

# PHENIX WEEKLY PLANNING

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3/12/2009

Don Lynch

## Next Maintenance Access Day - March 18

RPC Grounding Issues (IR & Tunnel Access)

MuTRigger FEE Issues?

HBD Repairs (open both carriages)

MuID issues

Tunnel access?

CM lift table

Other Work requests?

TECHNICAL SUPPORT NOON

## Run Support & Other Ongoing Work

### Run Technical Support (mech, elec., gas)

As needed → always takes priority

### RPC Factory Support (continuing)

(see slides later)

### Prep for 2009 Shutdown

Design PC1 East maintenance support fixtures

design 3/31, fabrication 5/31

MMS Scaffolding Design

design Done, ordering/fabrication 5/1

RPC3 North installation Prep

Installation plan (including inst'n site prep plan)

RPC Quarterly Review 3/12 & 3/13

Installation fixture design 4/3

Installation fixture fabrication 6/26

### Upgrades Support

New Beampipe supports (back logged)

NCC prototype design support (on-going)

VTX fabrication tooling design (on-going)

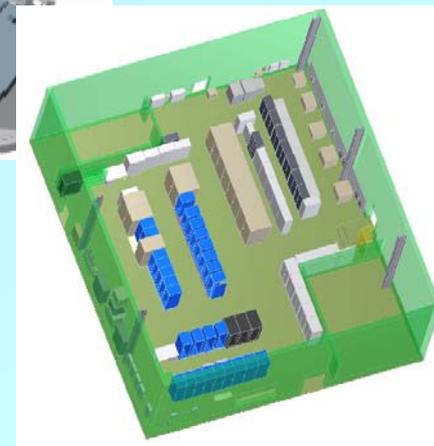
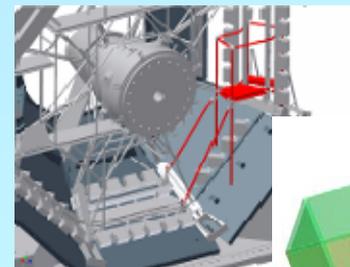
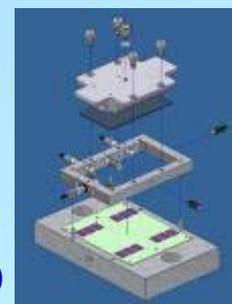
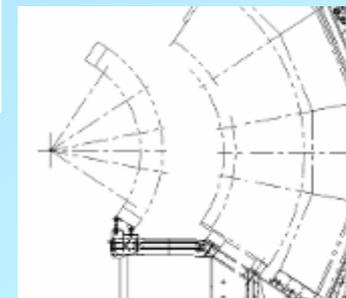
VTX installation design (on-going)

FVTX design/eng'g support (no support req'd yet)

### Maintenance & Overhead Tasks

Procedure Review/Updates (ongoing)

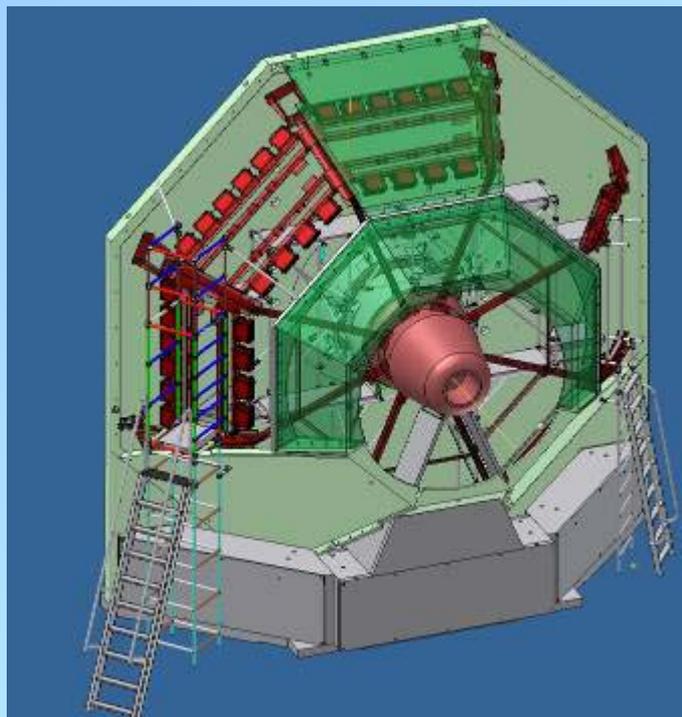
Rack Room, AH, Trailer, Mixing House, etc. (ongoing)





