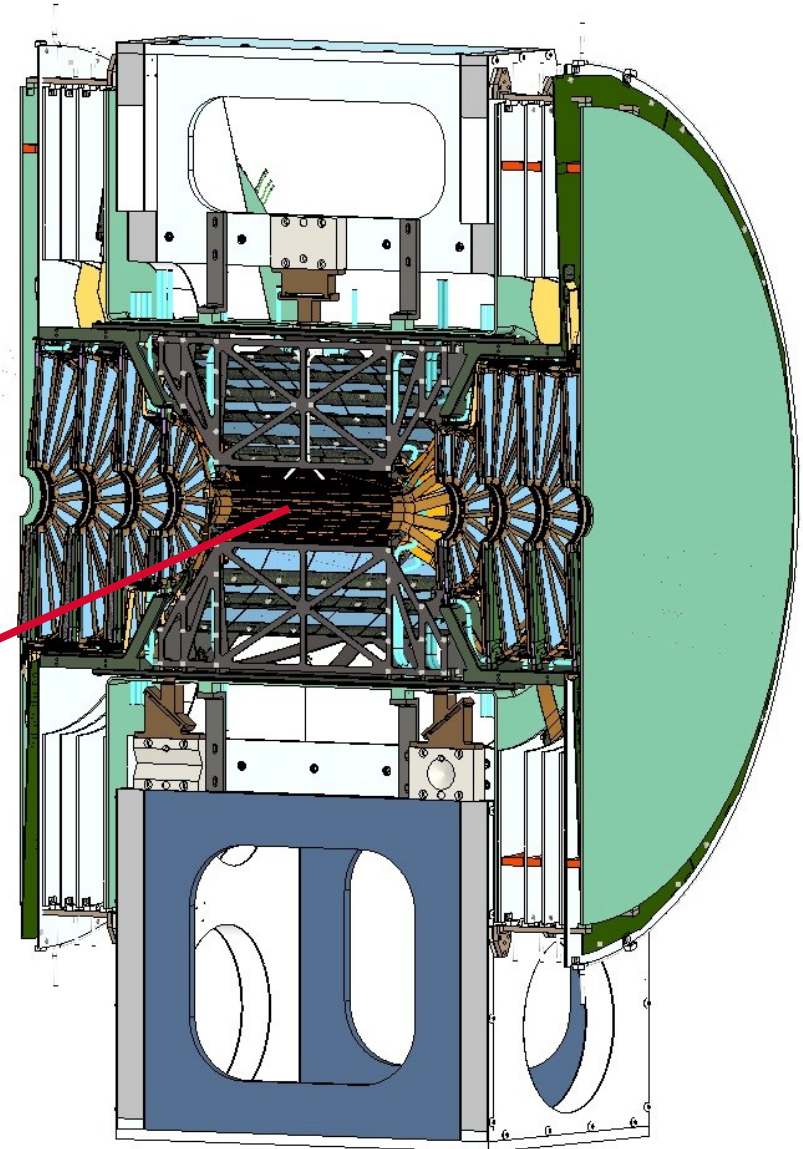
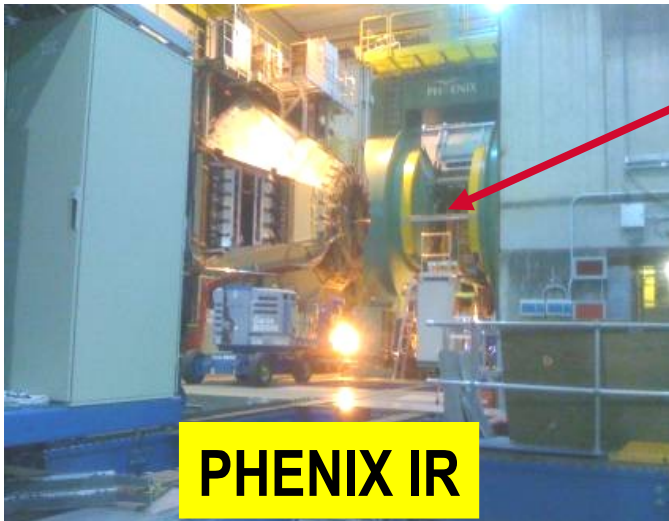


