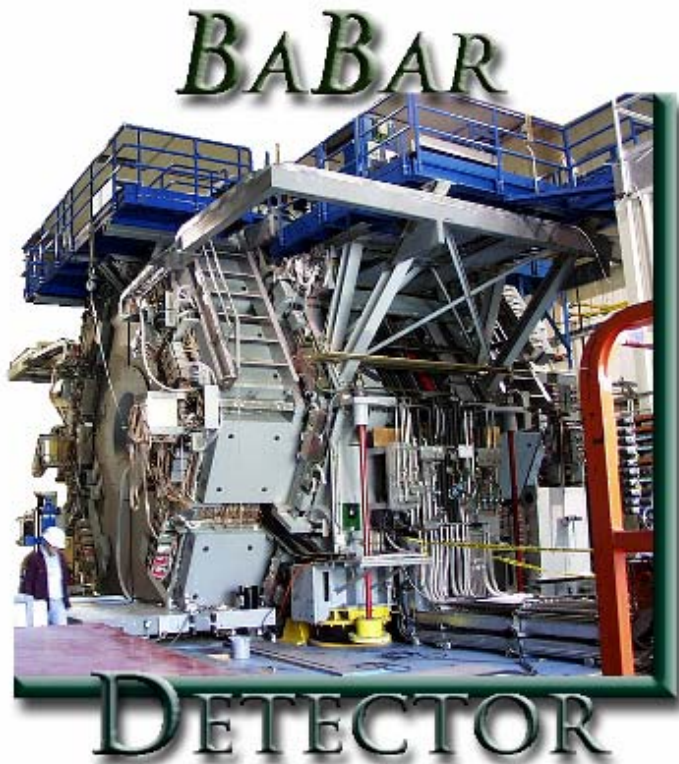


BaBar Detector D&D



- MMS
 - Keeping components healthy for reuse
- D&D
 - Project phases
 - Schedule, Safety Plan
 - Progress & near future

The Minimal Maintenance State

- The goal of the minimal maintenance state is to safely preserve assets for reuse at the lowest cost in preparation for detector disassembly and reuse.
- A stand-alone version of the monitoring system is used to track the state of the detector in the MMS.
- MMS monitoring in use for all systems in September.

Magnet MMS

- Moving the magnet to its MMS configuration was a very slow process. The support services (compressor, liquifier, monitoring systems) moved quickly, but warming the coil was slow:
 - June 30: 210K July 21: 228K Aug 27: 251K
 - Sept 23: 263K Oct 21: 271.6 Nov 21: 278.1
 - Dec 3: 280.1K Dec 15: 281.4 Dec 19: 281.6
 - Turn off one of the vacuum pumps
 - Jan 5: 282.9K Jan 20: 283.9 Feb 2: 284.7
 - Back-fill with nitrogen
 - Feb 3: 286.1K Feb 4: 287.1K MMS achieved.
- Plans are well developed for removing external inputs to the cryostat.

The Minimal Maintenance State

2007: expectation

2008/9: evolution

System	Front-end electronics	Power supplies	Gas	Cooling	Other utilities
SVT	Off	Off	dry air	off, drained	
DCH	Off	Off	dry nitrogen	off	
DRC	Off	Off	dry nitrogen	off, empty	SOB drained, purification system off
EMC	Off	Off	dry nitrogen	fluorinert circulating	water system drained and dried; source system drained
IFR-RPC	Off	Off	dry nitrogen	off, drained	
IFR-LST	Off	Off	dry nitrogen	off, drained	
Trigger	Off	Off	n/a	n/a	
DAQ	Off	Off	n/a	n/a	
Online farm	Off	Off	n/a	n/a	
Safety systems/monitoring/UPS	On	On	n/a	EH cooling on	UPS maintained
Infrastructure	n/a	n/a	n/a	EH cooling on	UPS maintained
Magnet	On	Off	n/a	n/a	vacuum pumps on
IR2 complex	n/a	On	On	On	gas shack limited use

Dry air

Off

On: MonteCarlo farm till ~2/15

Pumps off,
Backfill N2
a week ago

Decommission: remove hazards

D&D

- 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.

D&D Planning: Schedule

- Engineering staff came on board last quarter of 2008, once LCLS turn-on frees up staff.
 - Jim Krebs, Chief Engineer, only working part time earlier, but did produce a very detailed schedule.
 - Currently, ~2000 items. Does not include EMC disassembly details (SuperB use of this gives cost offsets).
 - Updated weekly. Two week look-ahead every week.
 - Engineering meetings: 4 topics, covered two at a time during alternate weeks, started beginning of November.
- Technician crew increased in size at turn of the year.

D&D Work Planning

- SLAC is involved in executing a new Work Planning and Control system that was called for by a DOE safety audit team almost two years ago.
 - The new scheme involves more fixed format to the operations meeting, use of Work Integration Packages when multiple external groups are involved, and Job Safety Analysis for the task at hand (in cases where the task is a standard one, a library is being put together to simplify life: the point is that people review the hazards of what they are about to do very soon before they do it).
 - **This new system is a bit of a burden as we start up.** However, with the detailed schedule it is possible to identify the activities which require a WIP, and non-standard JSAs in advance. All folks working in IR2 will need to live with this system. Fortunately, it is very close to what we do as standard practice at our operations meetings.

