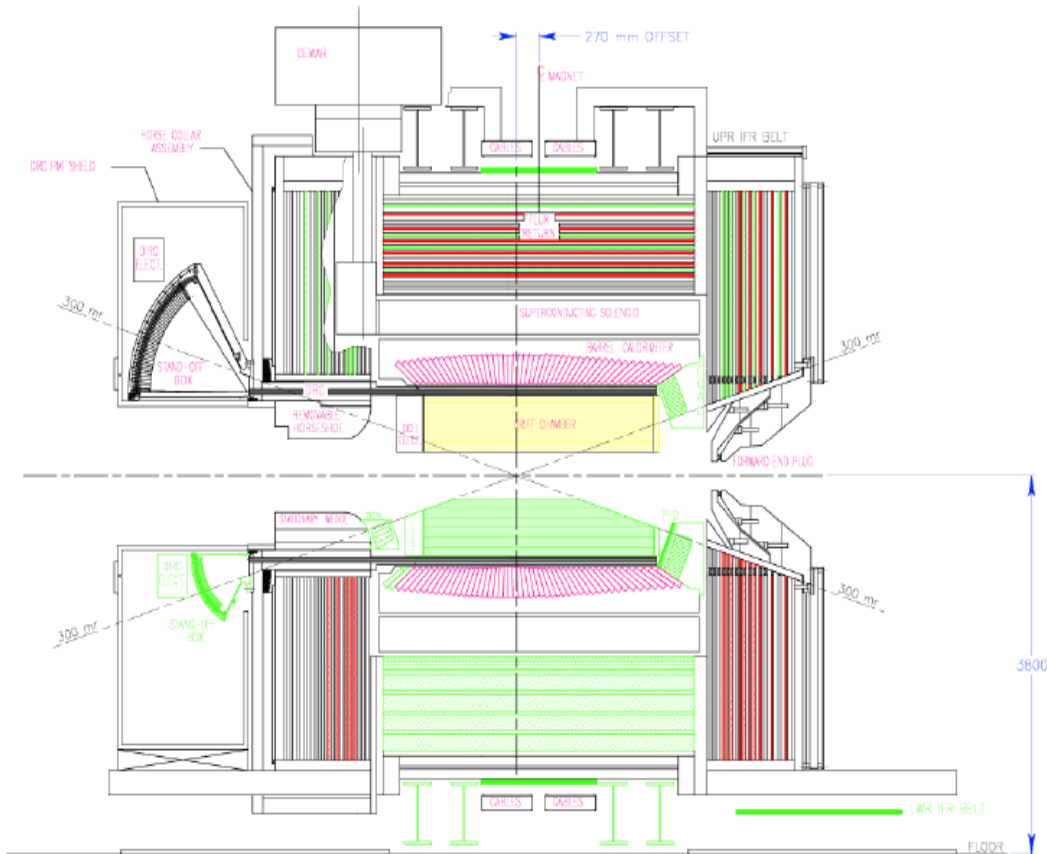


Detector (Dis)Assembly and Integration



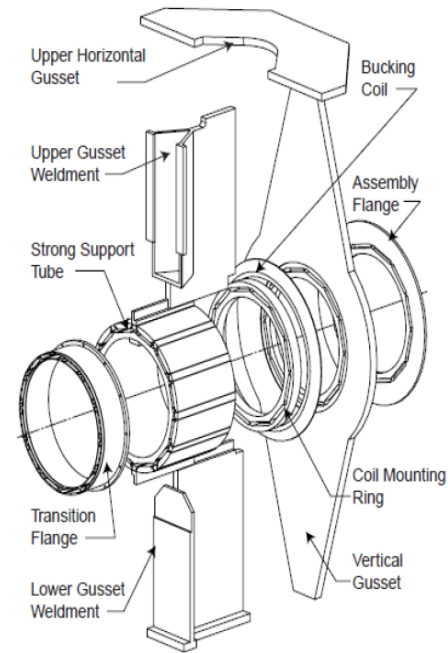
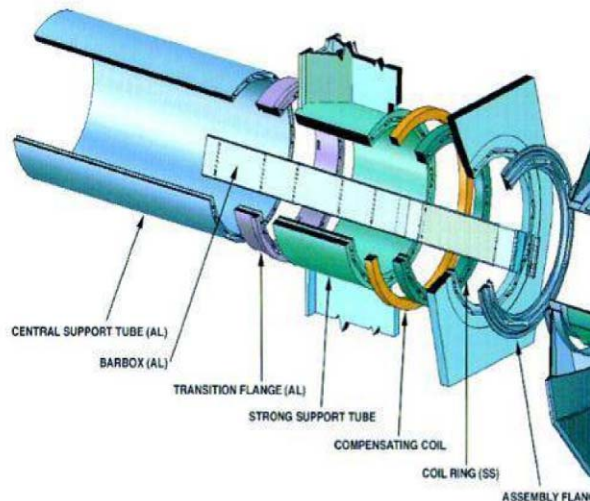
- Engineers at SLAC
 - Parts reuse issues
- BaBar Disassembly
 - Hurdles overcome
 - Progress
- Integration Issue
 - Interplay of detectors, machine and services at the forward end of the detector

