

Recent Experience From Operation & near future Outlook

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*Follow-up Review of Reception Tests of CryoMagnets,
AT Division, 16 December 2003*

Operation Experience since July 03

1. Where are we & Review of 23 July, other Stream-lining Measures

- ❖ Staffing
- ❖ To-do-list & Application
- ❖ Constraints & Limitations in Operation

2. Results to date & explanations

3. Development of OP Tools

- ❖ SMTMS
- ❖ Surveillance & Displays
- ❖ Faults Logging & general Logbook

4. Improvements Foreseen & Desirable

Glimpse at the future

Tests Programme and Certain Proposals

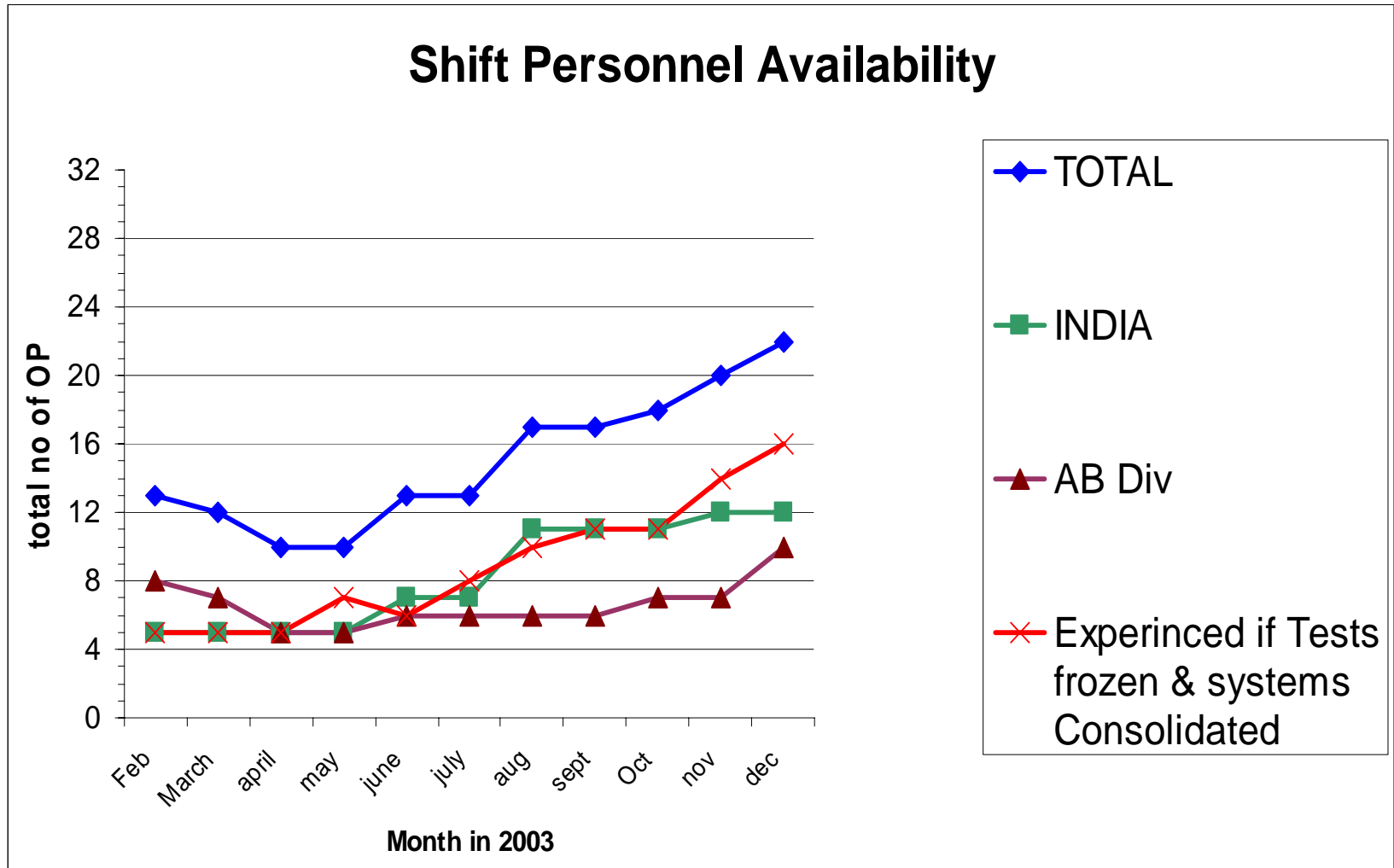
Talk Abstract

- Will attempt to :
 - ❖ Give CONTEXT & CONSTRAINTS on HOW SM18 Testing Works today
 - ❖ Give a flavour of statistics of all tested magnets via bench occupancy times , explanations & hard limits
 - ❖ With a tongue-in-cheek challenge to connect, cool down & warm up a dipole in 72 hrs (no cold tests) as expected from ICS & ACR so that we can all benefit from that experience
 - ❖ Forward near Look in testing of Dipoles
 - ❖ Improvements that are necessary /essential for Operation within the confines of the testing programme as was foreseen.
- Show Quench Limits , 2- Quench criterion if that is really the hard cryo limiting requirement & in the light of current magnet performance,
- Show way forward for Magnetic Measurement if indeed time saving is desirable and the secondary benefits available if such option is chosen

In addition, will show the setting up of the OP team in staffing , OP Tools necessary, developed & ones that need further efforts to continue successful operation.

July 03 Review, its Implementation & other Measures in stream-lining

1. Recommendations were implemented from 23rd July evening & To-do-List (Test work programme) modified immediately
2. **New To-do-List is stream-lined, easy to understand by all OP crew** , without complications of certain tests & related problems (e.g. 4.4K , many special MM's, etc..)
3. Thanks to stream-lined To-do-List, **the knowledge base required** by OP is also reduced and consolidated on the most important tests & principles
4. **Availability of Sufficient OP staff** to permit 7 day, 24 hr operation (6 newcomers from India in July, 2 in Sept, 2 in Nov & 1 AB recruit in Oct)
5. **24 hr MTM piquet started end-Aug**, hence further efficiency in work; this was not the case Feb-Aug 03 (upto 22hr Mon-fri)
6. **Availability of New Benches for testing (E2 -9 Sept, F2 -9 Oct)** and with similar software /hardware as in C cluster for facilitated OP work
7. **Stream-lining of magnet tests results storage directly in MTF database brought further simplicity in OP work** & approach to tests - D.Tommasini deserves the exclusive thanks for that.
8. 'Jackie-boxes' & trotinette , **Ohmic M'ment ease**
9. **Traveller clarifications** & move of certain HV tests to ICS in Oct 03
10. Establishment of **Team Spirit & Cohesion amongst Op crew** of various backgrounds & cultures. (& resolution of other problems in housing, transport etc for Indian Associate)