D&D Planning: Schedule

H.J. Krebs										BaBar Detector Disassembly and Disposal Master Project Schedule (v12)						
ID	Outline Number	Task Name	Hazard Category	Duration	Start	Finish	Predecessors	Successors	Person Responsible	08	2009	2010	2011	2012	20	
1	1	BABAR DISASSEMBLY AND DISPOSAL		207.8 wks	Tue 7/1/08	Mon 9/24/12										
2	1.1	PROJECT PLANNING (Charge # 1423610)		204 wks	Tue 7/1/08	Mon 8/27/12										
4	1.1.2	Create Safety/Materials Disposition Plan		26.4 wks	Tue 7/1/08	Fri 1/16/09										
9	1.1.2.5	Safety/Materials Disposition Plan Approved		0 wks	Fri 1/16/09	Fri 1/16/09	8	12,813,814,...						1/16		
10	1.1.3	Materials Tracking System		26.4 wks	Tue 7/1/08	Fri 1/16/09										
15	1.1.3.5	Materials Tracking System Ready		0 wks	Fri 1/16/09	Fri 1/16/09	12,14							1/16		
16	1.1.4	Controlled Materials Storage		28 wks	Tue 7/1/08	Thu 1/29/09										
19	1.1.4.3	First Eight Storage Containers Received		0 wks	Mon 11/24/08	Mon 11/24/08								11/24		
23	1.1.5	Work Planning and Control		17.5 wks	Mon 8/25/08	Fri 1/9/09										
27	1.1.5.4	BaBar D&D Work Planning And Control Forms Ready		0 wks	Fri 1/9/09	Fri 1/9/09	26							1/9		
28	1.1.6	Master Project Schedule		82.8 wks	Tue 7/1/08	Mon 3/15/10										
30	1.1.6.2	Working Version of Detailed Project Schedule Created (to Detector Roll-Out)		0 wks	Mon 10/6/08	Mon 10/6/08	29		31					10/6		
33	1.1.6.5	Working Project Schedule Created (Excluding System Disassembly)		0 wks	Wed 12/17/08	Wed 12/17/08	32							12/17		
34	1.1.6.6	SuperB Use of BaBar Systems Decided		0 wks	Fri 12/18/09	Fri 12/18/09		1,62,63,57,64	IFC					12/18		
39	1.1.6.11	System Disassembly Milestones Schedule Created		0 wks	Mon 3/15/10	Mon 3/15/10	38		Krebs					3/15		
40	1.1.7	IFC System Approval Milestones		59 wks	Fri 10/31/08	Fri 1/29/10										
41	1.1.7.1	Services Disconnection		27 wks	Fri 10/31/08	Fri 5/29/09										
42	1.1.7.1.1	IFR/RPCs		0 wks	Fri 10/31/08	Fri 10/31/08			IFC					10/31		
43	1.1.7.1.2	IFR/LSTs		0 wks	Fri 10/31/08	Fri 10/31/08			IFC					10/31		
44	1.1.7.1.3	Silican Vertex Tracker		0 wks	Fri 1/30/09	Fri 1/30/09			IFC					1/30		
45	1.1.7.1.4	Drift Chamber		0 wks	Fri 1/30/09	Fri 1/30/09			IFC					1/30		
46	1.1.7.1.5	End Cap Calorimeter		0 wks	Fri 1/30/09	Fri 1/30/09			IFC					1/30		
47	1.1.7.1.6	Superconducting Solenoid/Valve Box/Dump Resistor		0 wks	Fri 1/30/09	Fri 1/30/09		948	IFC					1/30		
48	1.1.7.1.7	Helium Quilifier		0 wks	Fri 1/30/09	Fri 1/30/09			IFC					1/30		
49	1.1.7.1.8	Barrel Calorimeter		0 wks	Tue 3/31/09	Tue 3/31/09			IFC					3/31		
50	1.1.7.1.9	Cylindrical Resistive Plate Chamber		0 wks	Tue 3/31/09	Tue 3/31/09			IFC					3/31		
51	1.1.7.1.10	DIRC/Bucking Coil		0 wks	Fri 5/29/09	Fri 5/29/09			IFC					5/29		
52	1.1.7.2	System Removal		48.6 wks	Fri 1/30/09	Fri 1/29/10										
53	1.1.7.2.1	Silican Vertex Tracker		0 wks	Fri 1/30/09	Fri 1/30/09			68 IFC					1/30		
54	1.1.7.2.2	IFR/RPCs		0 wks	Fri 1/30/09	Fri 1/30/09			70 IFC					1/30		
55	1.1.7.2.3	End Cap Calorimeter		0 wks	Fri 2/27/09	Fri 2/27/09			72 IFC					2/27		
56	1.1.7.2.4	End Door Flux Return		0 wks	Tue 3/31/09	Tue 3/31/09			74 IFC					3/31		
57	1.1.7.2.5	IFR/LSTs		0 wks	Fri 1/29/10	Fri 1/29/10			76 IFC					1/29		
58	1.1.7.2.6	Drift Chamber		0 wks	Fri 1/29/10	Fri 1/29/10			78 IFC					1/29		
59	1.1.7.2.7	DIRC/Bucking Coil		0 wks	Fri 1/29/10	Fri 1/29/10			80 IFC					1/29		
60	1.1.7.2.8	Barrel Calorimeter		0 wks	Fri 1/29/10	Fri 1/29/10			82 IFC					1/29		
61	1.1.7.2.9	Cylindrical Resistive Plate Chamber		0 wks	Fri 1/29/10	Fri 1/29/10			84 IFC					1/29		
62	1.1.7.2.10	Superconducting Solenoid/Valve Box/Dump Resistor		0 wks	Fri 1/29/10	Fri 1/29/10			86 IFC					1/29		
63	1.1.7.2.11	Barrel Flux Return		0 wks	Fri 1/29/10	Fri 1/29/10			88 IFC					1/29		
64	1.1.7.2.12	Helium Quilifier		0 wks	Fri 1/29/10	Fri 1/29/10			IFC					1/29		
65	1.1.8	Disassembly Readiness Reviews		62.6 wks	Fri 1/30/09	Fri 5/7/10										
67	1.1.8.2	Electronics House Approved for Roll-Out		0 wks	Wed 2/18/09	Wed 2/18/09	66		1167					2/18		
69	1.1.8.4	PEP Rafts/Support Tube/SVT Approved for Removal		0 wks	Thu 2/12/09	Thu 2/12/09	68							2/12		
71	1.1.8.6	IFR/RPCs Approved for Removal		0 wks	Fri 3/6/09	Fri 3/6/09	70							3/6		