WBS 1.8.1 Mechanical Integration

1

- Personnel:
 - Walt Sondheim:
Mechanical Project Engineer
 - Don Lynch:
PHENIX Chief Engineer
 - Robert Pak:
Integration Manager

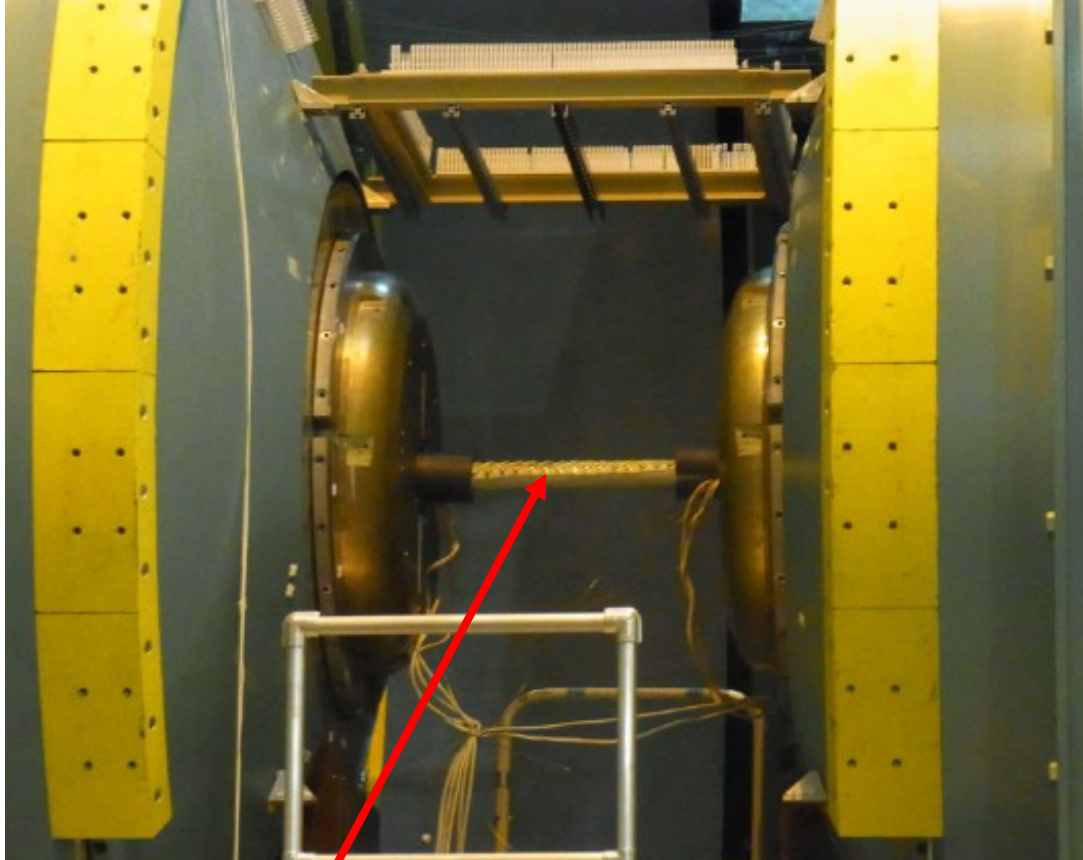


Outline

- Mechanical Integration:
 - Beam pipe installation in PHENIX IR completed
 - Detector support structure finished
 - Power & water in IR completed off project
 - External cooling system nearing completion
 - Infrastructure for dry N₂ system installed
- Safety:
 - 2nd ESRC meeting for VTX/FVTX held on June 18th
 - ESRC operational readiness walk-thru prior to turn on