Engineers At SLAC

- INFN engineers visited SLAC at the end of February for both accelerator and detector
 - Andrea Moggi, Fabrizio Raffaeli and Massimo Benettoni worked most with BaBar engineers and physicists.
 - Focus of the visit was the reuse of BaBar components in SuperB, and includes transfer from SLAC to Italy.

Component Reuse I

- Components addressed:
 - DIRC bar boxes
 - The boxes are individually removed, then stored in a container guaranteeing a dry, temperature controlled environment
 - The storage container is likely to need redesign to be able to handle transport.
 - DIRC central support tube and its supports
 - Thirty ton structure can be broken down into components. These can be easily transported. The central support tube has low mass.



Component Reuse II

- EMC calorimeter
 - In order to transport the calorimeter with the crystal mounted an external structure with an isolation system that reduces the acceleration and the displacement to a given level is required.
 - Such a structure does not exist. Engineering studies must be performed in order to design such structure.
 - Initial ideas on stabilizing the 280 independently mounted modules were discussed.



RS_046

Calorimeter Arrival at IR-2

07/02/98

Component Reuse III

- The solenoid:
 - Has been transported in the past:



- Yellow frame exists. Needs some straightening/repair. May need to re-fab some sections.
- Cryo equipment reuse an open question.

Component Reuse IV

- End Doors and Barrel Steel:
 - Will be broken down into max ~40 ton pieces, stored awaiting transport. (Crane limit 50 tons).



Barrel Flux Return transportation to SLAC



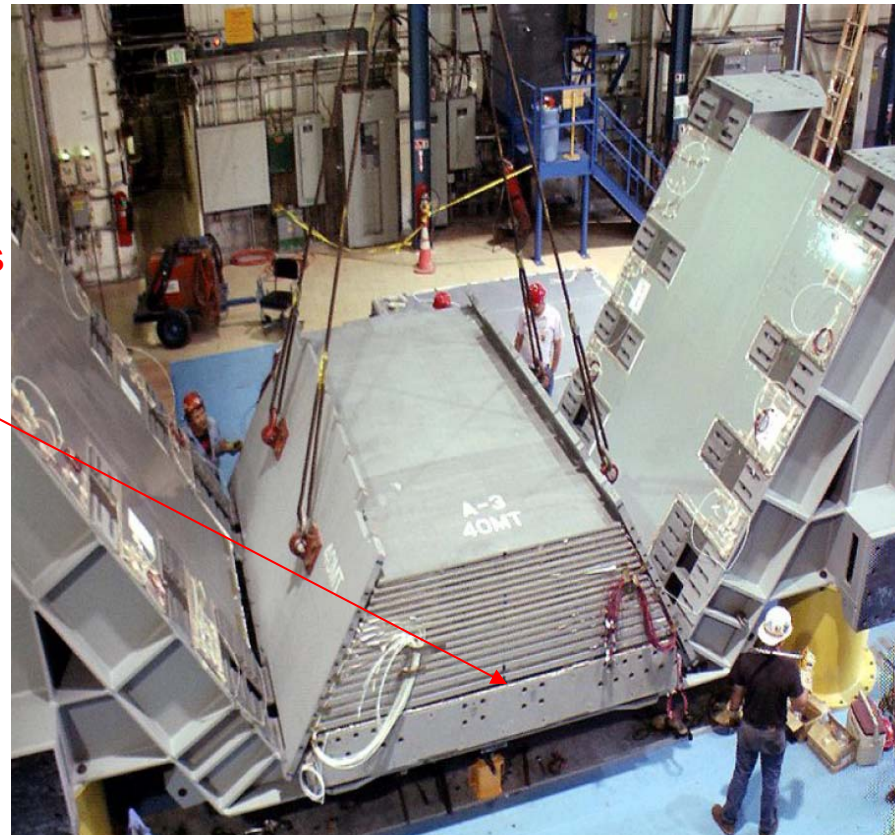
Schedule, Manpower, Costs

- Schedule: as foreseen in March; some delays since then.
- Manpower: 2 engineers to follow disassembly; 3 FTE engineering and 2 FTE design for transport issues; multi-FTE technicians if all transport tooling to be built. Need an engineer and designer ASAP.
- Shipping cost rough estimate ~5000Euro/ 40 ton gives up to ~150KE.