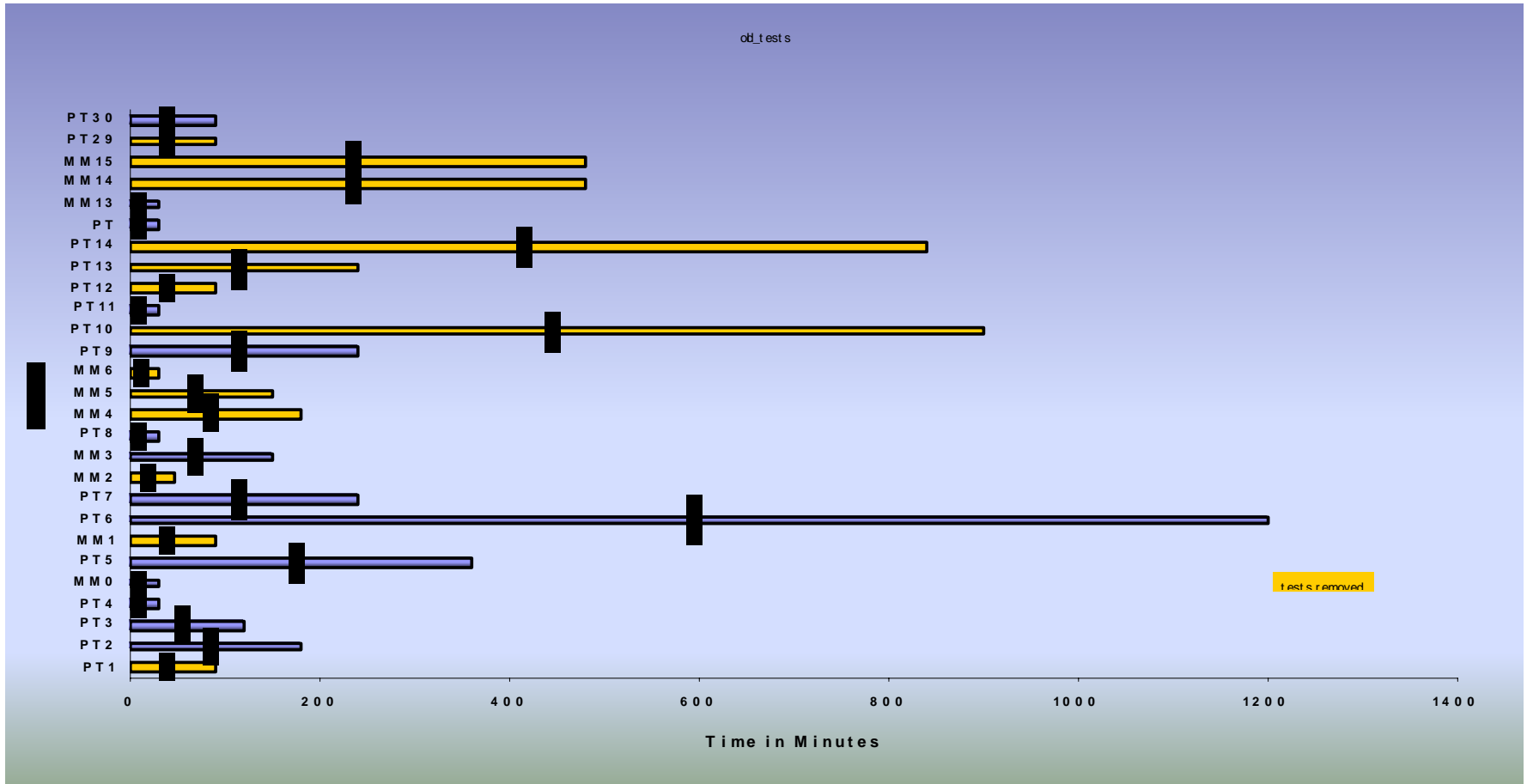
Staffing Profile 2003

Year2003	Feb	March	april	may	june	july	aug	sept	Oct	nov	dec	
1	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	
2	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	
3	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	
4	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	
5	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	
6	Jakob				Florence	Florence	Florence	Florence	Florence	Florence	Florence	
7									AB7	AB7	AB7	
8	JacquesO	JacquesO										JacquesO
9	Dave	Dave										Dave
10												G.Adrian
11												
12												
13	gandhi	gandhi	gandhi	gandhi	daniel	daniel	daniel	daniel	daniel	daniel	daniel	1
14	marathe	marathe	marathe	marathe	uttam	uttam	uttam	uttam	uttam	uttam	uttam	2
15	pramod	pramod	pramod	pramod	pramod	pramod	pramod	M 22	M 22	M 22	M 22	3
16	madhu	madhu	madhu	madhu	madhu	madhu	madhu	M 23	M 23	M 23	M 23	4
17	sanjay	sanjay	sanjay	sanjay	sanjay	sanjay	sanjay	sanjay	sanjay	M 24	M 24	5
18										M 25	M 25	6
19					shetty	shetty	shetty	shetty	shetty	shetty	shetty	7
20					ram	ram	ram	ram	ram	ram	ram	8
21							Khare	Khare	Khare	Khare	Khare	9
22							Pareek	Pareek	Pareek	Pareek	Pareek	10
23							Kasliwal	Kasliwal	Kasliwal	Kasliwal	Kasliwal	11
24							Sridhar	Sridhar	Sridhar	Sridhar	Sridhar	12
25												
26												
27												

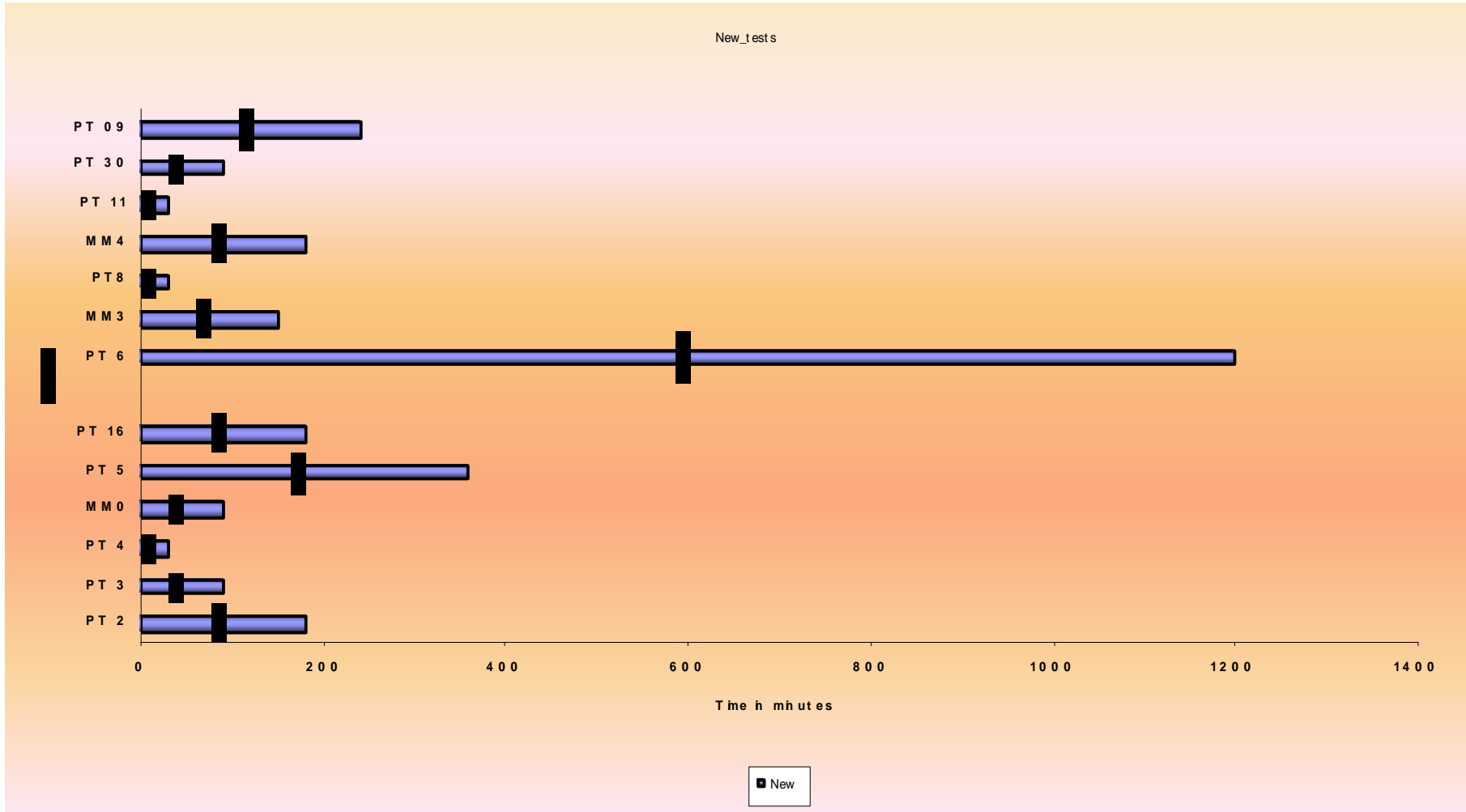
Green Means Experienced
Yellow Means New Arrivals

	Feb	March	april	may	june	july	aug	sept	Oct	nov	dec
TOTAL	13	12	10	10	13	13	17	17	18	20	22
INDIA	5	5	5	5	7	7	11	11	11	12	12
AB Div	8	7	5	5	6	6	6	6	7	7	10
Experienced if Tests frozen & systems Consolidated	5	5	5	7	6	8	10	11	11	14	16

Power & MM Tests pre-23July03



Power & MM Tests post-23July03



To Do List Dipoles(1) post-23July03

Prep ICS	Connection	720	1440	ICS
Prep 5	Lyre test	30	120	MTM
Prep 6	IAP at WARM : Conf Res meas CDW1	120	60	MTM
Prep 7	HV Insulation Test warm after Bolting	90	90	MTM
Prep 9	Electrical connection of TRU with the mobile rack	60	30	MTM
	Leak Test		720	
Prep 12	Launch cycle to cool down	2160	2160	cryo
PT 2	IAP at cold	180	180	MTM
PT 3	HV tests at cold & QH res. Meas CDAP.	90	90	MTM
PT 4	slow power abort check 1KA (125 A/s)	30	30	MTM
MM0	Shaft alignment, MMPChecks at 1500 A	90	90	MTM
PT 5	Provoked Quench at 1.5 kA; ALL LF, All HF	360	240	MTM
PT 16	Diode Test Min NRJ at 3KA	180	180	MTM
	Interbench recuperation time (8 quenches)		480	
PT 6	Training Quenches at 1.9K (4)	1200	1200	MTM