New Beam Pipe Installed

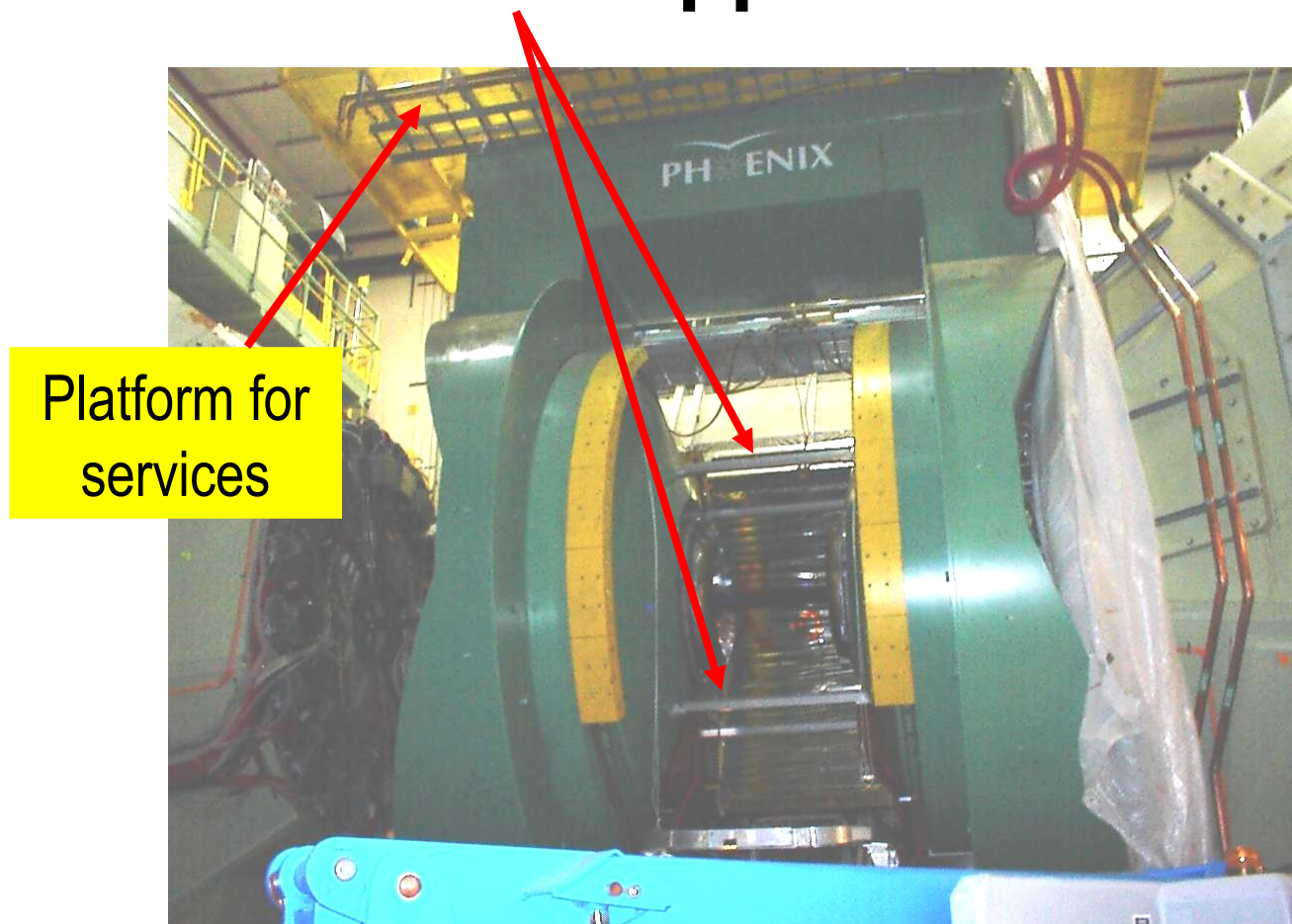
3



Bake out jacket gets removed during operation

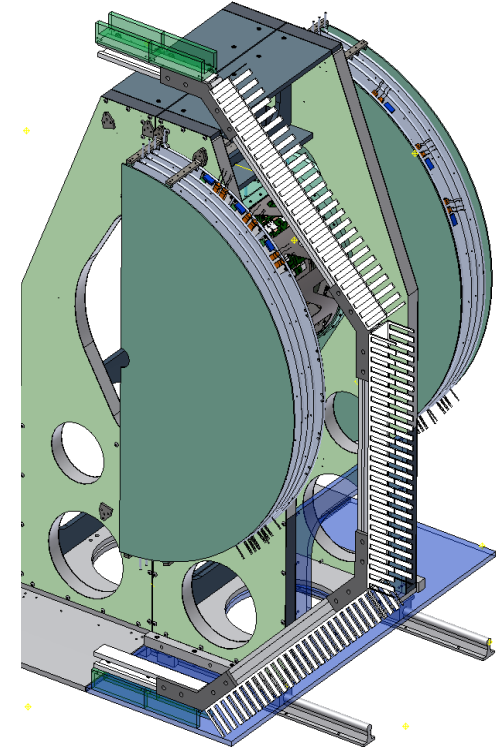
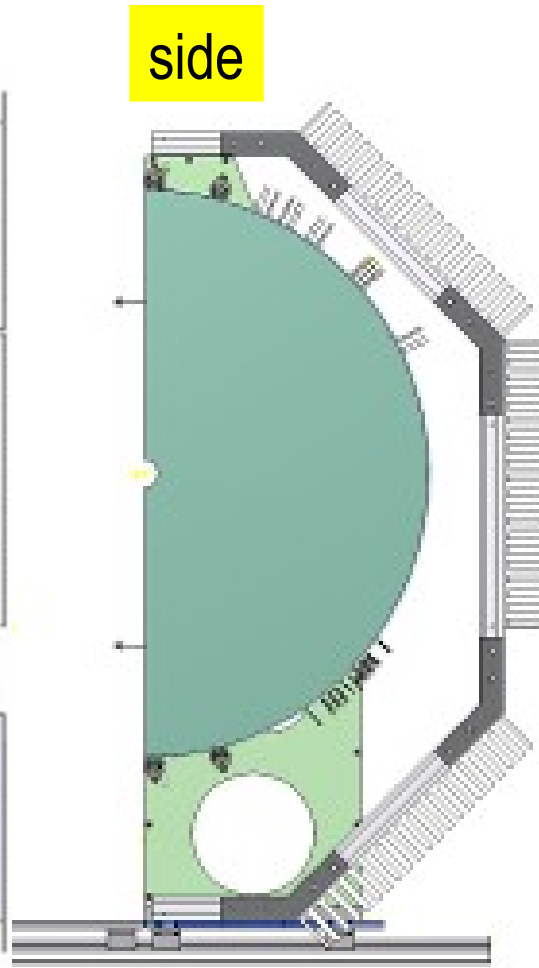
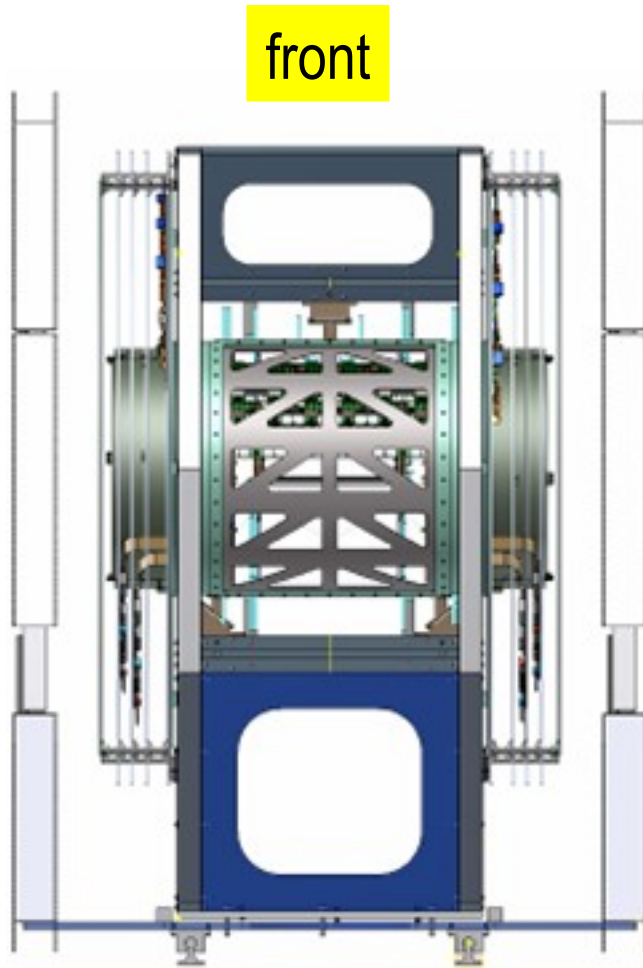
- Brush Wellman delivered Be section Mar. 1, 2010
- Entire 101 ft long warm straight section at PHENIX IR is now NEG coated
- Installation involved major choreography of PHENIX magnets
- Bake out to activate NEG completed
- Operating pressure has been achieved