component	Start date	Finish
FWD east end door	11-Jun-09	18-Aug-09
FWD west end door	16-Jun-09	26-Oct-09
BWD east end door	21-Oct-09	4-Jan-10
BWD west end door	21-Oct-09	10-Mar-10
DIRC bar boxes	16-Jun-10	1-July-10
DIRC support tube	2-July-10	20-July-10
Barrel EMC	28-July-10	18-Aug-10
Solenoid	2-Sep-10	20-Sep-10
Brass absorber	28-Sep-10	20-Jan-11
Barrel Flux Return	19-Jan-11	30-Mar-11

Steel Reuse

- Engineering discussions suggest it may be possible to have adequate depth of barrel flux return by replacing parts of the sextants to remove gaps.



Disassembly Reminder

- Detector D&D has been broken into five parts:
 - Project management
 - Includes detailed schedules, safety plan, material disposition plan. Takes the first of 4+ years.
 - The balance of the time goes to materials disposition.
 - Engineering and tooling refurbishment
 - Gathering the tooling, preserving it, generating plans for disassembly, designing new tooling, etc. Expect that many of these items can be reused for SuperB assembly.
 - Peripherals disassembly
 - Includes the EH, electronics on the detector, fluid systems, walkways, platforms, cabling. Many of these items will be kept aside for possible reuse on SuperB
 - Core Disassembly
 - In 2009, down to serious work: done in early 2011. This is the time that the underlying structure becomes available for SuperB.
 - DIRC/EMC Disassembly
 - Only expected if SuperB does not go forward. Would be complete by Fall 2012.

Disassembly Hurdles

- Approval to start moving large objects as well as work 'behind-the-shield-wall' waited for approval of the Safety Plan. Sign-off took place mid-March.
- There was a DOE review for the SLAC B-Factory D&D in the last week of March. Some homework to do for the detector.