# MMS Scaffolding Design

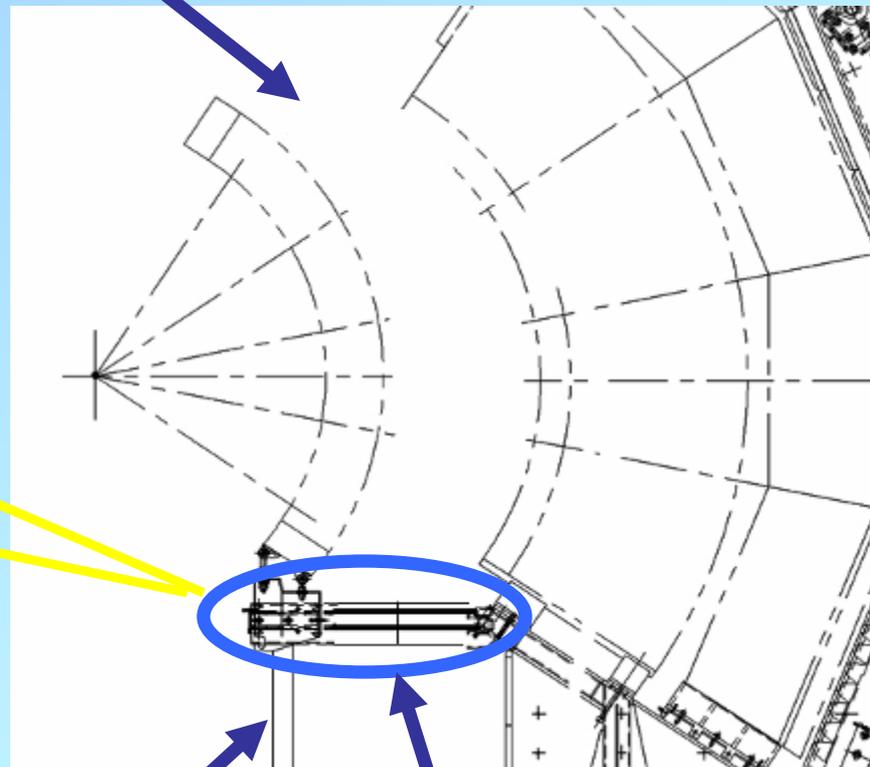
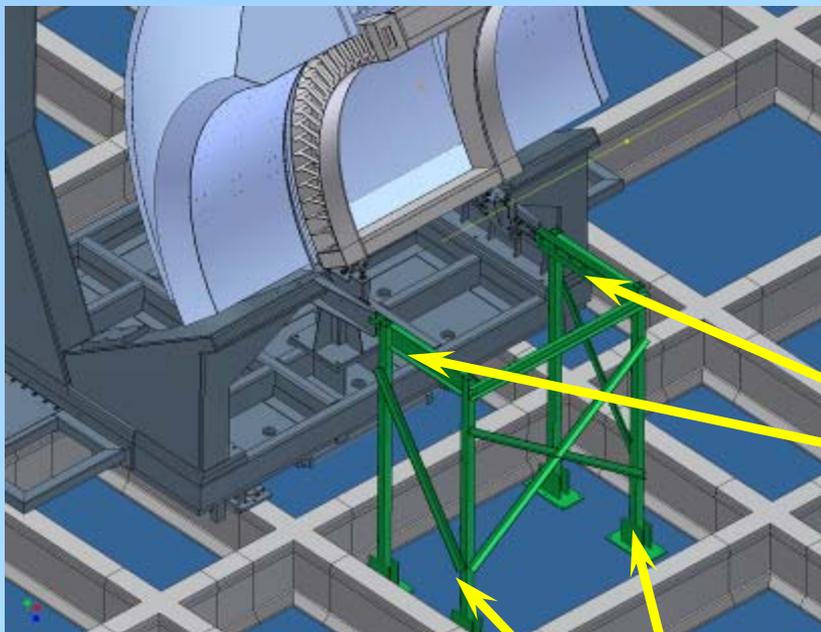
PHENIX SCALDOR