BaBar Disassembly Master Schedule
H.J. Krebs
Date: Thu 1/15/09

Task Progress Summary External Tasks Deadline

Split Milestone Project Summary External Milestone

D&D Planning: Schedule

BaBar Detector Disassembly and Disposal Master Project Schedule (v12)										08	2009	2010	2011	2012	2013
ID	Outline Number	Task Name	Hazard Category	Duration	Start	Finish	Predecessors	Successors	Person Responsible						
661	1.3.5.9.4	Drift Chamber Chiller Removed		0 wks	Wed 10/15/08	Wed 10/15/08	660	666,647							
662	1.3.5.10	Backup Cooling System		11.7 wks	Thu 2/12/09	Wed 5/6/09									
663	1.3.5.10.1	IR-2 Work		0.7 wks	Thu 2/12/09	Wed 2/18/09									
664	1.3.5.10.1.1	Disconnect Electrical Power/Remove Wiring	M	0.2 wks	Thu 2/12/09	Fri 2/13/09	725	665	Rodriguez,Electrician						
665	1.3.5.10.1.2	Disconnect Input/Output Piping/Hoses & Conduits	L	0.4 wks	Fri 2/13/09	Wed 2/18/09	664	666	Racine						
666	1.3.5.10.1.3	Remove Backup Cooling System	M	0.1 wks	Wed 2/18/09	Wed 2/18/09	665	667,669	Vassilian,Riggers						
667	1.3.5.10.1.4	Backup Cooling System Removed From IR-2		0 wks	Wed 2/18/09	Wed 2/18/09	666								
668	1.3.5.10.2	IR-12 Work		11 wks	Thu 2/19/09	Wed 5/6/09									
669	1.3.5.10.2.1	Design Area to Receive Backup Cooling System	VL	4 wks	Thu 2/19/09	Wed 3/18/09	666	670	Racine						
670	1.3.5.10.2.2	Make Preparations to Receive Backup Cooling System	M	2 wks	Thu 3/19/09	Wed 4/1/09	669	671	Racine						
671	1.3.5.10.2.3	Install Backup Cooling System	M	2 wks	Thu 4/2/09	Wed 4/15/09	670	672	Racine						
672	1.3.5.10.2.4	Make piping Connections to Chilled Water Supply and Return	M	2 wks	Thu 4/16/09	Wed 4/29/09	671	673	Racine						
673	1.3.5.10.2.5	Connect Electrical Power	M	1 wk	Thu 4/30/09	Wed 5/6/09	672	674,735	Rodriguez,Electrician						
674	1.3.5.10.2.6	Backup Cooling System Installed at IR-12		0 wks	Wed 5/6/09	Wed 5/6/09	673								
675	1.3.6	Piping and Hoses	WIP-BBR-021	66 wks	Thu 10/16/08	Thu 3/4/10									
676	1.3.6.1	IFR		11.85 wks	Thu 10/16/08	Fri 1/23/09									
677	1.3.6.1.1	Remove Hoses From Upper Tower Heat Exchanger to Wall Supply/Return	L	0.2 wks	Thu 10/16/08	Thu 10/16/08	660	678	Vassilian						
678	1.3.6.1.2	Remove Hoses From Upper Tower Chiller to Detector Manifolds	L	0.2 wks	Tue 1/20/09	Tue 1/20/09	677,9	679	Vassilian						
679	1.3.6.1.3	Remove Hoses From Lower Tower Heat Exchanger to Wall Supply/Return	L	0.2 wks	Tue 1/11/08	Wed 1/11/08	678	680	Vassilian						
680	1.3.6.1.4	Remove Hoses From Lower Tower Heat Exchanger to Detector Manifolds	L	0.2 wks	Tue 1/20/09	Tue 1/20/09	679,9	681	Vassilian						
681	1.3.6.1.5	Remove IFR Manifolds/Hoses Upper East Detector Platform	L	0.1 wks	Wed 1/21/09	Wed 1/21/09	680,9	682	Vassilian						
682	1.3.6.1.6	Remove IFR Manifolds/Hoses Upper West Detector Platform	L	0.1 wks	Wed 1/21/09	Wed 1/21/09	681,9	683	Vassilian						
683	1.3.6.1.7	Remove IFR Manifolds/Hoses Lower East	L	0.1 wks	Thu 1/22/09	Thu 1/22/09	682,9	684	Vassilian						
684	1.3.6.1.8	Remove IFR Manifolds/Hoses Lower West	L	0.1 wks	Thu 1/22/09	Thu 1/22/09	683,9	744,685	Vassilian						
685	1.3.6.1.9	Transport IFR Hoses and Manifolds to Storage	M	0.05 wks	Fri 1/23/09	Fri 1/23/09	684	686	Vassilian						
686	1.3.6.1.10	IFR Manifolds and Hoses Removed		0 wks	Fri 1/23/09	Fri 1/23/09	685								
687	1.3.6.2	SVT		11.6 wks	Thu 10/16/08	Thu 1/22/09									
688	1.3.6.2.1	Remove Piping From FWD SVT Tower Chiller to Distribution Panel	M	0.1 wks	Thu 10/16/08	Thu 10/16/08	660	689	Racine						
689	1.3.6.2.2	Remove Piping From BWD SVT Tower Chiller to Distribution Panel	M	0.1 wks	Thu 10/16/08	Thu 10/16/08	668	690	Racine						
690	1.3.6.2.3	Remove Piping From FWD Neslab Chiller to Distribution Panel	M	0.1 wks	Fri 10/17/08	Fri 10/17/08	669	691	Racine						
691	1.3.6.2.4	Remove Piping From BWD Neslab Chiller to Distribution Panel	M	0.1 wks	Fri 10/17/08	Fri 10/17/08	690	692	Racine						
692	1.3.6.2.5	Remove Piping From Distribution Panel to BWD End of Detector	M	0.2 wks	Tue 1/20/09	Tue 1/20/09	691,9	693	Racine						
693	1.3.6.2.6	Remove Piping From Distribution Panel to FWD End of the Detector	M	0.2 wks	Wed 1/21/09	Wed 1/21/09	692,9	694	Racine						
694	1.3.6.2.7	Remove BWD Circulation Pump and Motor	M	0.1 wks	Thu 1/22/09	Thu 1/22/09	693,9	695	Racine						
695	1.3.6.2.8	Remove FWD Circulation Pump and Motor	M	0.1 wks	Thu 1/22/09	Thu 1/22/09	694,9	696	Racine						
696	1.3.6.2.9	Remove Chiller Distribution Panel	M	0.1 wks	Thu 11/13/08	Thu 11/13/08	695	700,697	Racine						
697	1.3.6.2.10	Transport SVT Piping Components to Storage	M	0.05 wks	Thu 11/13/08	Thu 11/13/08	696	698	Vassilian						
698	1.3.6.2.11	SVT Piping Removed		0 wks	Thu 11/13/08	Thu 11/13/08	697								
699	1.3.6.3	Drift Chamber		7.75 wks	Thu 11/13/08	Mon 1/26/09									
700	1.3.6.3.1	Remove Piping From Chiller to Wall Supply/Return	M	0.1 wks	Thu 11/13/08	Thu 11/13/08	696	701	Racine						
701	1.3.6.3.2	Remove Piping From Chiller to BWD Drift Chamber	M	0.4 wks	Tue 1/20/09	Wed 1/21/09	700,9	702	Racine						
702	1.3.6.3.3	Remove Piping From Chiller to East Detector Valve Panel	M	0.4 wks	Thu 1/22/09	Fri 1/23/09	701,9	706,703	Racine						
703	1.3.6.3.4	Transport Drift Chamber Piping Components to Storage	M	0.05 wks	Mon 1/26/09	Mon 1/26/09	702	704	Vassilian						
704	1.3.6.3.5	Drift Chamber Piping Removed		0 wks	Mon 1/26/09	Mon 1/26/09	703								

