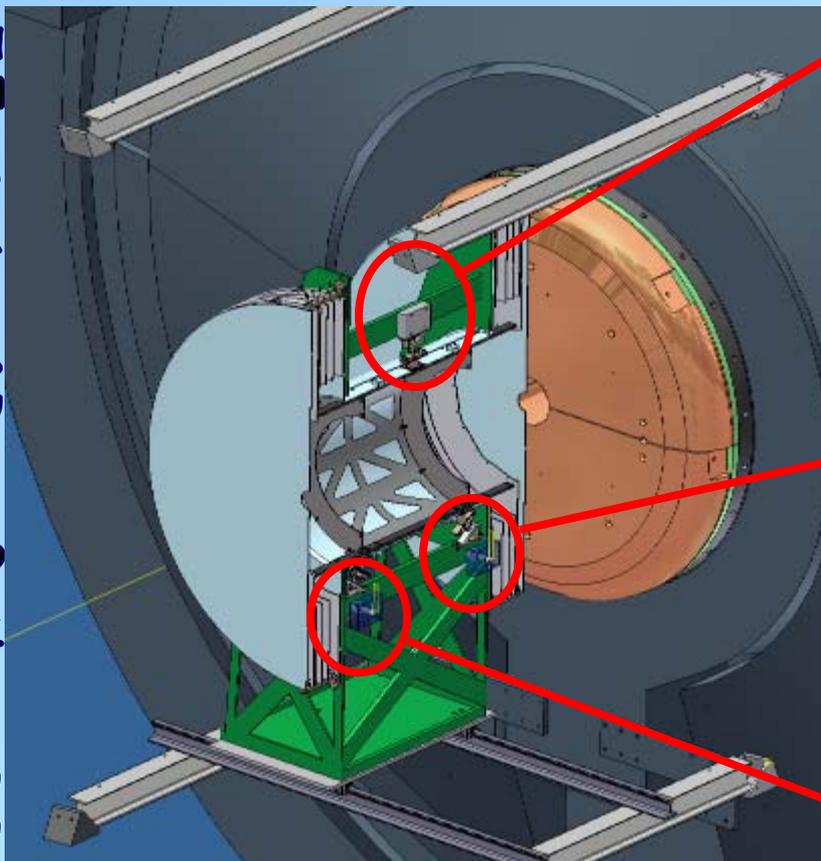
Single support
structure attached
at 3 points to west
detector sled
6 degrees of
adjustment
East mirror images
west



Installation

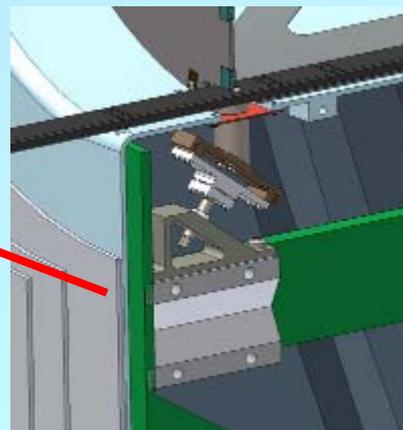
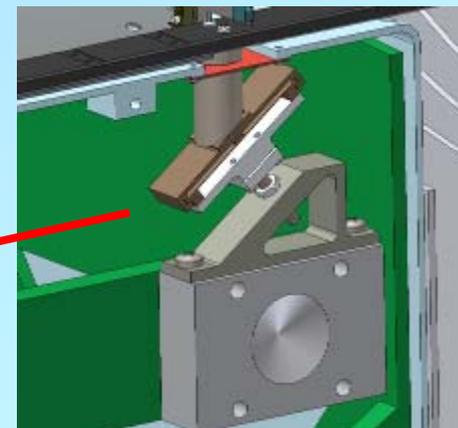
Kinematic mounts for mating east and west detector halves