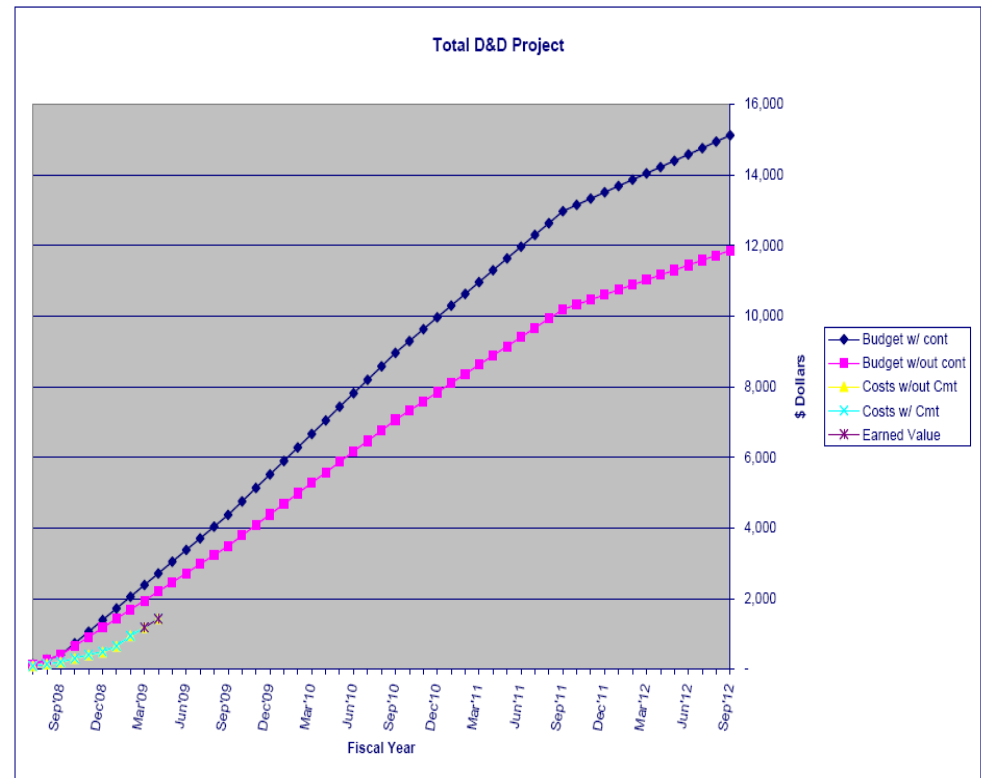
D&D Progress

- Following the review, the Electronics Hut was moved into a corner of the experimental hall at IR2. Once reconnected to services (a long slow process due to availability of technicians from Facilities), tests for high density computing/ cooling will be done with a goal of turning the EH into a farm house; this provides breathing room for SCCS expansion over the next several years. Moving the EH has generated confidence on the part of the DOE Site Office in our operations.
- Cables, one of whose ends was removed from the EH, were saved (EMC low voltage, LST cables) as well as electronics from DIRC and LST.
- Platforms were removed.
- Disconnection and removal of the rafts, which leads up to removal of the support tube that contains the SVT, is an ongoing project. Availability of electricians, cable techs, and most particularly mechanical techs working on removal of vacuum pipes and minor beam line elements has been miserable due to LCLS needs. Forward 'raft' removed last Monday. Expect the support tube to be out the first week of July.
- Meanwhile, work removing services (electronics, cables, hoses...etc.) starts on the forward and backward end doors: trying to keep the standing army working. Racks purges, Gleason carriages removed.
- Expect the forward EMC calorimeter to be removed by August.

D&D Progress

■ Measure of progress:

- Use detailed MSProject schedule (>2K items). Load with labor. Evaluate cost of each schedule step. Track completion. Sum monthly for earned value.

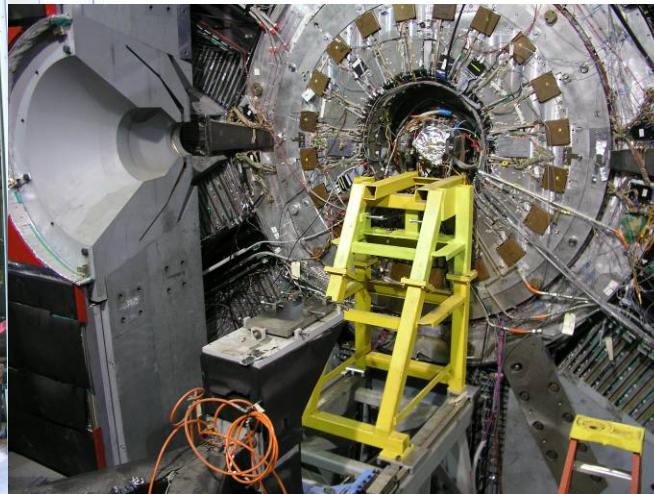
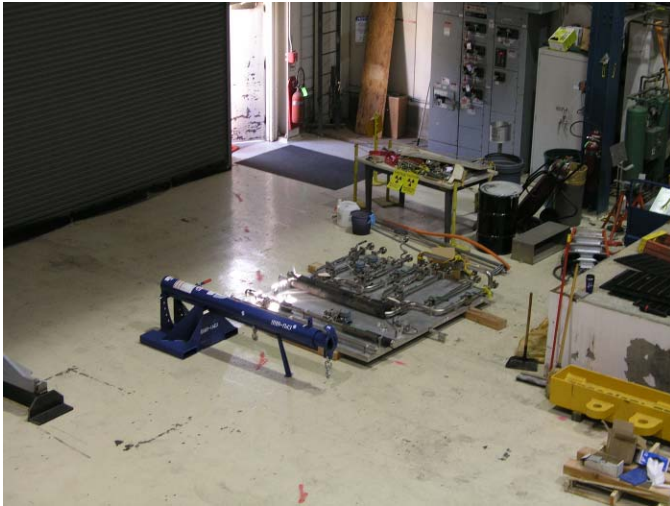


D&D Progress

Before



D&D Progress



June 16, 2009

Bill Wisniewski

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D&D Progress

After



Tracking Progress

Babar Detector Web Cameras



[Babar Web Cam 1 Live](#)