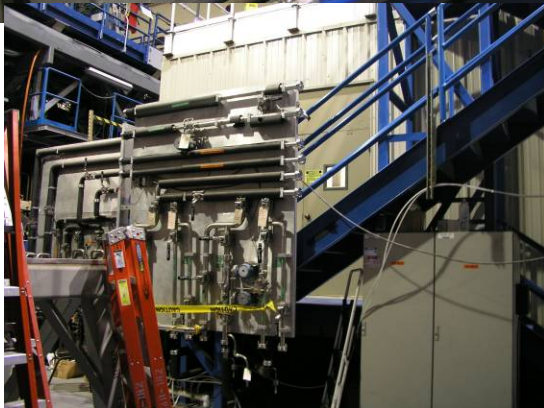
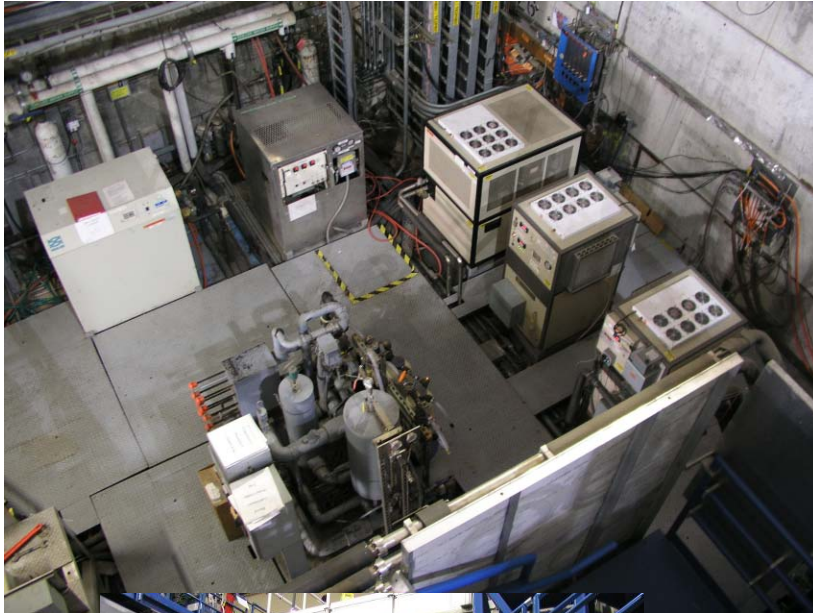
D&D Planning: Safety