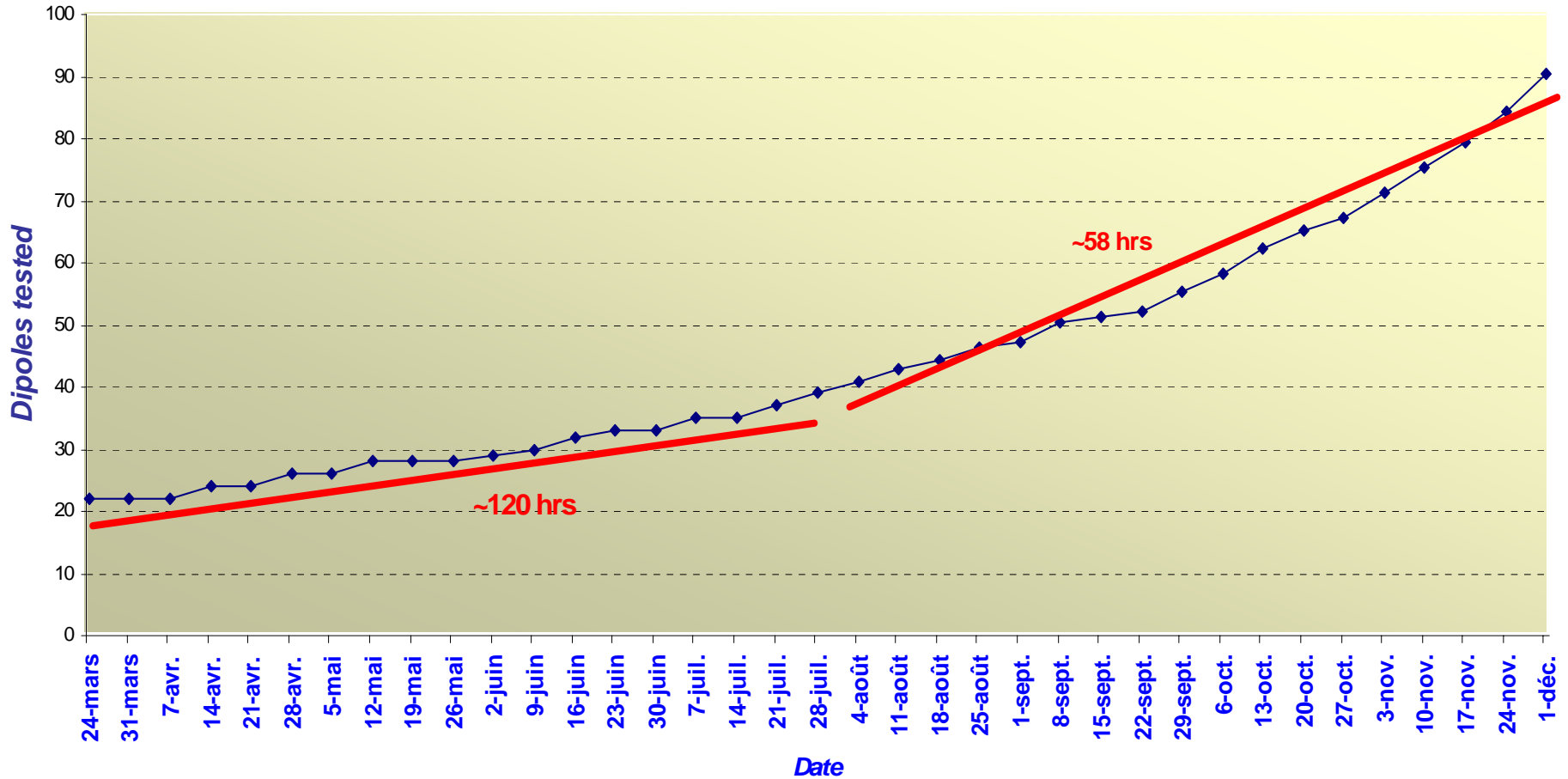
PT 7

To Do List Dipoles(2) post-23July03

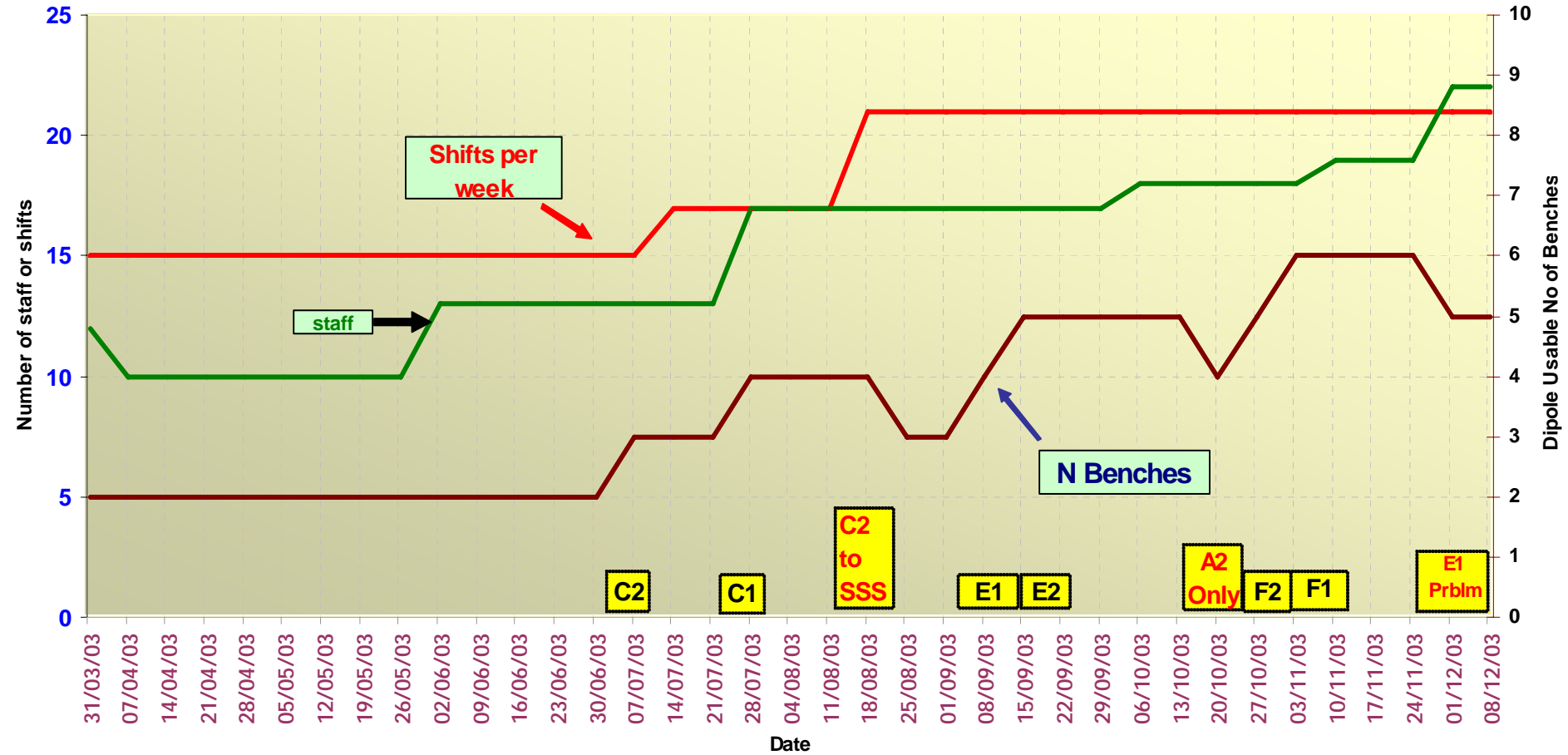
MM3	LHC cycle	150	150	MTM	MM1
PT8	Check of detraining effect :	30	30	MTM	
MM4	Full load line & Joints Meas	180	180	MTM	MM2
PT 11	Ramp to 12850 A and fast de-excitation test	30	30	MTM	PT 9
PT 30	HV Insulation Tests at 1.9 K	90	90	MTM	PT 10
PT 09	Minimum Energy Quench @6.5 KA + RRR and final warm up.	240	240	MTM	PT 11
PT 31	Launch Thermal cycle warm up	720	1440	cryo	PT 12
PT 13	Electrical disconnection of TRU and mobile rack.	30	30		PT 13
PT 15	IAP at warm Conf Res meas CDW2	30	60		
PT ICS2	Final HV & Disconnection	720	1440	ICS	
	Time for tests and prep	53.5	60		
	Miscellaneous(Shafts issues, cryo, faults, etc....) ~10%	5	6		
	ESTIMATE COLD TESTS (1.9K) Time HOURS	58.5	66		
	Time for connection/disconnection -ICS [12 +12 hrs]	24	48		
	Time for warmup/cool down - cryo [36 +12]	48	60		
	Total time in hours	130.5	174.0		
	Total Time In DAYS	5.4	7.3		