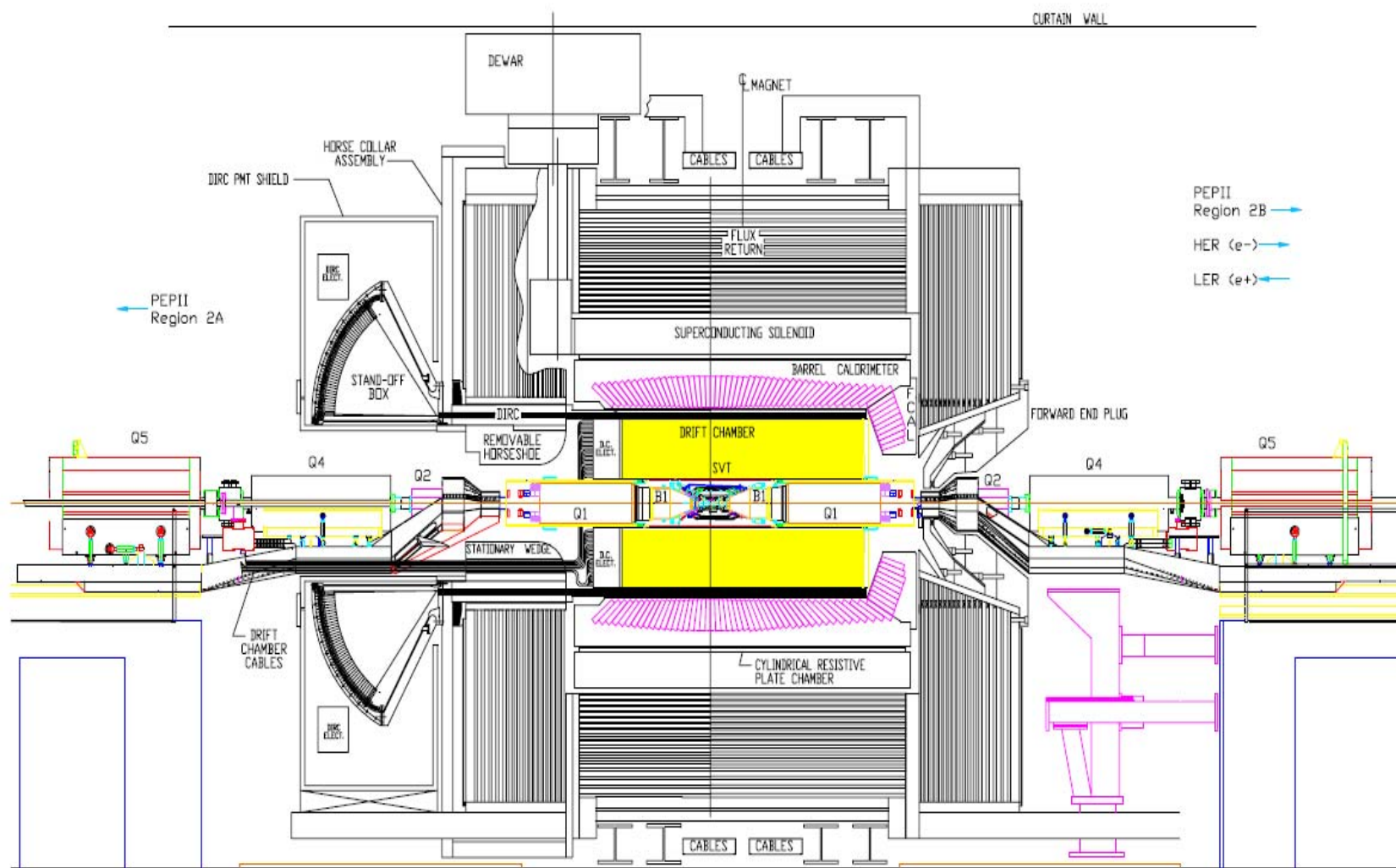
[Babar Web Cam 2 Live](#)

[Babar Web Cam 3 Live](#)



- *These Construction Web Cameras are setup to monitor the disassembly of the Babar Detector in IR2 , Building 620.*
- *Allow more than 100 users to view live video of the camera.*
- *All Cameras are configured in Internet Free Zone to restrict any unauthorized viewers. [Remote Access](#) is required for remote user offsite.*
- *All video are captured and uploaded to a sever in every second from 7am to 4pm Monday to Friday.*
- *Archived video store on a windows server until project is completed.*