External Support Installed



Electrically isolated from central magnet pole tips
Measurement of magnet vibrations proved negligible

VTX + FVTX Support Structure Design 5



Designed by
BNL technical
staff

Gas Enclosure

- All components fabricated at Gulfstream:
 - Two spool pieces, four end plates and two window frames
- Shipment received at BNL July 7th
- BNL techs attached low mass windows to the frames



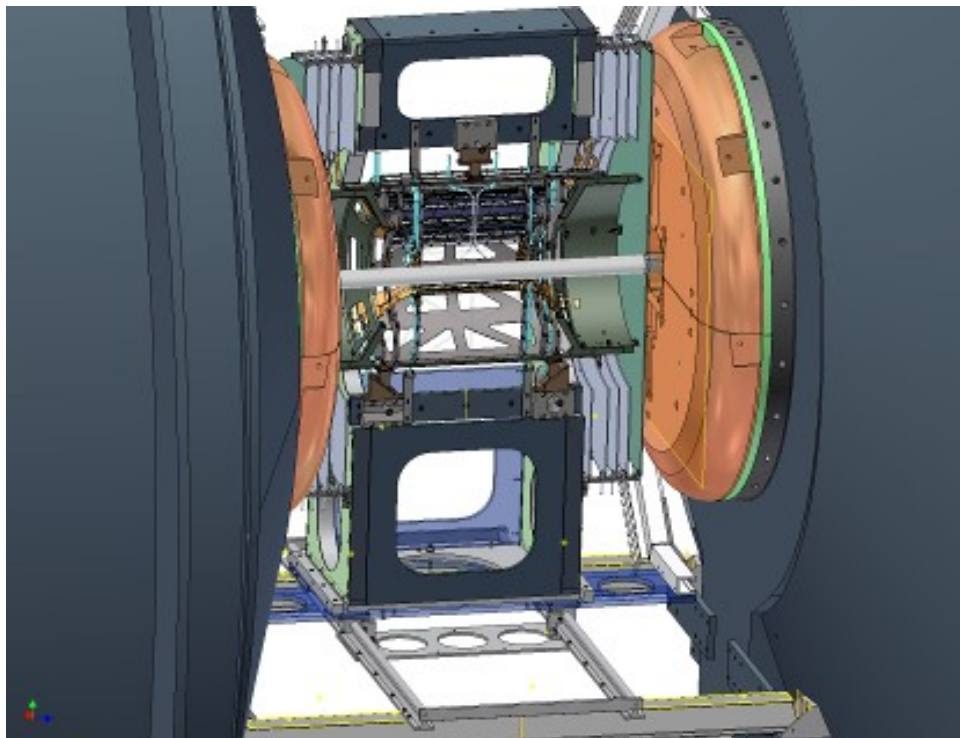
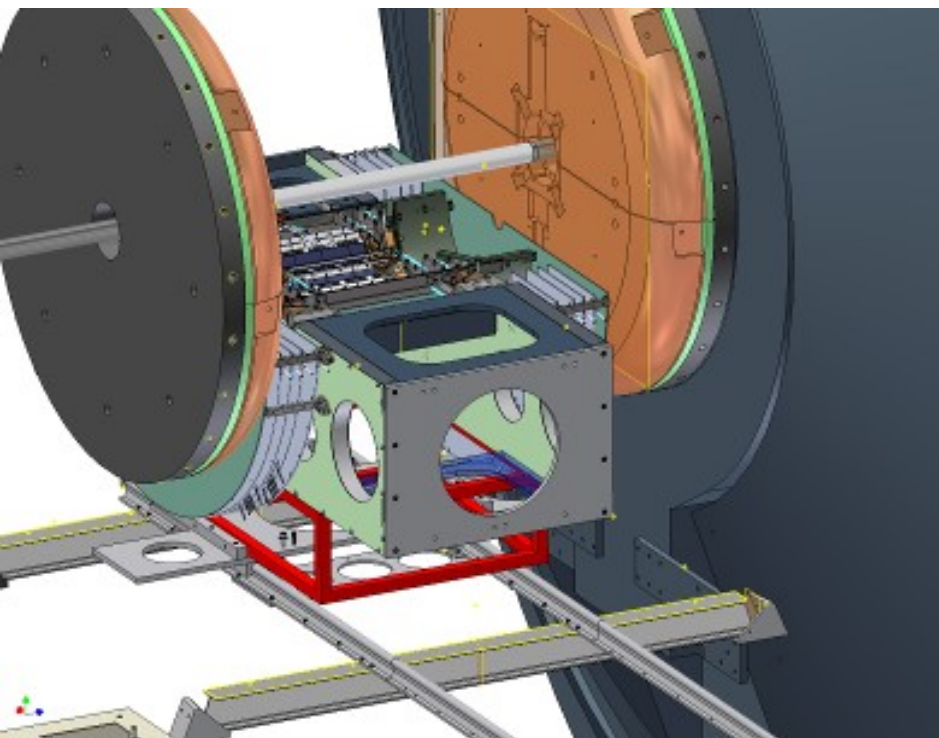
Carriages and support towers