Review & slope Change in testing rate

Dipoles Tested vs estimated To-Do-List Test Hrs per Dipole

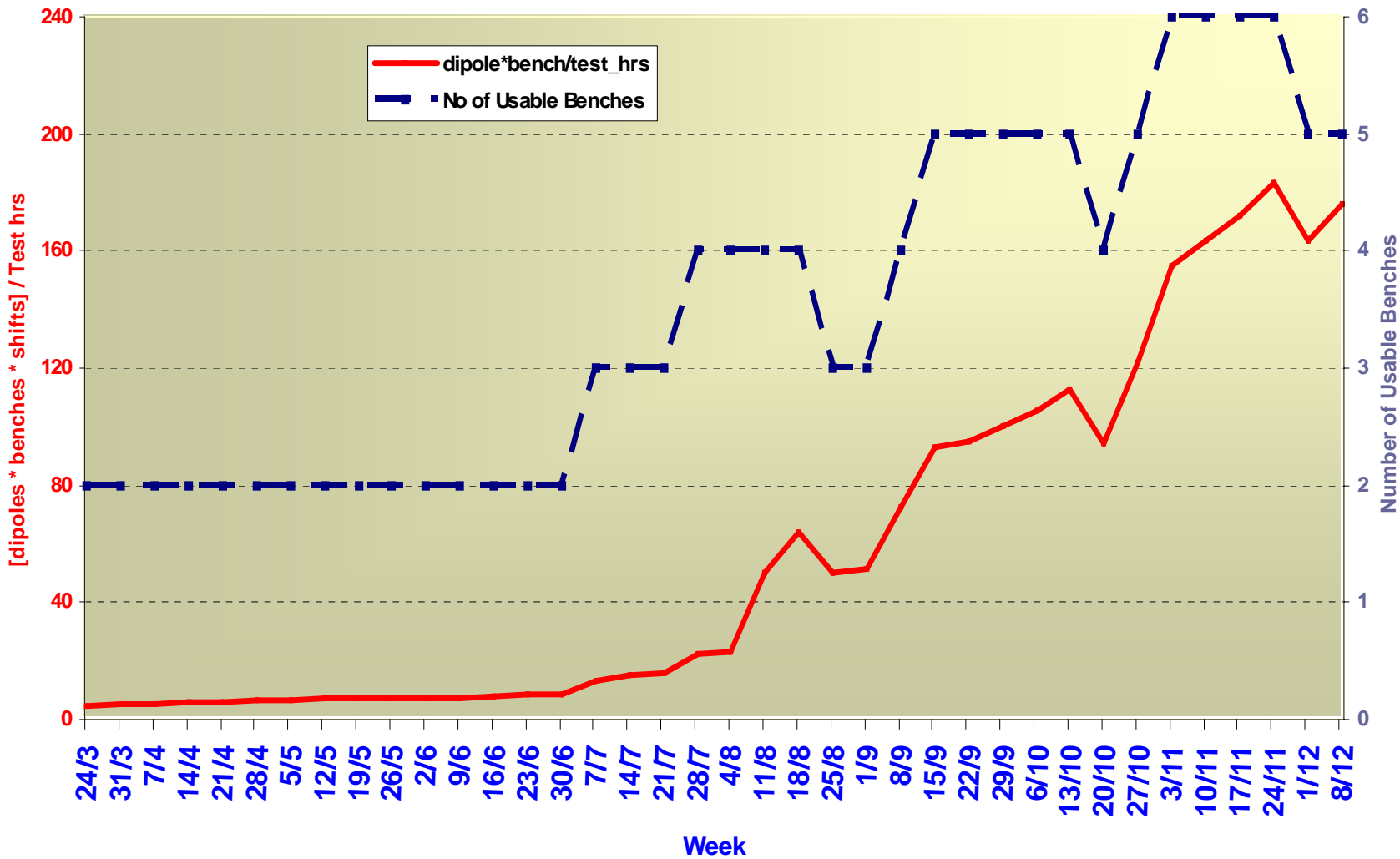


OP Staff, Shifts & Benches vs. Time



Tested Dipoles, Benches, Shifts & Test hrs

[dipoles x benches x shifts/ test hrs] & [no. of Usable Benches] vs. Date



Constraints & Limitations in the Last 6 months

SUPPORT ISSUES

1. **The OP crew work 24 hrs a day;** however, the MTM Piquet 24hr support could only start end-Aug
2. **No outside hrs support** from Supplier Groups like **AB/CO** which often is essential to go forward , e.g., Files & Config problems, Files upload problems, Applic. S/W, H/W problems, Network, Workstations, etc
3. **Similar, lesser extent as above for AB/PO**
4. **Shafts & Outside Hrs support:** had not been totally possible even under ICS; now MTM has taken over since several months with new constraint in Inserting or Pulling out: the **new requirement is to do this at cold only (<80 K) - so an additional constraint for Operation (often, in pulling out !)**
5. **ICS staff worked 35 hr/week** but then doubled the staff & **worked 14 hrs/day only from 3 Nov**
6. **11 Nov, [& 14 July, 8 May..] Support**

OTHER GLOBAL ISSUES

1. **Commissioning Benches** or **Testing SSS first time** as well as **normal Dipole Testing Operation ; new Eq Tests [MTM]**
2. **Cryostating crisis (Aug-Sept)** & 'chomage technique'= keeping magnets 'on' & cold longer [**CRI, ICS**]
3. **Anticryo+MRB crisis & ICS Logistics**
4. **Shafts Crisis :** Lack of sufficient Equip availability , meaning a constant juggling act to use the **2 available pairs for all possible no of magnets under test** and with the constraints in insertion/pulling out [**MTM**]
5. **CFB issues** (**C1 :Vclamp Quenches, Tempr. Probes, etc**), **E1 mishap**,...Leaks, etc [**ACR**]
6. **New IFS Boxes & "goodness" [MEL]**
7. **Extra or New Tests required :**Cold axis, field Direction, Diode Connections, Qheaters with higher Resistance... [**MAS, SU etc**]
8. **Floor Painting & ROCLA, He Dewar [CRI, ACR, ADM..]**

COOLDOWN TIMES THAT NEED TO BE OBEYED For CFB's (new Benches only)