Ideal BaBar

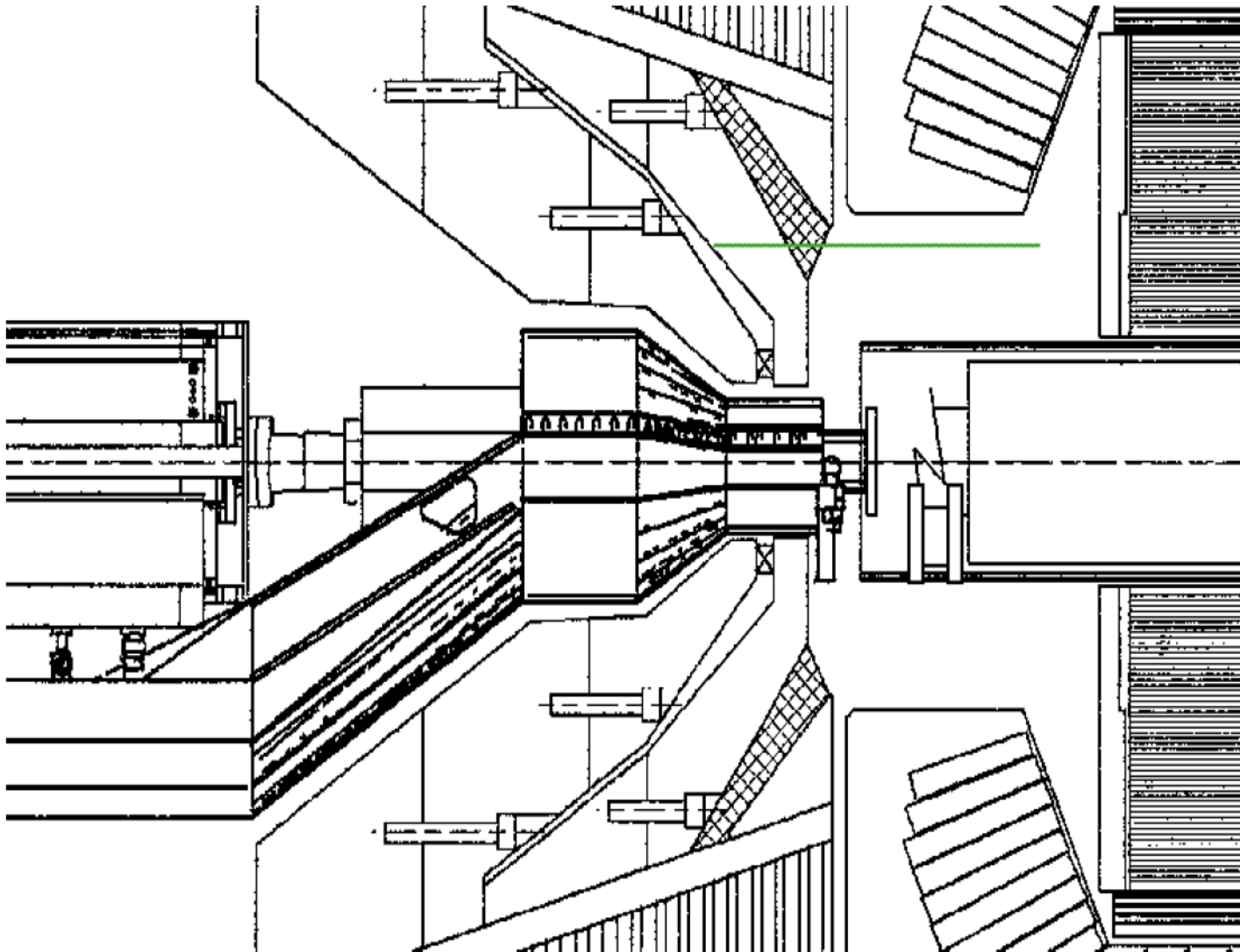


Section through BaBar & near IR

For information only, do not scale

Acad Drg:- BabarSection
Drr:- S.JMetcalfe
This Revision:- 4/23/01

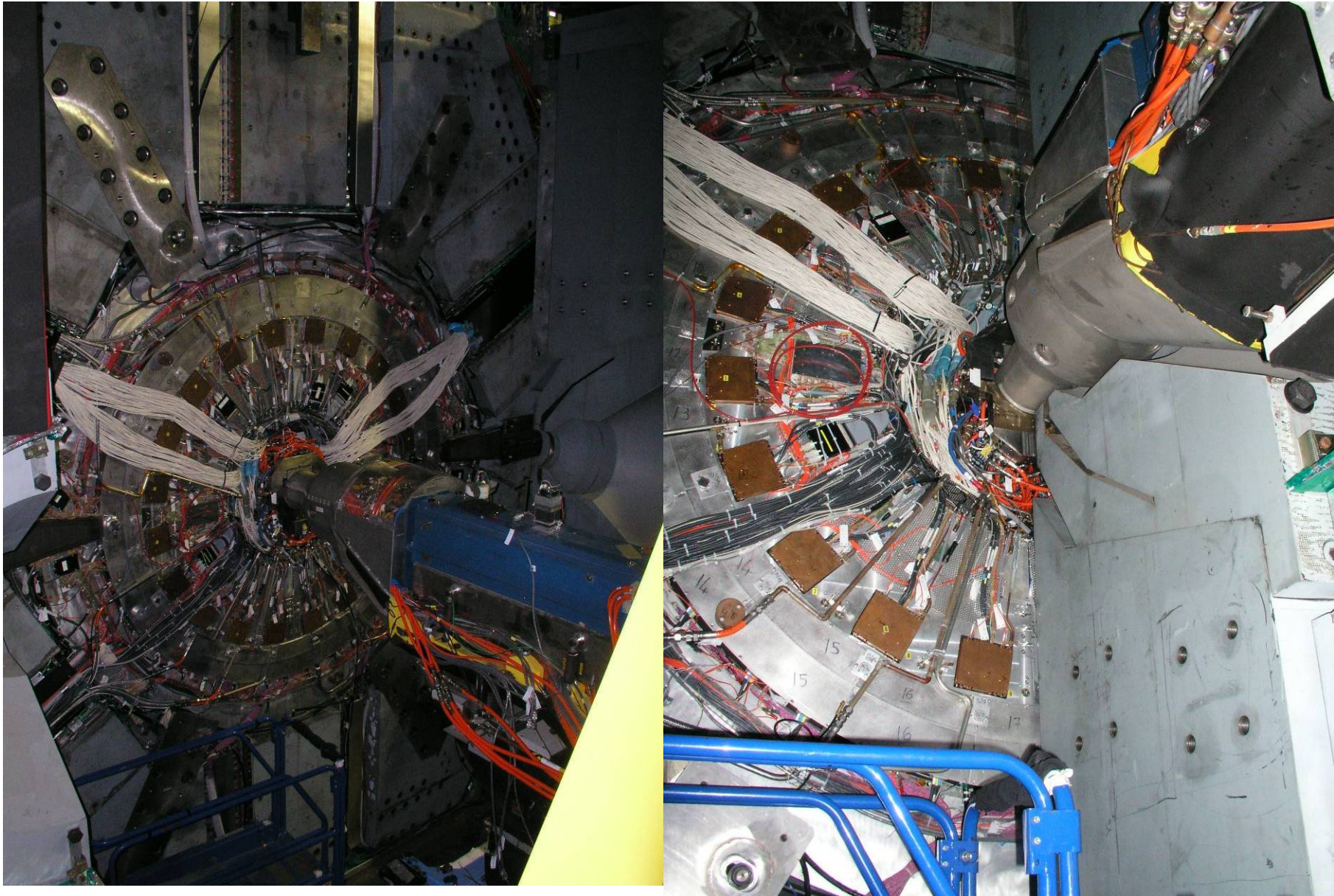
Ideal BaBar



Forward Integration

- The forward end of the detector was a complicated place in BaBar, especially as one got closer to the beam pipe:
 - SVT cooling, SVT cables, position monitoring
 - DCH cooling, bulkhead gas,
 - EMC cables, electronics, source calibration system, endcap cooling system, nitrogen, backgrounds monitors
 - PEP support tube services, cooling water tubes for final raft magnets
 - Limited area to take out services in 'chimneys' out of the steel. Limited gap between EMC endcap and forward end doors