- In 2004 and 2006 upgrades we worked to formal, reviewed, safety plans.
- A detailed safety plan (includes a project description, the schedule, lots of photos (all told, 179 pages): sufficient material so that anyone reviewing the plan has the full context).
- The plan was reviewed about four weeks ago. The committee met a few times after that.
- In addition ES&H safety experts and two members of the DOE Site Office have reviewed it and produced, with the committee about thirty comments, which are included in the committee report.
- Final report released a week ago Friday.
- Much more scrutiny by more groups, including the DOE Site Office, than in the past: new work environment. This may slow the completion of BaBar disassembly and availability of components by months.
- Have been restricted from serious disassembly 'behind the shield wall' till approved. We are incorporating the comments in the plan: expect to be done in 2-3 weeks.

D&D Progress

- Shield wall removed from IR2 to the PEP Ring Road. Long hiatus waiting for the PEP Road to open. SSO asks for detailed engineering calculations for the LCLS tunnel carrying capacity. First four large blocks moved to Sector 12 (where the blocks will form part of a fenced materials storage area) a week ago.
- Other fenced areas set up for materials storage: issue of metals suspension. The metals suspension is an issue for parts not reused, but would not affect components for SuperB.
- Durable bar code tags ordered. Equipment database will be used to record component status.
- General cleanup: scrap stockpile at IR2, shelves at IR8, operations materials in the containers in the upper IR2 lot cleared of unneeded items (salvage & trash).
- Unneeded chillers removed from IR2 Apron (EMC water, DIRC, DCH, two IFR, two SVT) and stored at IR8 or the SLC North Adit. Some of these may be useful for SuperB.
- SOB water purification plant decommissioned and removed. SOB drained.
- About 2/3 of electronics in Electronics House racks removed, entered in database, and packed away awaiting decision on use/disposal.
- Many cables removed from racks. Some cables for which there is no reuse have been removed (with prejudice). Some are being set aside for possible SuperB reuse (EMC power, for example)
- Electricians, HVAC techs, fire techs all involved in planning the disconnect of the Electronics House before its move. By reusing this as a 'Black Box', demolition is not needed.
- Recovery of IFC small equipment has begun: some of it could be used for SuperB

IR2 Chiller Pad



February 15, 2009

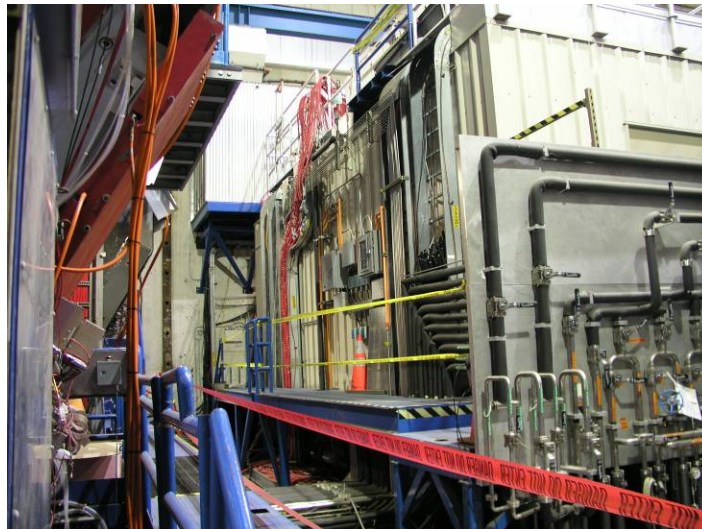
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IR2 Apron