# PC1 East Repair Fixturing Design

Repairs to be performed during '09 Shutdown

Access to PC1 is adequate to remove and replace module



TECHNICAL SUPPORT

New Column Supports Under railway extensions

New Railway extensions will allow DC to be pulled out ~ 3 feet more

## RPC Factory Change in Scope

### Remaining Action Items:

- Review the mechanical design of the burn-in assembly and the dolly system to be used in moving the  $\frac{1}{2}$  octant units. *Design In Progress, Review to follow*
- Update the RPC high voltage and gas procedures if necessary (Giannotti, Pisani Mar 13, 2009) *In progress, Safety systems procedure revision is Done*
- Add individual output valves to the burn-in unit gas schematics (Pisani, Mar 13, 2009) *In progress*

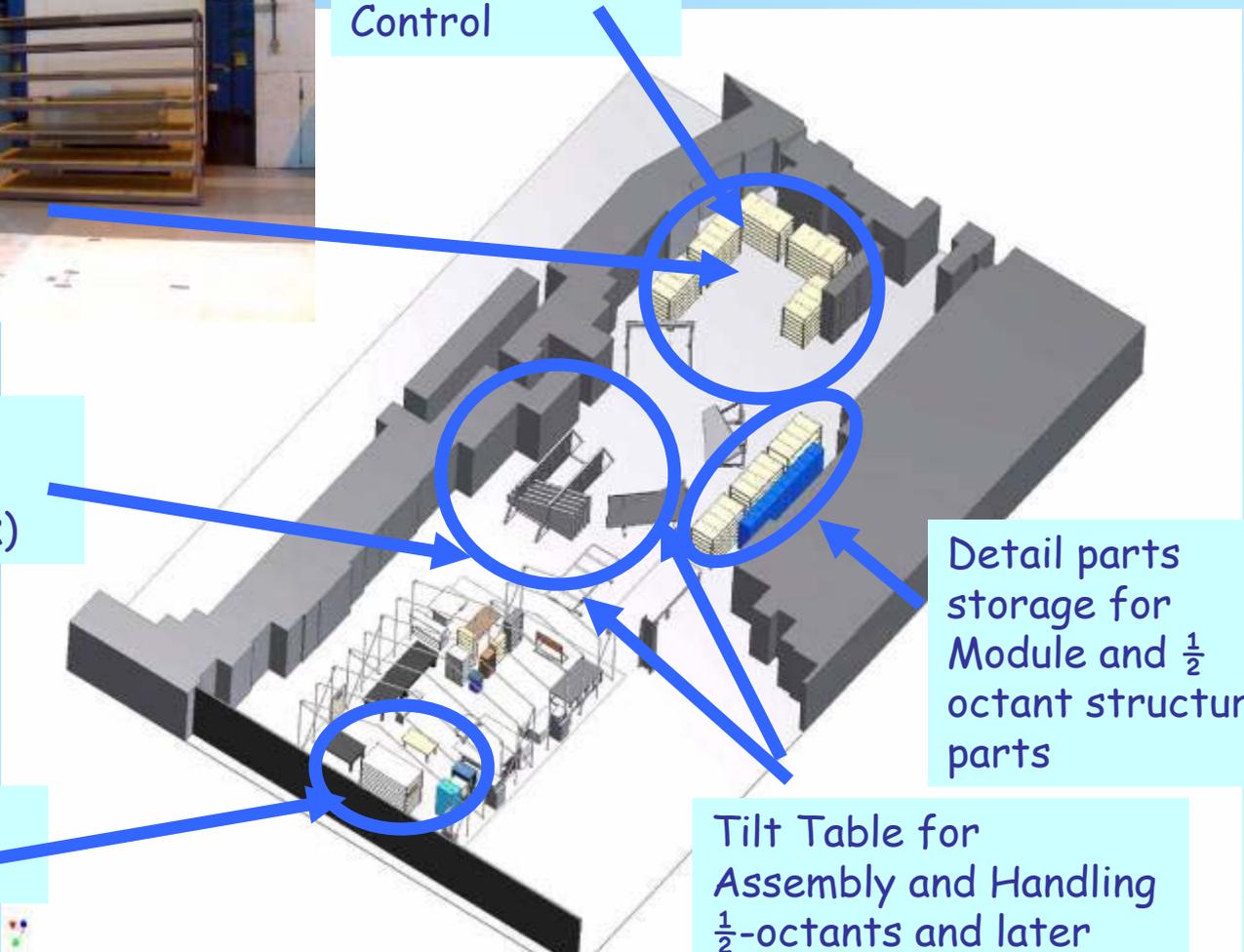
## RPC Factory Support Tasks:

- Complete the Dark Current Test Stand (Done)
- Order materials for Burn-in Test Stand (Done)
- Complete design of Tilting Transport Table (Done Review needed)
- Order materials for the Tilting Transport Table (In Progress)
- Order additional shelf units for gap, module and RPC structural component storage (Done)
- Design and order environmental control system for Burn-In Test Stand (3/20)
- Assemble gap & module storage with humidity control existing shelves (3/13), full complement of shelves (3/27)
- Assemble structural component storage existing shelves (2/27), full complement of shelves (3/13)
- Assemble tilting transport table 3/20
- Assemble burn-in test stand (bike rack) 4/10
- Extend gas, electric and safety systems to Burn-In Test Stand (4/10)

# RPC Factory



Module and Gap Storage with humidity Control



Burn-in test stand (bicycle rack)

Dark Current Test Stand

Detail parts storage for Module and 1/2 octant structural parts

Tilt Table for Assembly and Handling 1/2-octants and later station one octants

Dark Current Test Stand  
under construction



Safety cushioning  
on edges



TECHNICAL SUPPORT

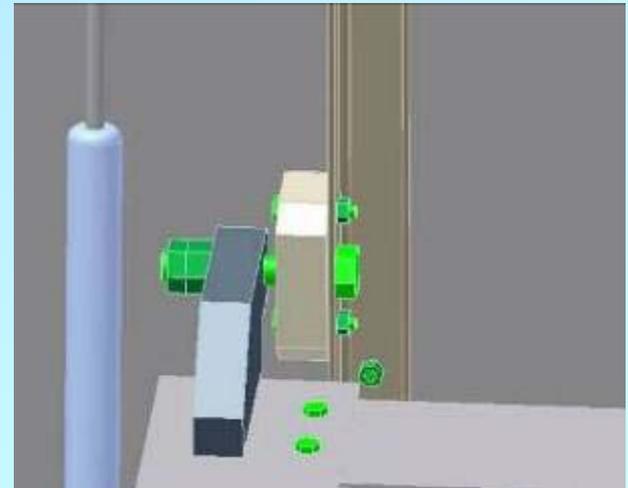
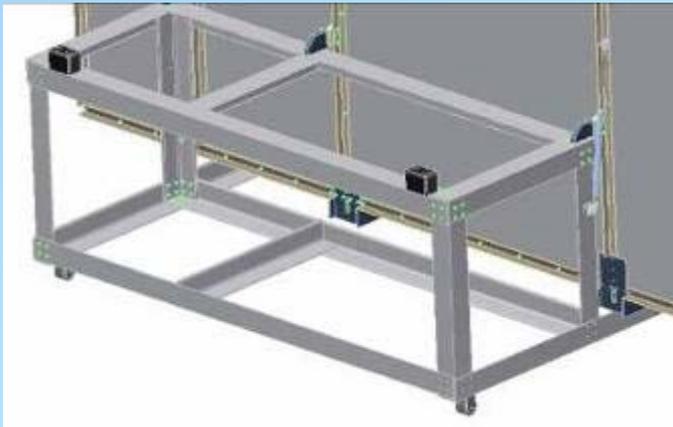
# Half-Octant Assembly Tilt Table