Refroidissement de 300K à 80K :
12 heures

Refroidissement de 80K à 4.5K :
12 heures

Sous refroidissement de 4.5K à
1.9K : 2.5 heures

Temps entre 2 quenches sur un
même banc : 5 hrs

Temps entre 2 quenches sur 2
bancs différents : 2.5 hrs

**WITH THESE LIMITS, WE
SHOULD BE ABLE TO HAVE
AT THE SAME TIME :**

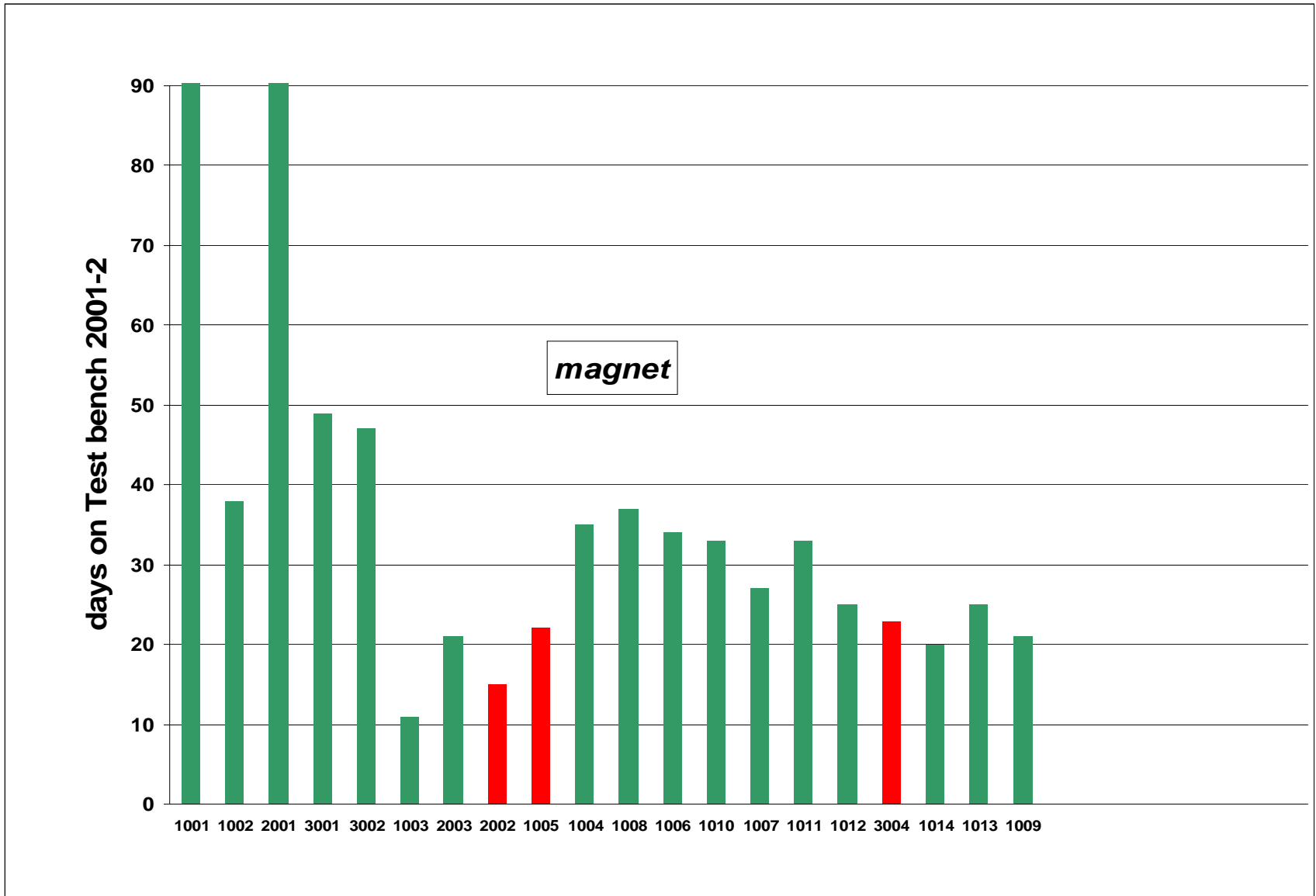
- **2 Magnets at 1.9 K under Measurements**
- **1 magnet under recovery from a Quench**
- **1 Magnet between 80 K & 4.4 K**

WARM UP TIMES

- CFB Benches :
12 hrs
- Old A Bench (only till Dec03) :
32 hrs

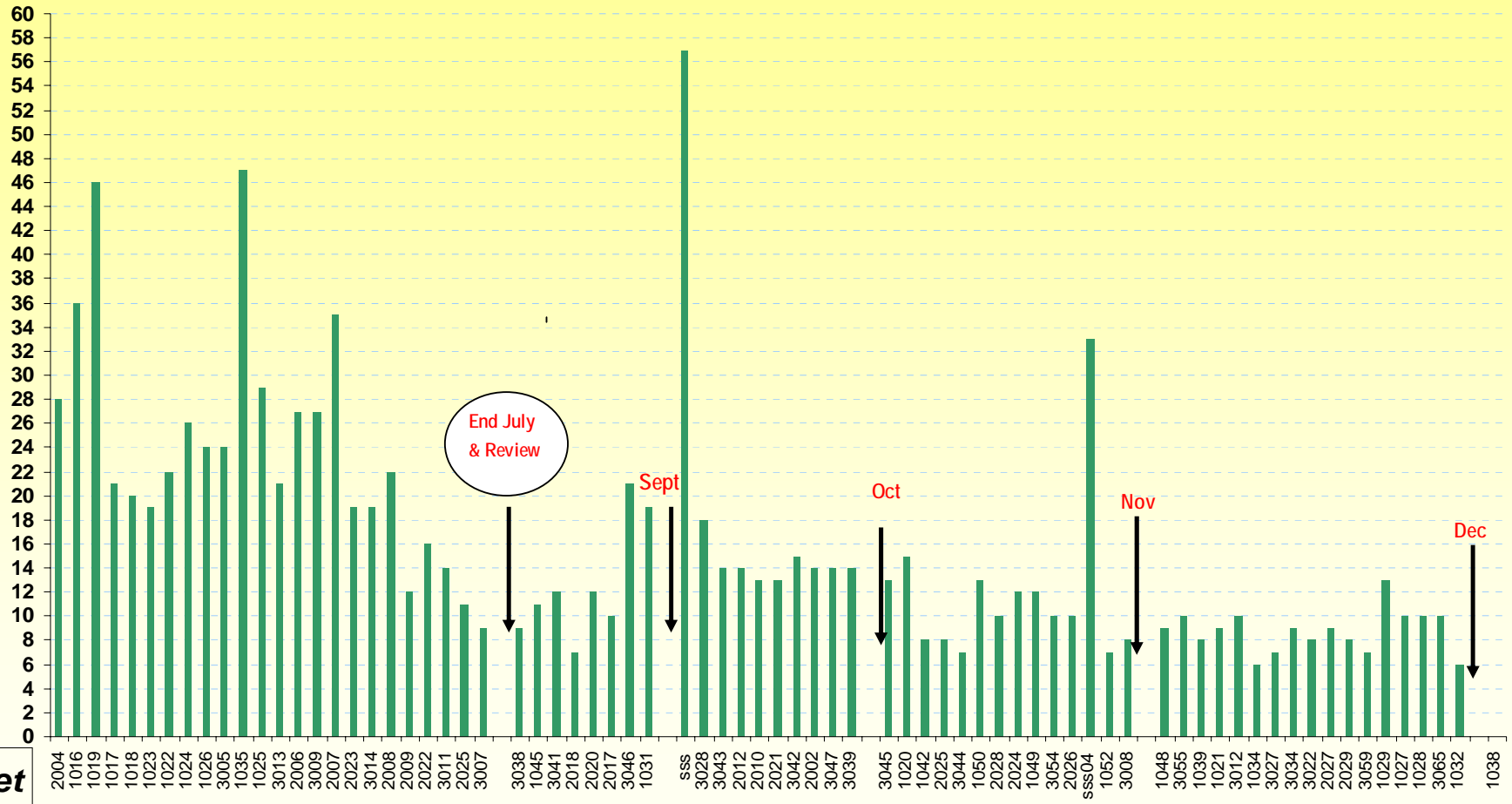
***OTHER HARD LIMIT : 8 HF
QUENCHES PER DAY***