EH



Storage

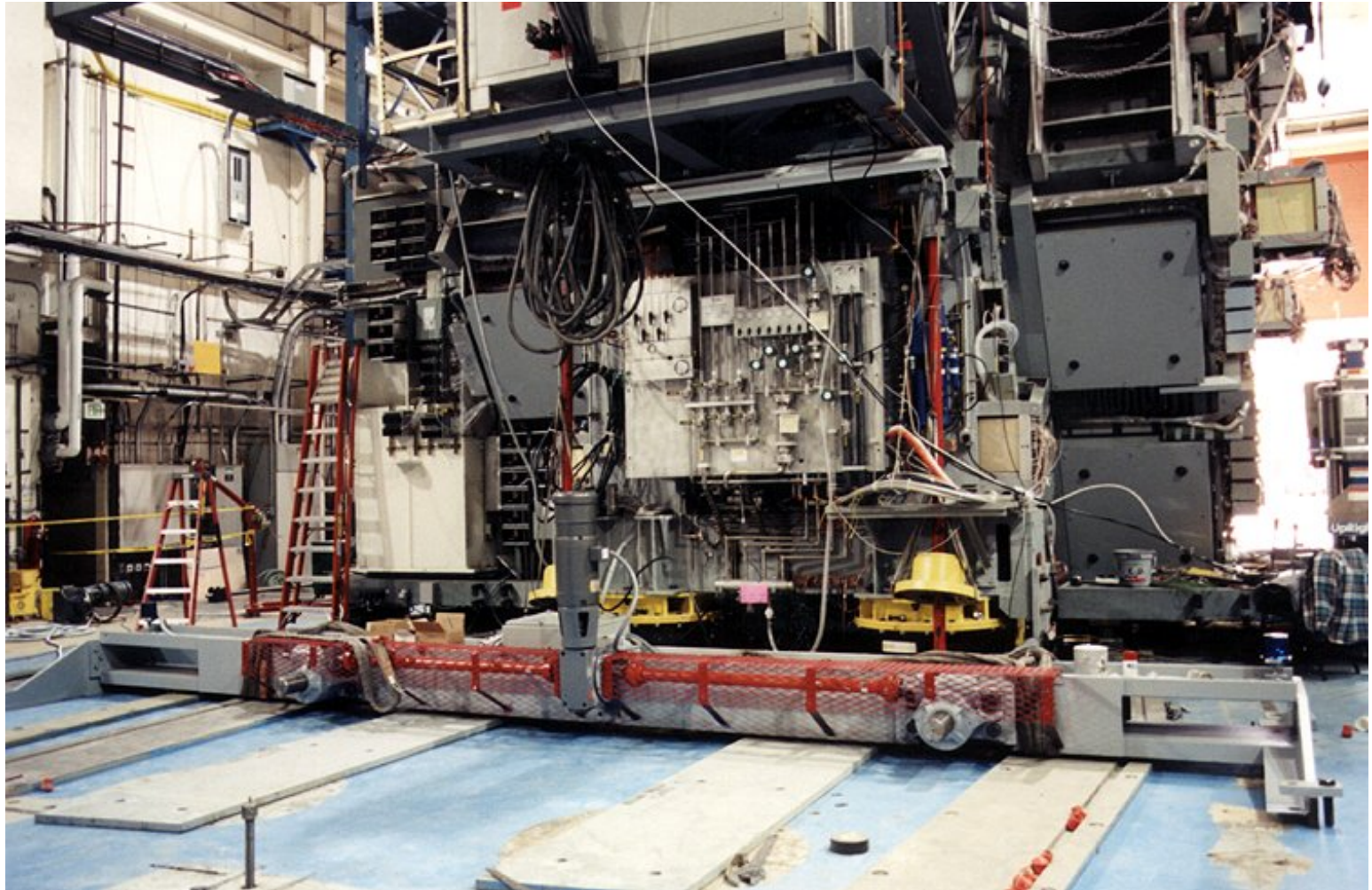


- The end door steel will be stored in the Collider Experimental Hall pit, out of the weather.
- The EMC will be stored in IR12, along with the DIRC cylinder and the magnet coil and cryostat. The DIRC bars will be stored in their bar boxes in a special purpose storage container.