PHENIX MECHANICAL SCAPORT NOOR



Mechanical Analyses Completed and submitted for review

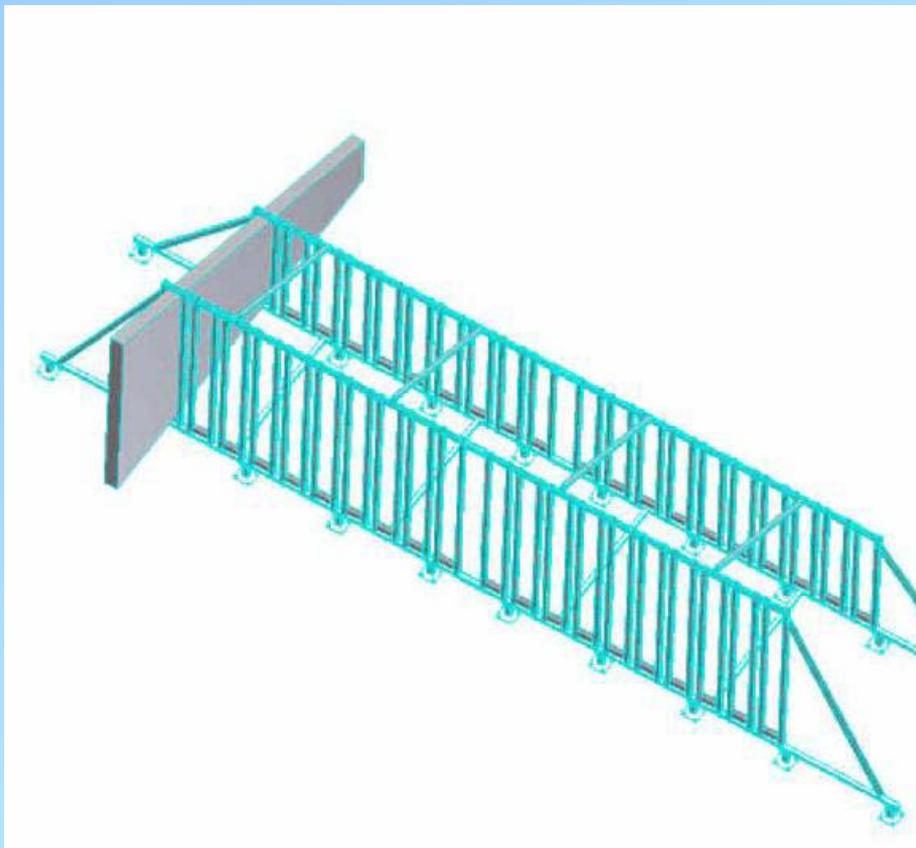
Component parts are ready for assembly



## RPC Factory Burn In Test Station For Octant and Half Octant Burn-in Tests

### Mechanical Requirements:

- Slots for 20 detector units, max. 10 under test and 10 storage
- Each detector weighs ~ 750 lb
- Each slot to have 2 rollers
- Separation between rollers spaced to allow half octant to rest in slot with unit center of gravity mid way between rollers
- Rollers must be sufficiently close to catch unit before center of gravity passes first roller