7



- Assembly completed at BNL Physics Dept Shop
- Test fit gas enclosure and VTX space frame in support towers
- Carriages slide on rails to retract detector away from beam pipe
- Strong backs facilitate handling of towers (removed during operation)

Installation in PHENIX IR



- Installation procedure developed by BNL tech staff
- Installation procedure approved by CAD

Survey plan in PHENIX IR

9



Mount for theodolites

Provide stable location above beamline to shoot targets for CAD survey

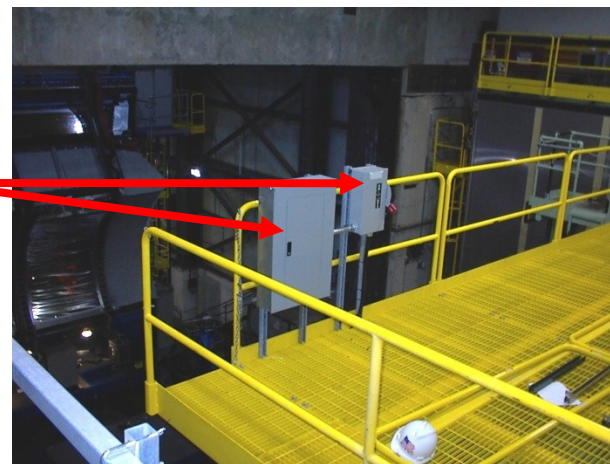
Platform Utilities

Photos from D. Lynch

Platform water manifolds and cable trays



Platform electrical distribution and disconnect



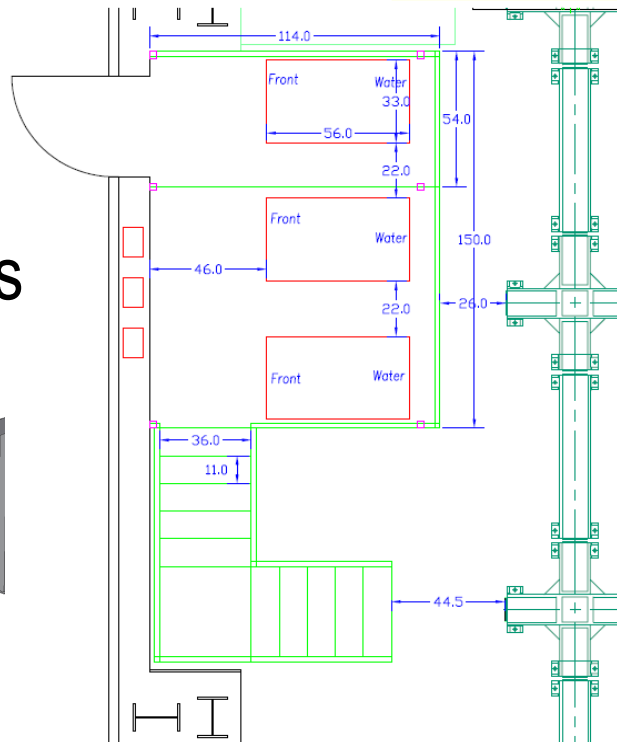
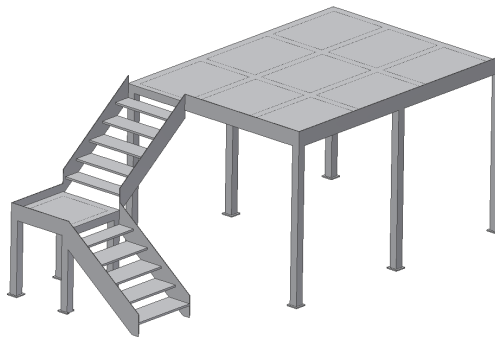
Platform water supply & return flexible connections



Off project

Cooling System

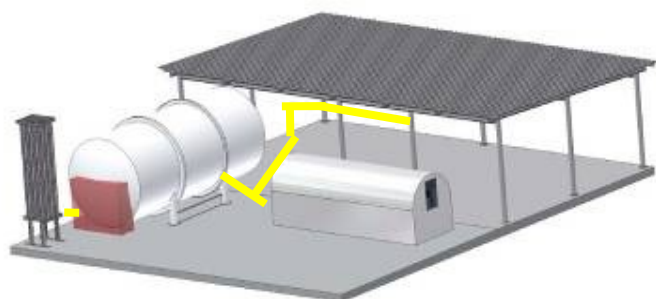
- BNL designed
- Chillers delivered
- NOVEC received
- Platform under construction
- Progress on cooling manifolds



Dry N₂ System

Low humidity required to maintain Si

LN₂ storage Dewar for dry nitrogen system shared by BBC/VTX/FVTX



Bleed the boil-off
5200 gal. capacity
Piped to gas enclosure



Off project

Safety

- 1st Experimental Safety Review Committee meeting for VTX/FVTX on June 11, 2009
 - Included mechanical and electrical design aspects
 - Participation from PHENIX and CAD safety experts
- Separate paperwork completed for VTX & FVTX
 - Design Review Questionnaire (14 page document)
 - CAD Hazard Identification Tool on the internet
- 2nd ESRC meeting on June 18, 2010
 - Dealt mainly w/ installation issues for 2010 RHIC shutdown including beam pipe & VTX/FVTX
 - Action items have been addressed
- ESRC operational readiness walk-thru prior to turn on

Summary

- Mechanical Integration:
 - Beam pipe installation in PHENIX IR completed
 - Detector support structure finished
 - Power & water in IR completed off project
 - External cooling system nearing completion
 - Infrastructure for dry N₂ system installed
- Prep for VTX has given us a leg up for FVTX
- Safety:
 - 2nd ESRC meeting for VTX/FVTX held on June 18th
 - ESRC operational readiness walk-thru prior to turn on