Bench Occupancy 2001-2



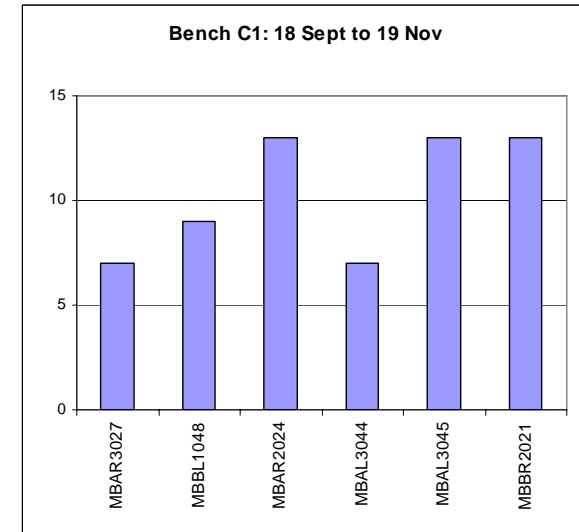
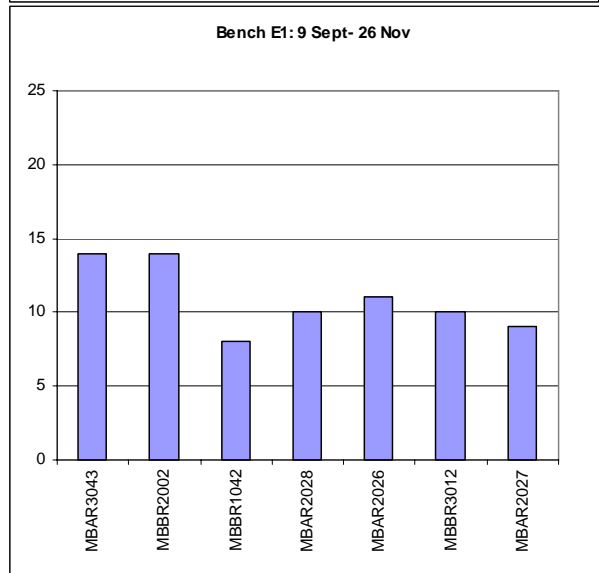
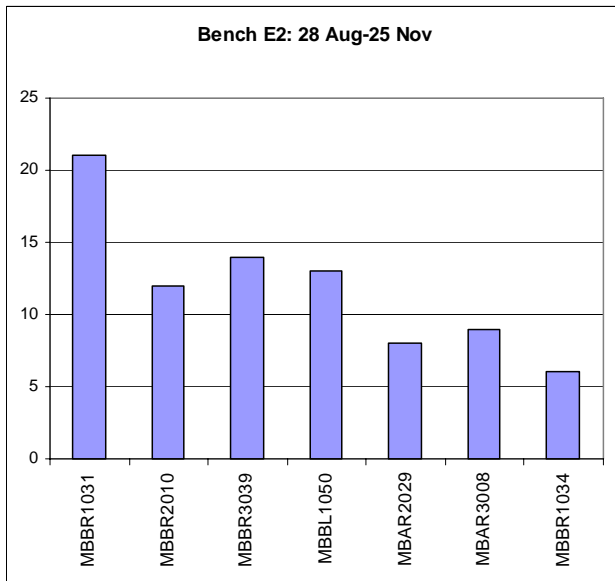
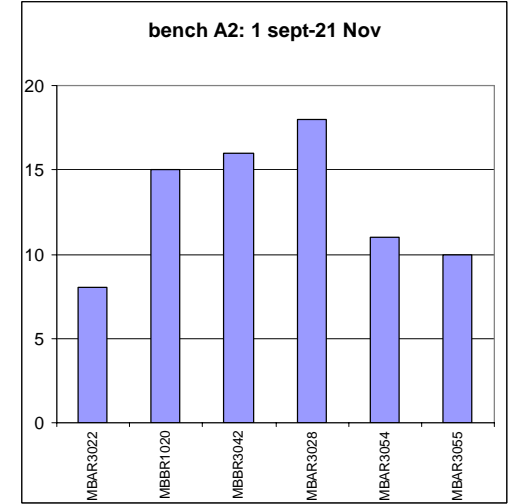
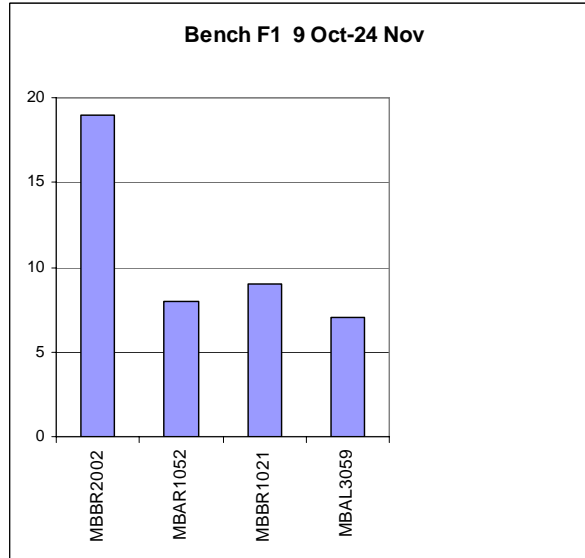
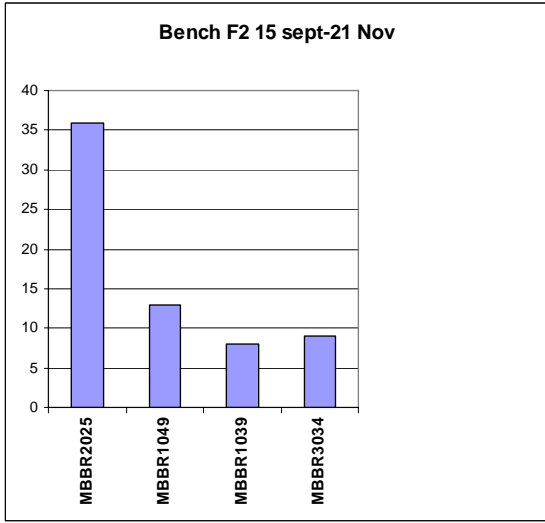
Bench Occupancy 2003