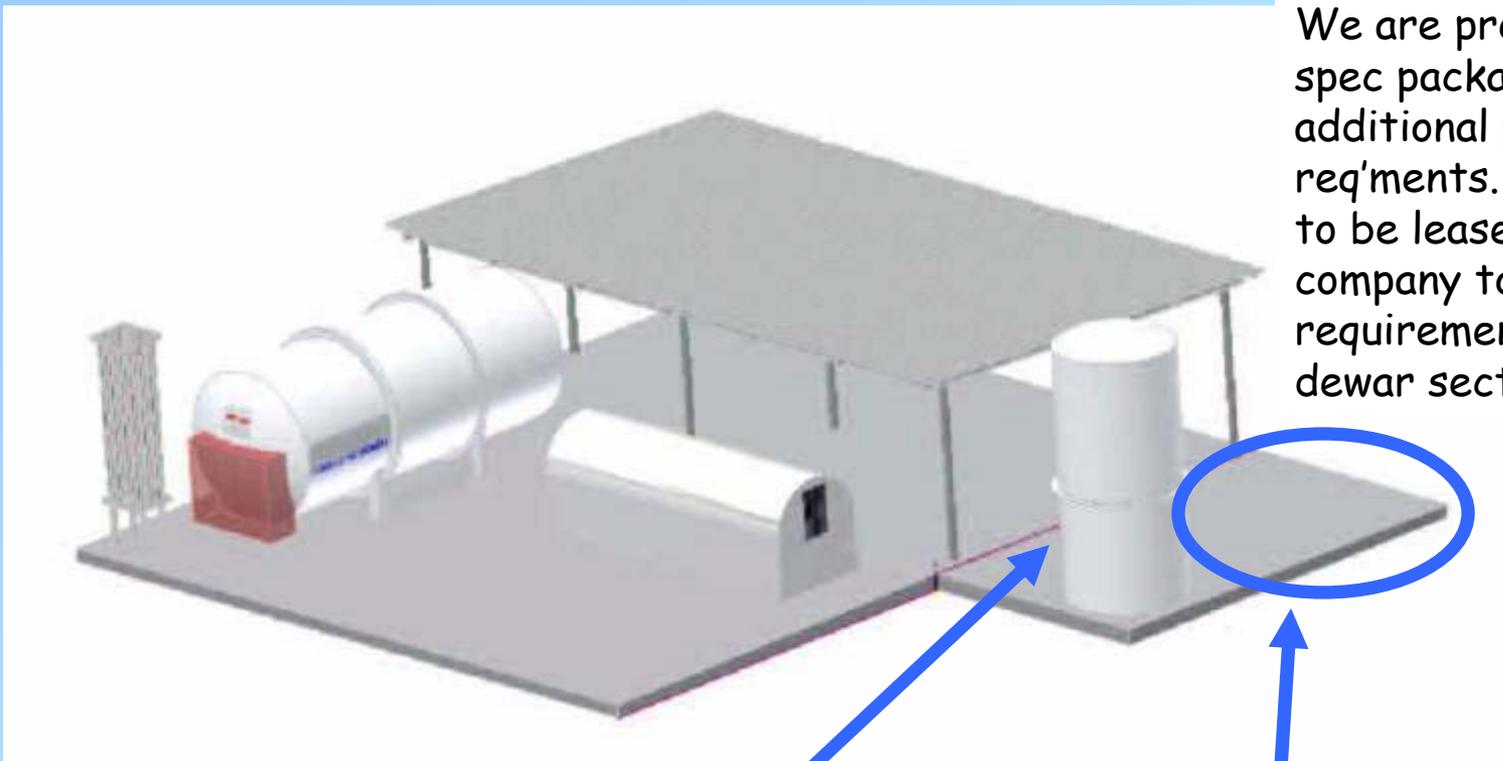




# Gas Pad Upgrade & Ar Dewar

TECHNICAL SUPPORT NOOR

We are preparing a spec package for the additional pad req'ments. New dewar to be leased; supply company to provide requirements for dewar section of pad.