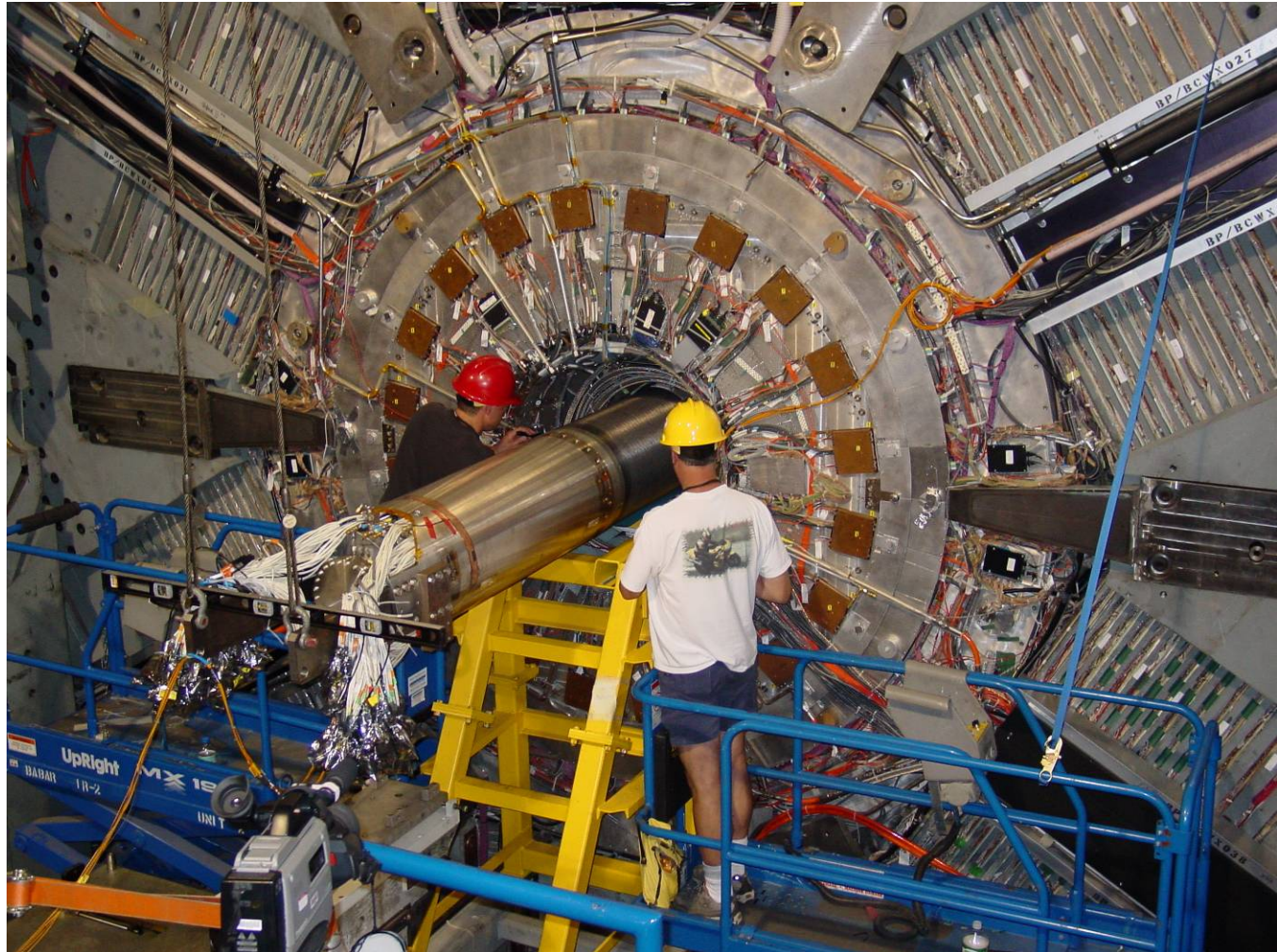
Near Term D&D

- Clear EH, remove all external connections. Set up cameras to record the D&D details. This is critical for the reassembly of the detector components in SuperB. It is more likely to be essential if substantial portions of the steel are reused.
- Roll EH to corner of apron. Reuse as 'Black Box'.
- Remove Rafts. Remove Support Tube.
- Remove Forward Endcap. Reuse structure? Reuse rings of crystals for SuperB?