PHENIX



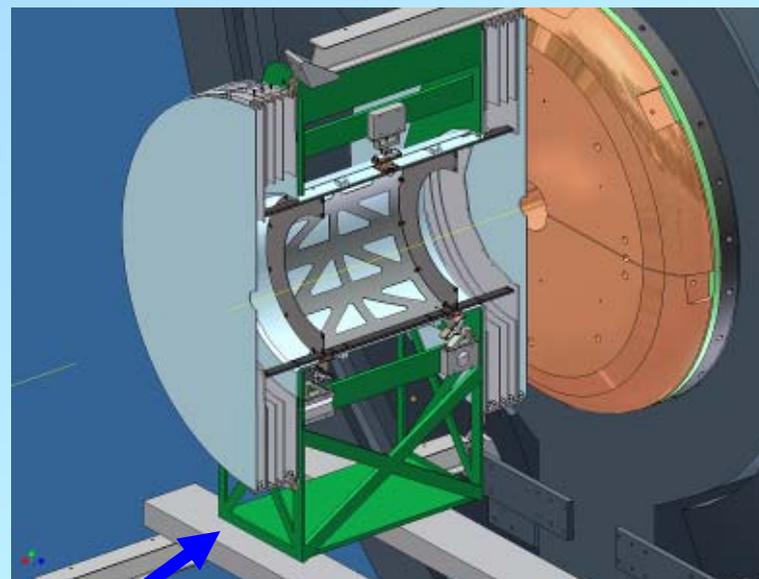
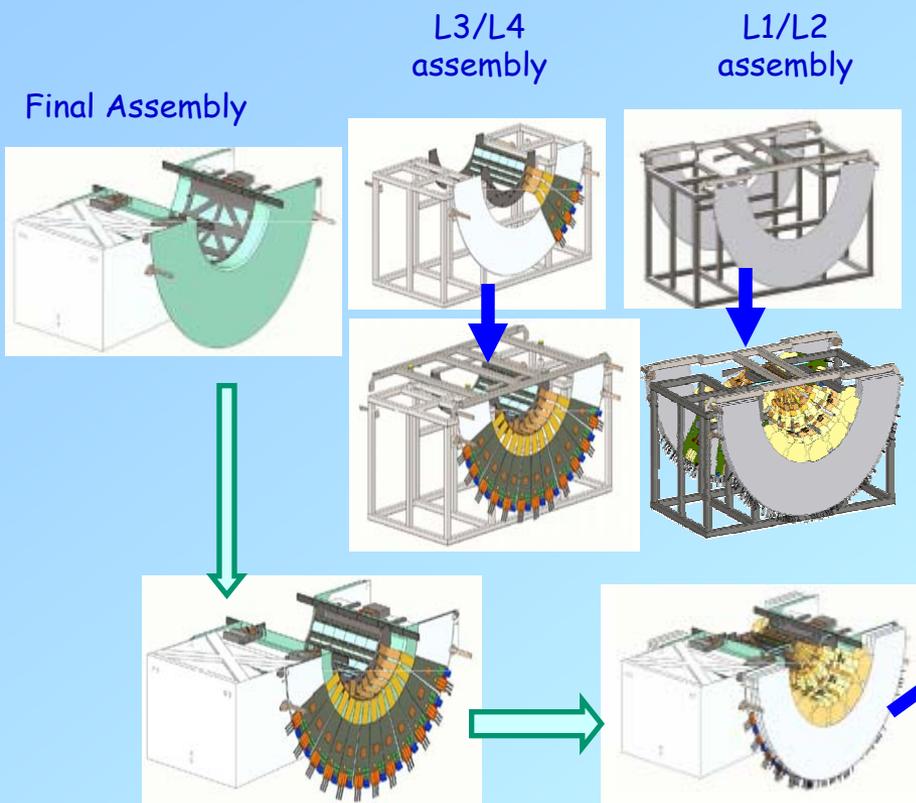
2 DOF (Y & Z)

0 DOF

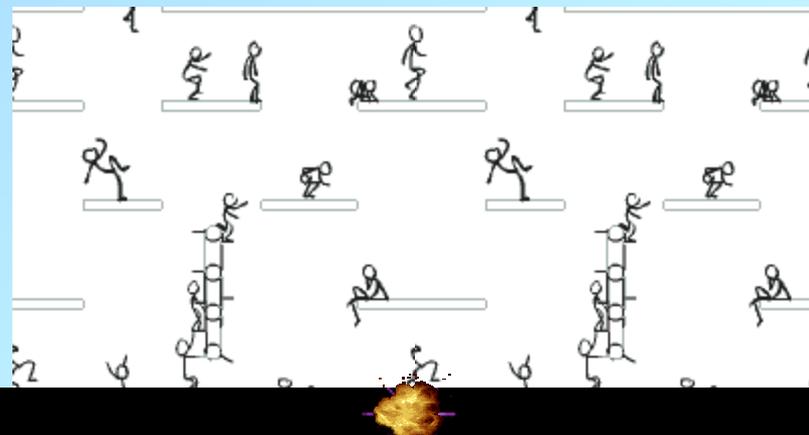


6 interface points
w/ HYTEC

1 DOF (Z)



1. Ring is posted as a controlled area. Unescorted access requires GERT and facility specific training (CA-access training and PHENIX Awareness). All PHENIX collaborators should have this training. Guests who do not have this training must (a) be escorted by a person qualified for unescorted access, (b) must complete a training waiver form and © must be approved by CAD (contact Ann-Marie Luhrs, x7007)
2. PHYSICS Dept. all hands meeting immediately after this meeting. (3:00 PM in PHYSICS seminar room).
3. Nuclear and Particle Physics Directorate all hands meeting Monday Dec. 21 at 11:00 AM in Berkner Hall.
4. Training Status update sent out to PHENIX technical support staff. Most are up to date.



Where To Find PHENIX Engineering Info

End of Shutdown / Start of Run Party
Tomorrow at 2:00 PM



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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