New Liquid Argon Dewar to meet current and future demand

Additional Pad area for storage of empty gas bottles

*General location as shown, footprint (size) TBD*

- Roof leak in utility bathroom at northwest corner behind tech offices.
- Roof leak over door between rack room and assembly hall.
- Trailer bathroom slop sink (for Custodians).
- Heat wrap tape for trailer bathroom toilet drains to prevent freeze/clogging in winter.
- Improved Rack Room AC performance (This item has been addressed time and again but unsatisfactorily. Currently the AC fails periodically and is repaired only to fail again. On-condition maintenance is not adequate...an engineered solution is needed.)



## Shutdown '09 Major tasks (expect 5 month shutdown):

- 2009 shutdown Begins April 10, or July 1, 2009 or July 15 or ?????
- End run, remove wall, MuID collars down, EC to AH (3 weeks)
- Install Station 1 South scaffolding (1 week)
- Install Station 2/3 scaffolding (2 weeks)
- PC1 East repair (4 weeks)
- Install stations 1, 2 and 3 south MuTrigger FEE's (12 weeks)
- MuTr decapacitations: station 3 south (3 weeks)
- RPC Station 3 North (see next slide)
- Mechanical/Electrical Plumbing installation of (4) new DCM racks
- Add Ar Dewar and expand gas pad to add storage (12 weeks)
- Prep for future upgrades/existing equipment maintenance & Repair (as necessary)

# RPC3 North Installation Schedule

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Installation Concept Finalized	Mar. 31
Half-Octant Brackets, Connecting Blocks, under detector translating support design	Mar. 31
Installation Fixturing and Tooling Design	Apr. 30
Redesign crystal palace/IR Gas Barrier	May 29
End of Run 9	June 28
Fixturing/Tooling, Brackets/Block/support Fabrication	June 30
Move Shielding/Remove Crystal Palace	June 29-July31
Move cable trays and piping in gap 5	June 29-July 31
Simulated (practice) installation with new fixturing/ tooling	July 13-July 31
Install, level & survey support structure	Aug. 3 - Aug 14
Half Octant Testing and Assembly Complete (1 <sup>st</sup> half Octant ready by Aug.17, 16 <sup>th</sup> by Sep.18)	Aug. 17- Sep. 18
Mechanical Install Align & survey RPC3 N	Aug 17 - Sep. 30
Install 3 elect. Racks, all cables & gas system	Oct. 1 - Oct. 30
Commissioning	Nov. 1 - Nov. 30
Install new crystal palace/IR Gas Barrier & Shielding	Nov. 1 - Nov. 30
Start Run 10	Dec. 1

## 1. Engineering Analyses reviews in progress:

- CM access ladder exception
- RPC Factory Burn-in Test Stand
- RPC Factory Tilting Transport Table
- MMS Scaffolding
- PC1 Repair Fixturing

## 2. BNL Lessons Learned - Inadequate fan guarding may lead to injury

Accidents – December 2008	First Aid Case NSLS December 29, 2008
	<p><b>Location:</b> Bldg 725 power supply area</p> <p><b>Injury:</b> Finger laceration</p>
	
<p><b>Description:</b> Employee was removing a panel which was leaning against an adjacent rack that had two fans running to cool the power supply. Finger was cut by fan blade when his finger went into fan. At the OMC, first aid was given.</p> <p><b>Causes:</b>  <ul style="list-style-type: none"> <li>&gt; Inadequate machine guarding.</li> </ul> </p> <p><b>Corrective Actions:</b>  <ul style="list-style-type: none"> <li>&gt; A new finger guard is required on the two fans that have accessible rotating sections.</li> </ul> </p>	

# Where To Find PHENIX Engineering Info

## Happy St. Patrick's Day 3/17 !

Parade info:

Oldest - Boston

Longest continually running: Montreal

Largest New York (Savanna?)

Largest (southern hemisphere) - Sydney

Shortest - Hot Springs Arkansas or Boulder Colorado (one block)

Newest - Glasgow? (2007)

St. Paddy's parades are held in at least 47 of the states + DC + Virgin Islands, at least 27 countries including Argentina, Russia, China, Croatia, Serbia, Turkey, Dubai, Montserrat, South Korea, Japan, and many more

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