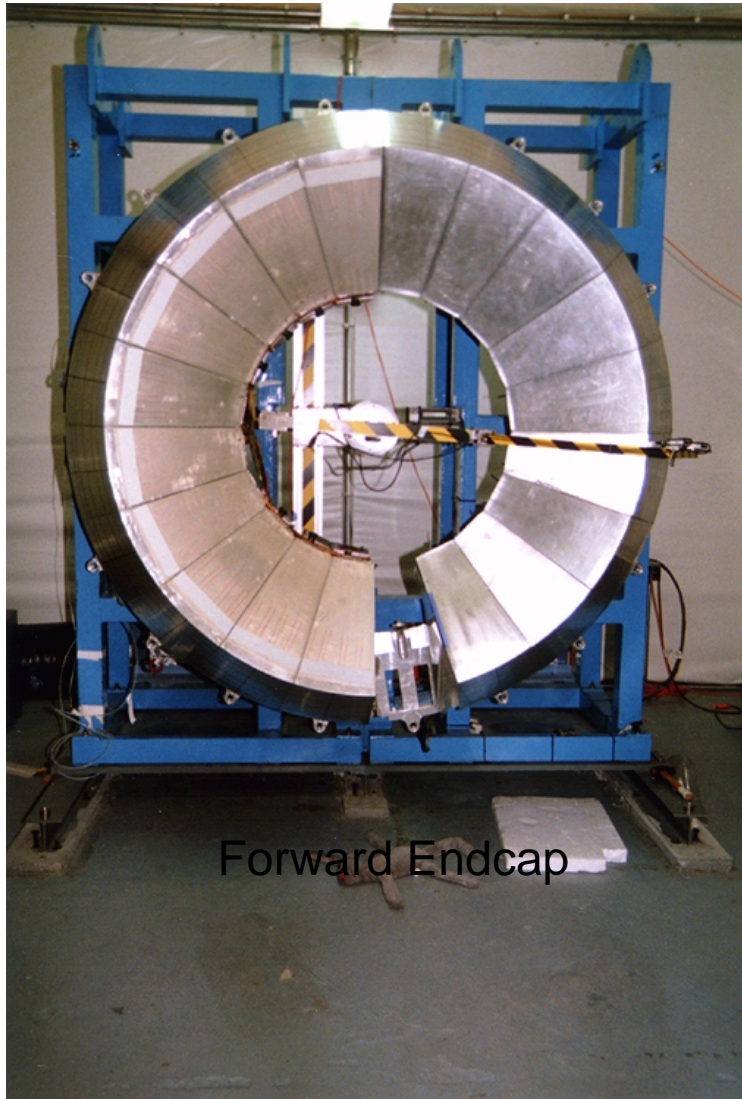
EH Move Tooling



Support Tube & SVT

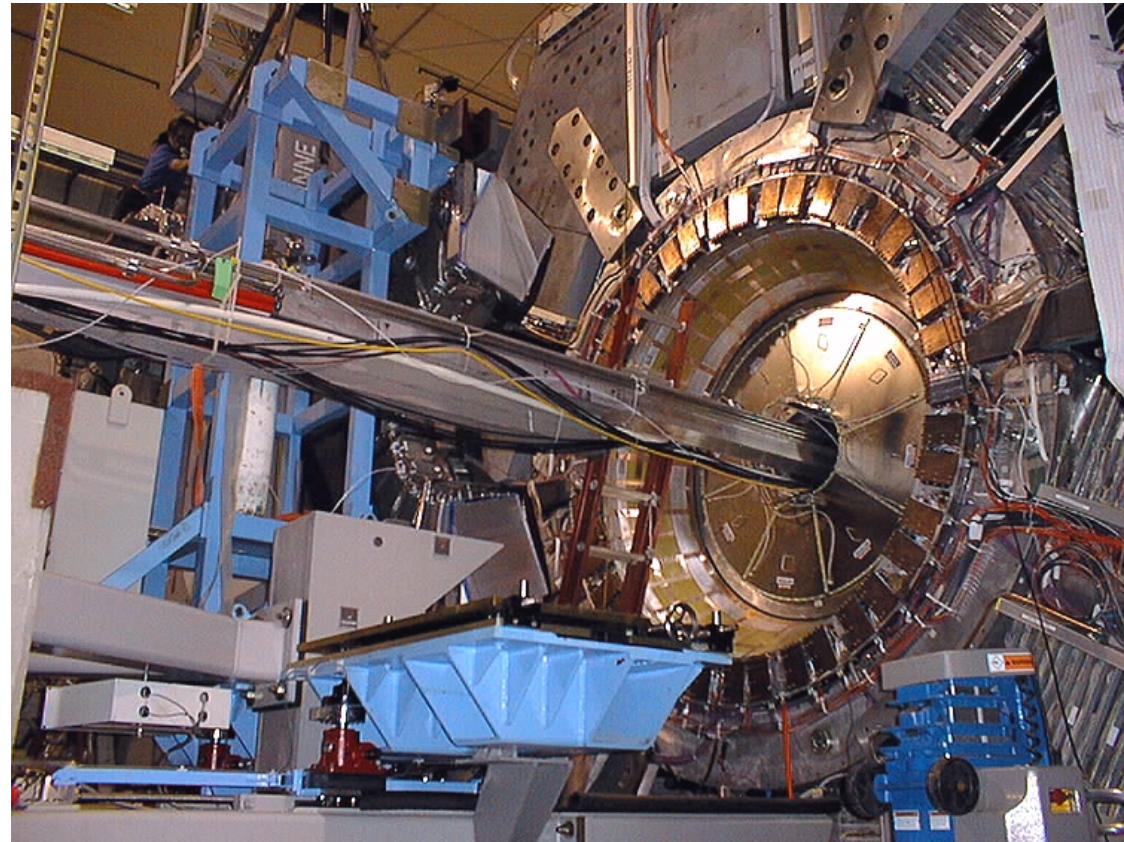


Forward Endcap EMC



Forward Endcap

February 15, 2009



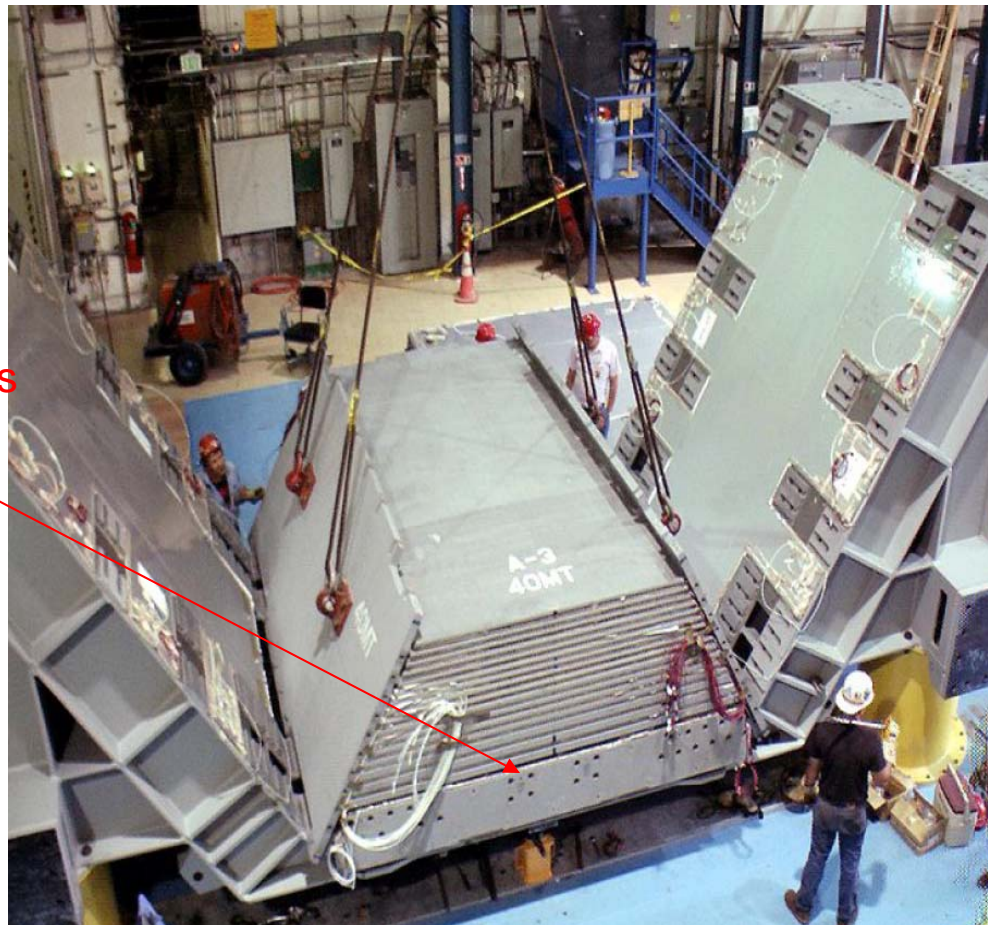
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Closing

- Detector transport
 - The magnet coil in its cryostat has been transported before in a single chunk by air.
 - Can the same be done for the EMC barrel? If not, substantial disassembly and reassembly is required. Understanding if it is possible to transport as a unit is a critical bit needed.
 - Other massive components can go by sea. Need to understand how the steel is reused.
- Reuse saves funds for critical upgrades.
 - Making prioritized lists of detector improvements is needed: what is critical to have, what is strongly preferred to have, what would be nice to have. Include consideration of effort to implement, as well as material cost.

Closing



Steel splits in two modules