days on Test bench in 2003



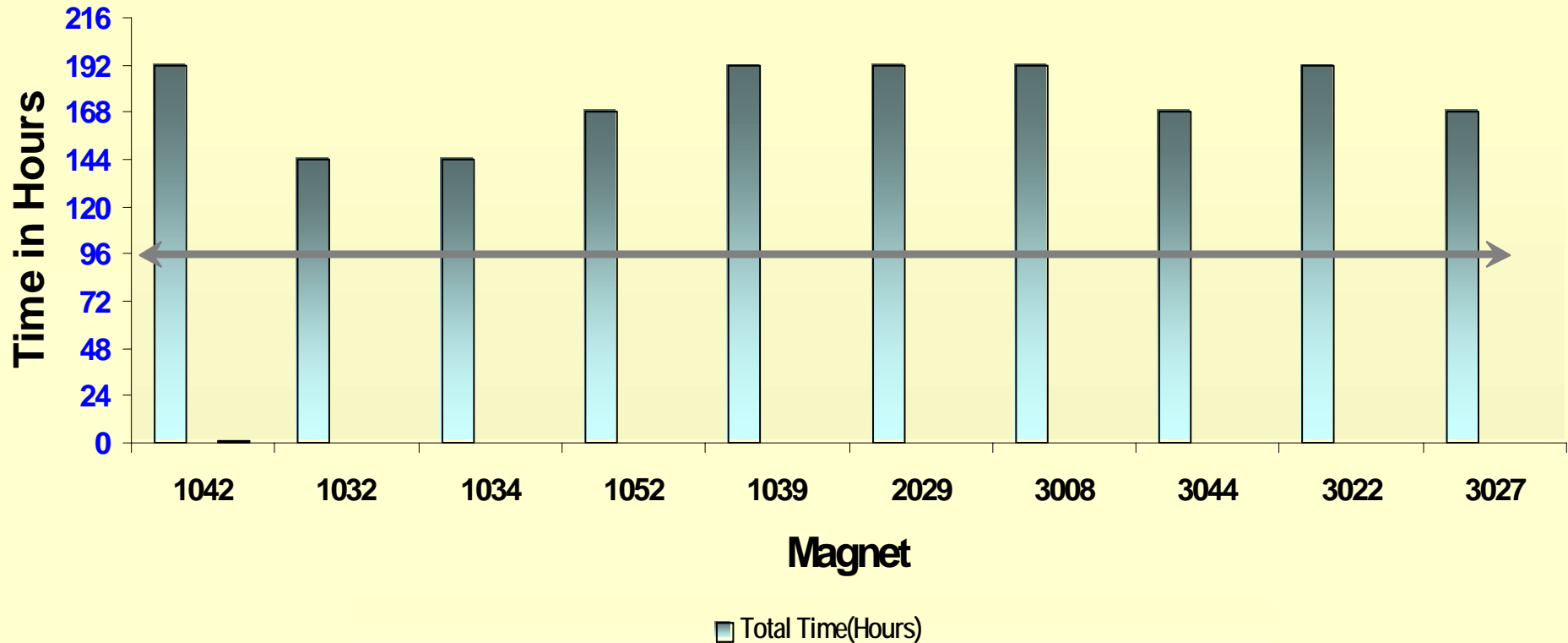
magnet

Per Bench Occupancy Overview



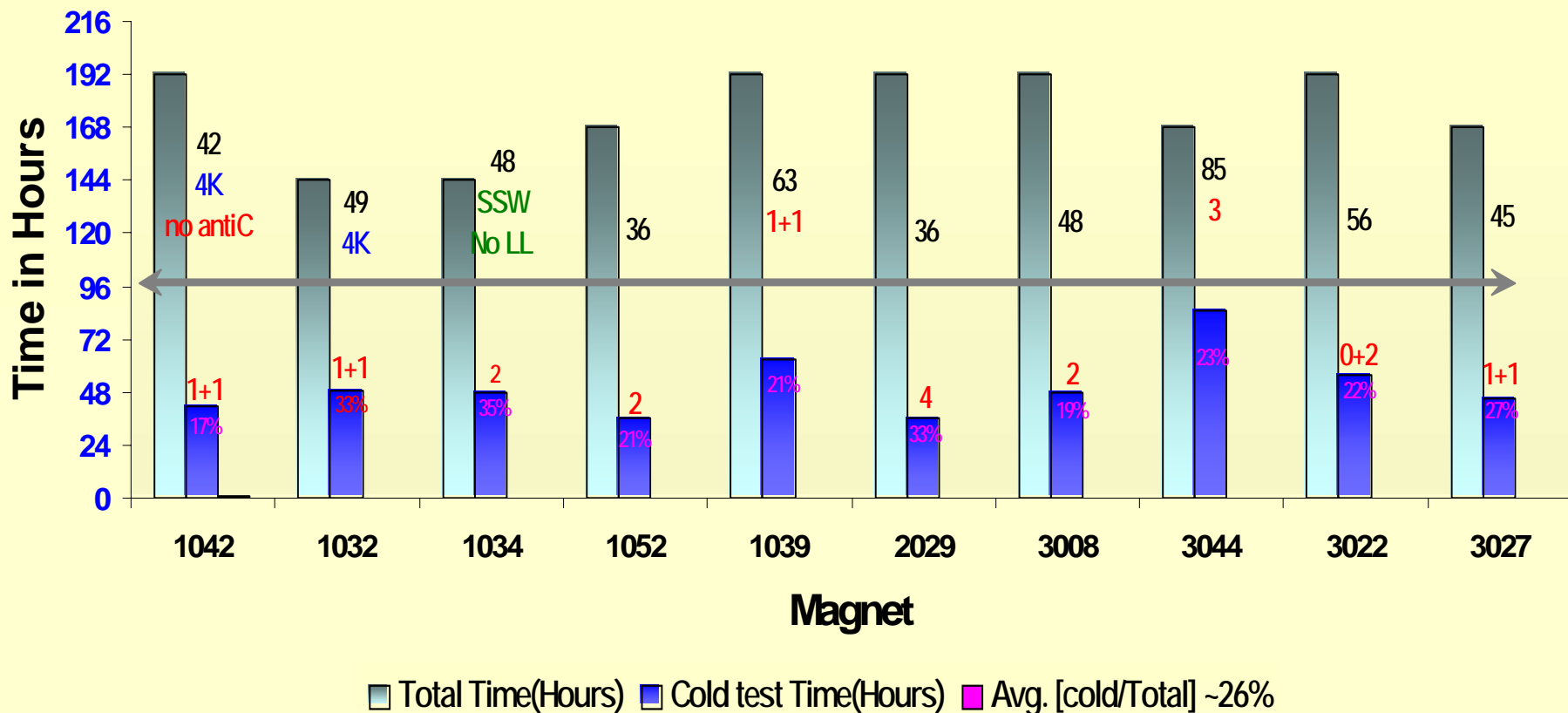
Total Time For few Short-stay Dipoles

Total Time : few best case examples



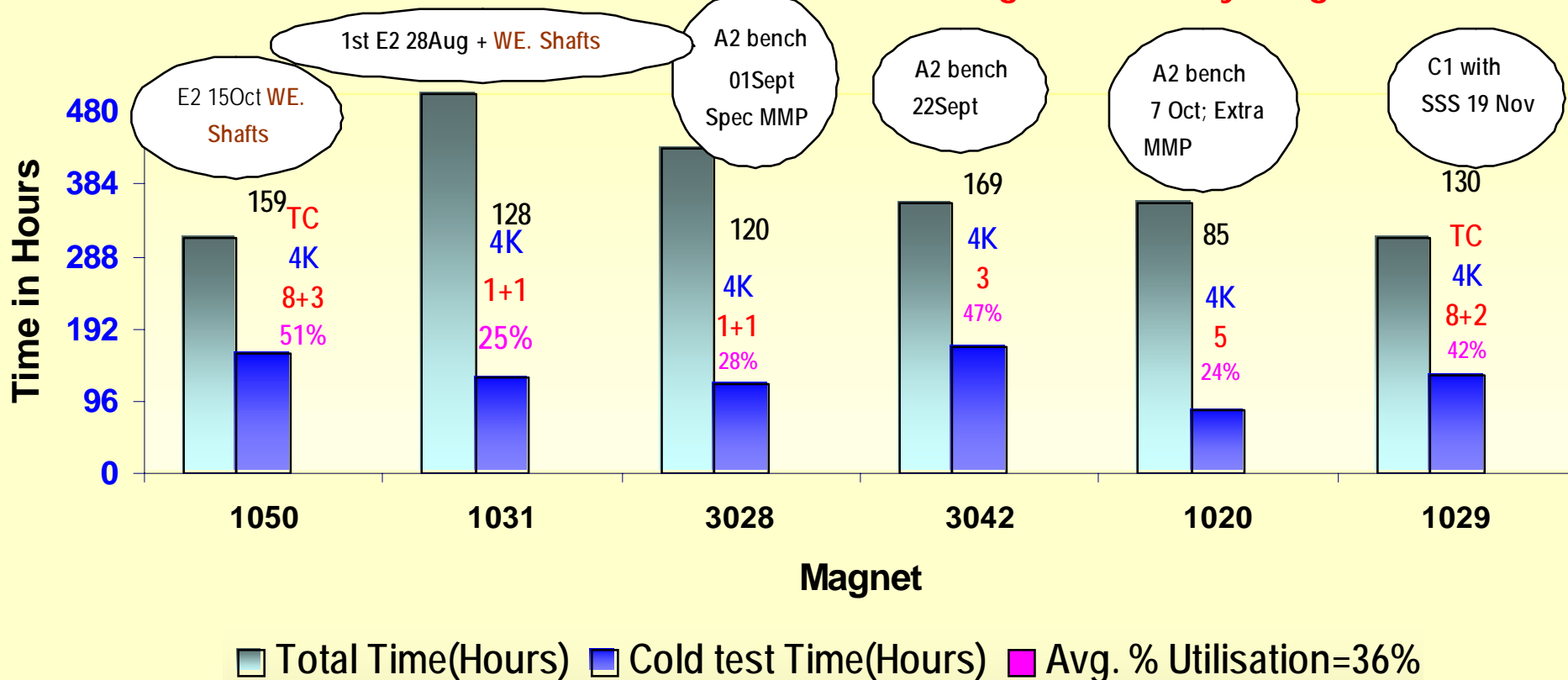
Cold Test times for few short-stay Dipoles