BaBar with Services

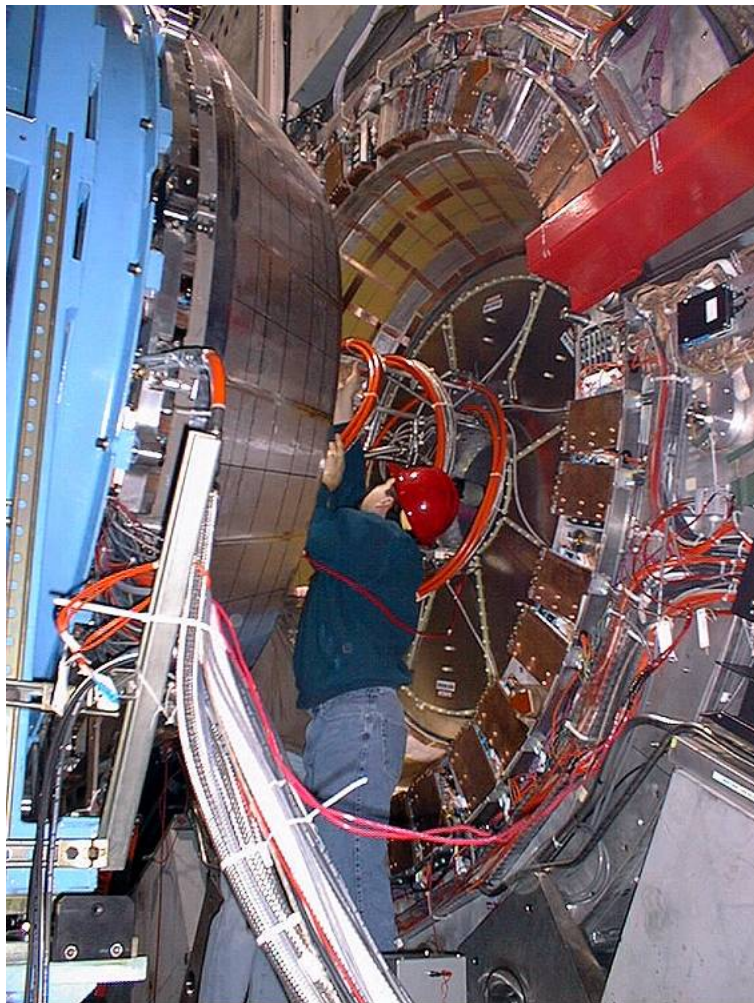


June 16, 2009

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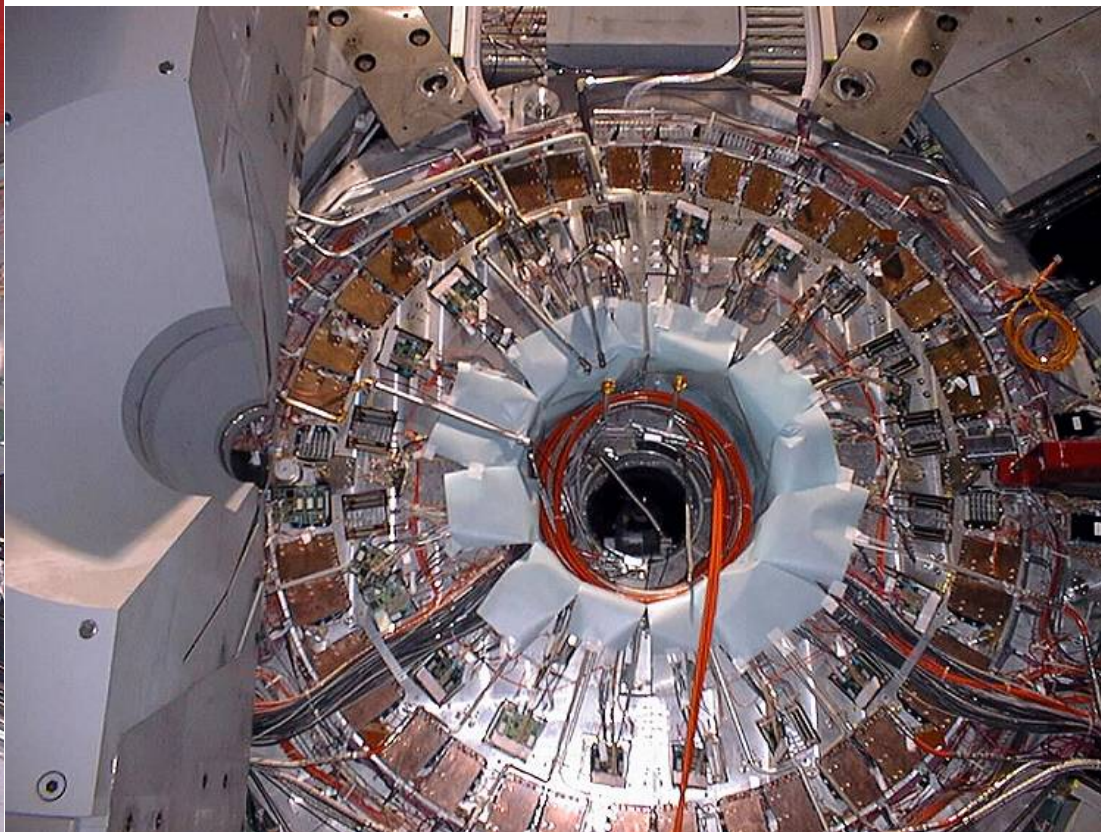
Buried Services...



SS_084

Threading DCH Utilities through Endcap

02/09/99



Forward Integration Issues

- Accelerator: services for superconducting magnets
- Vertex Detector: Layer 0 introduces additional cables (other services?)
- Drift Chamber: need to access forward end? Change in services exit?
- Forward PID: suspension points? Cables and services?
- Forward Calorimeter: increased granularity effects?
- Interplay with detector acceptance and materials budget?