Total Time and Cold Test Time: Few Best Case Examples

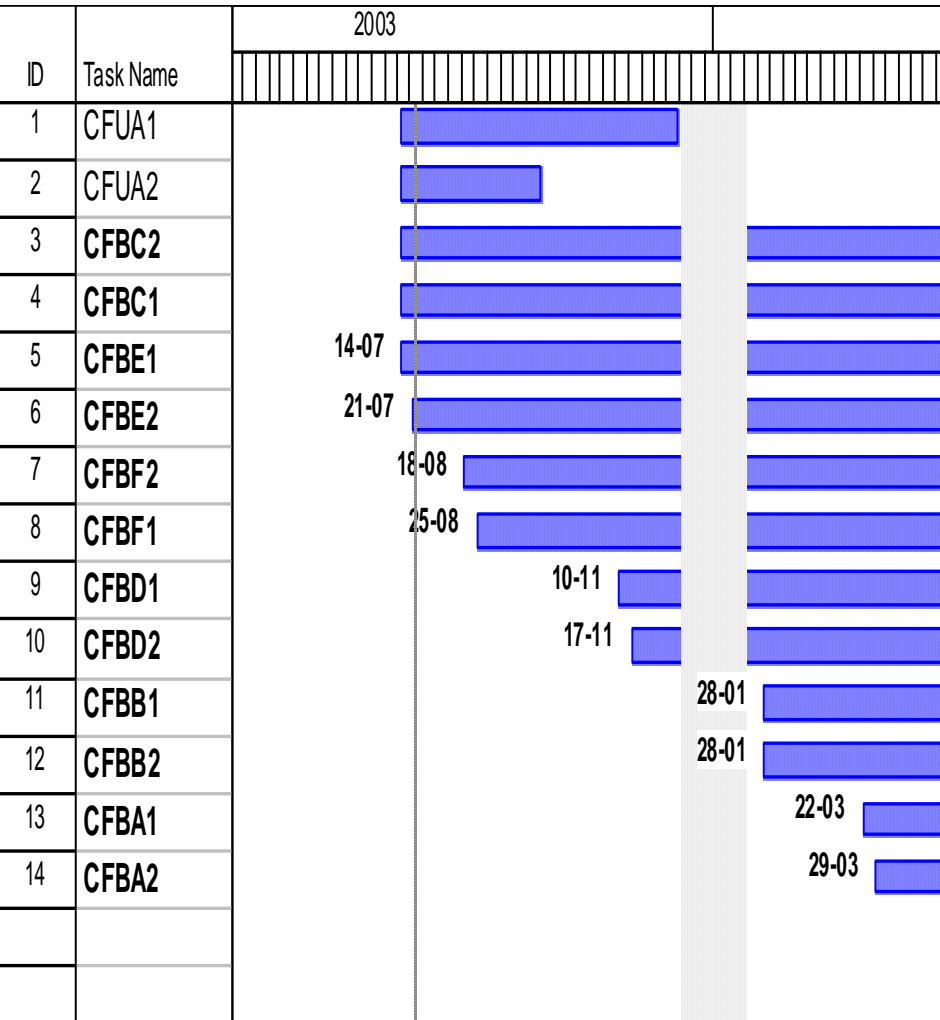


Long-Stay Magnets & details

Total Time and Cold Test Time of some long-bench-stay magnets



New Benches Operational Usage



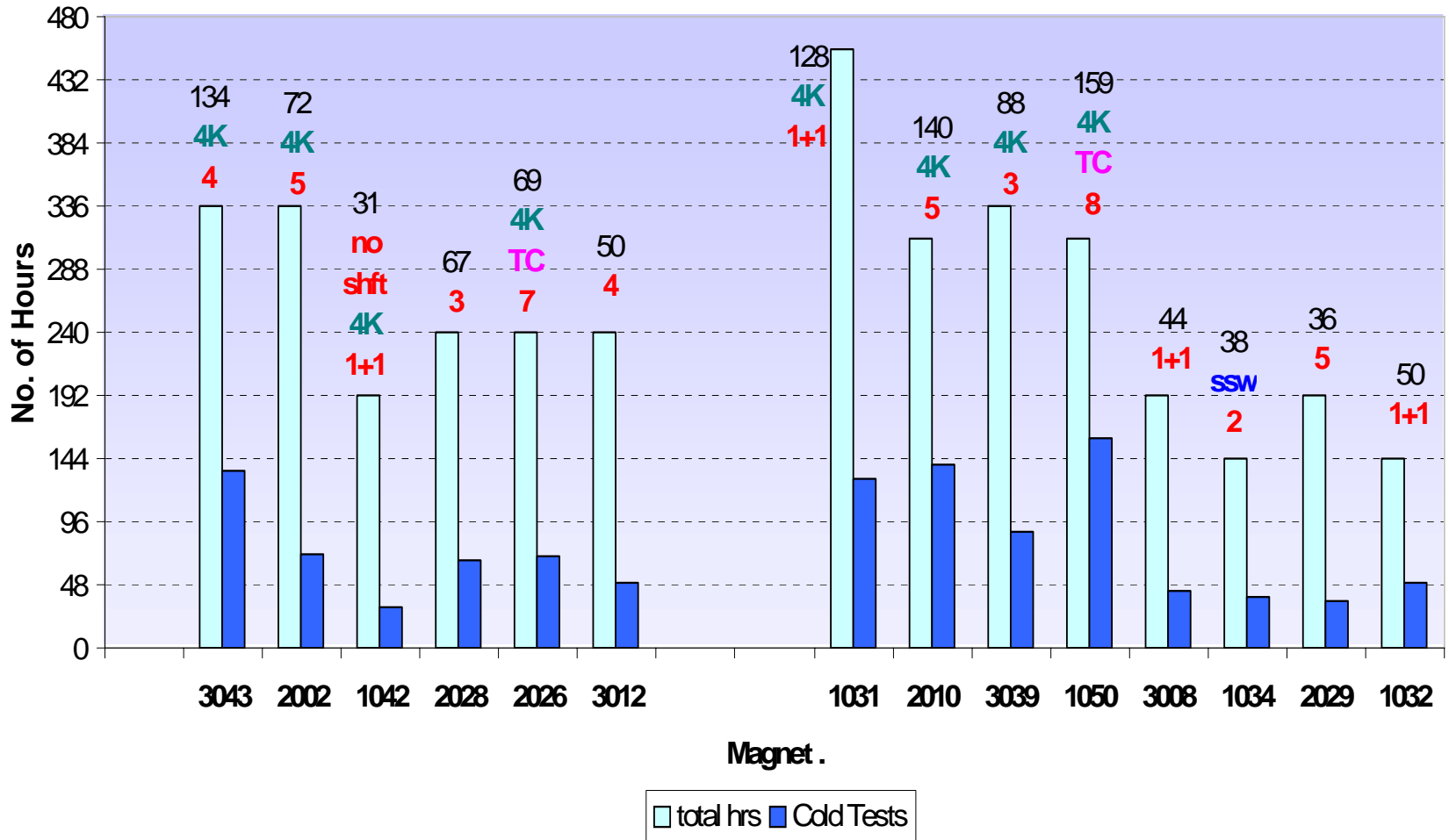
***WE USED 2025 & 2002 to
COMMISSION E & F
BENCHES***

**DATES for Routine New Magnet
Testing in Operation**

- E2 : 28 Aug : 1031
- E1 : 09 Sept: 3043
- F2 : 22 Oct : 1049
- F1 : 28 Oct : 1052
- D2: 08 Dec : 3059
- D1:

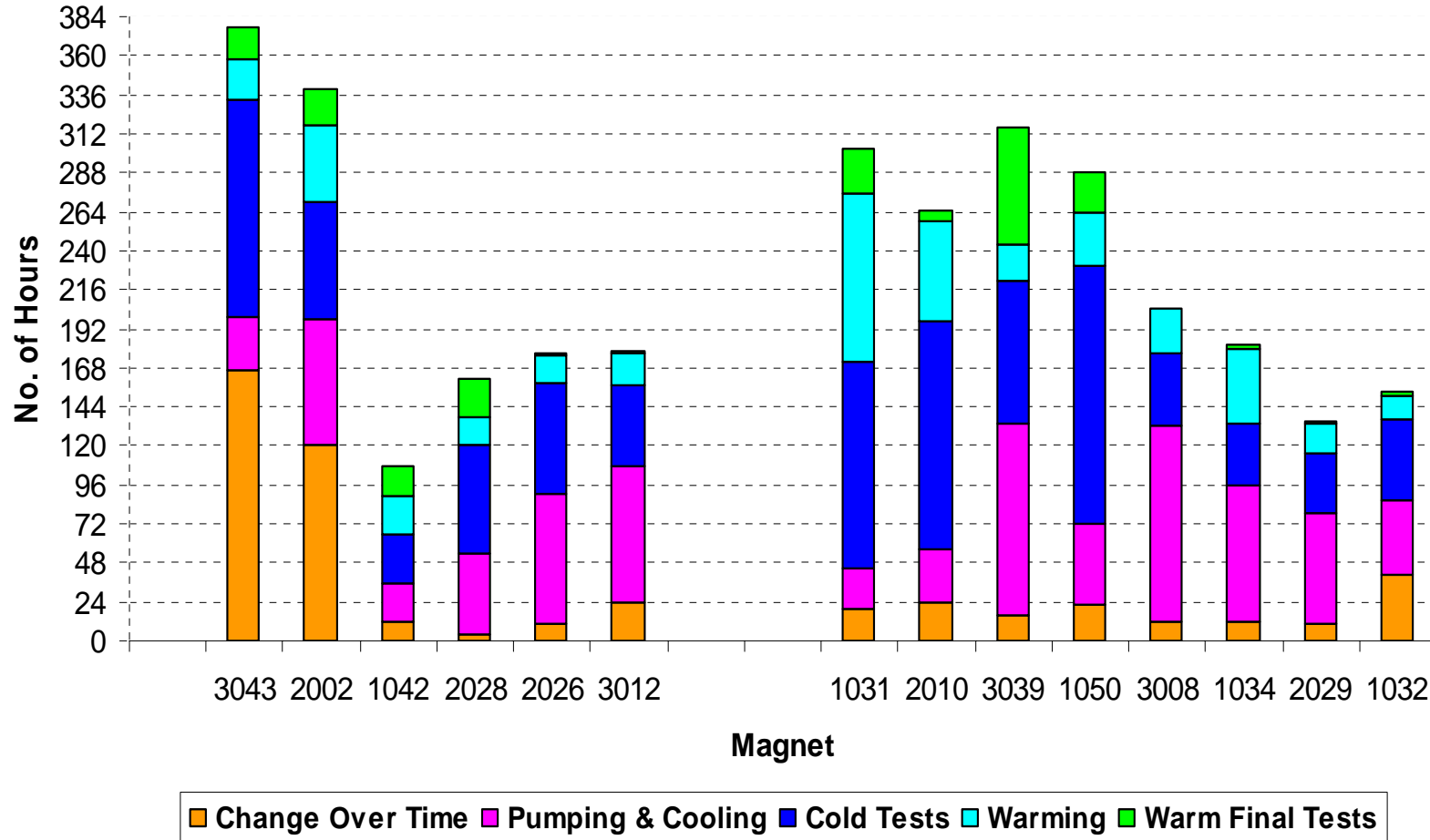
E1 & E2 Bench Occupancy

Cold Tests Hours: E1 & E2 Benches

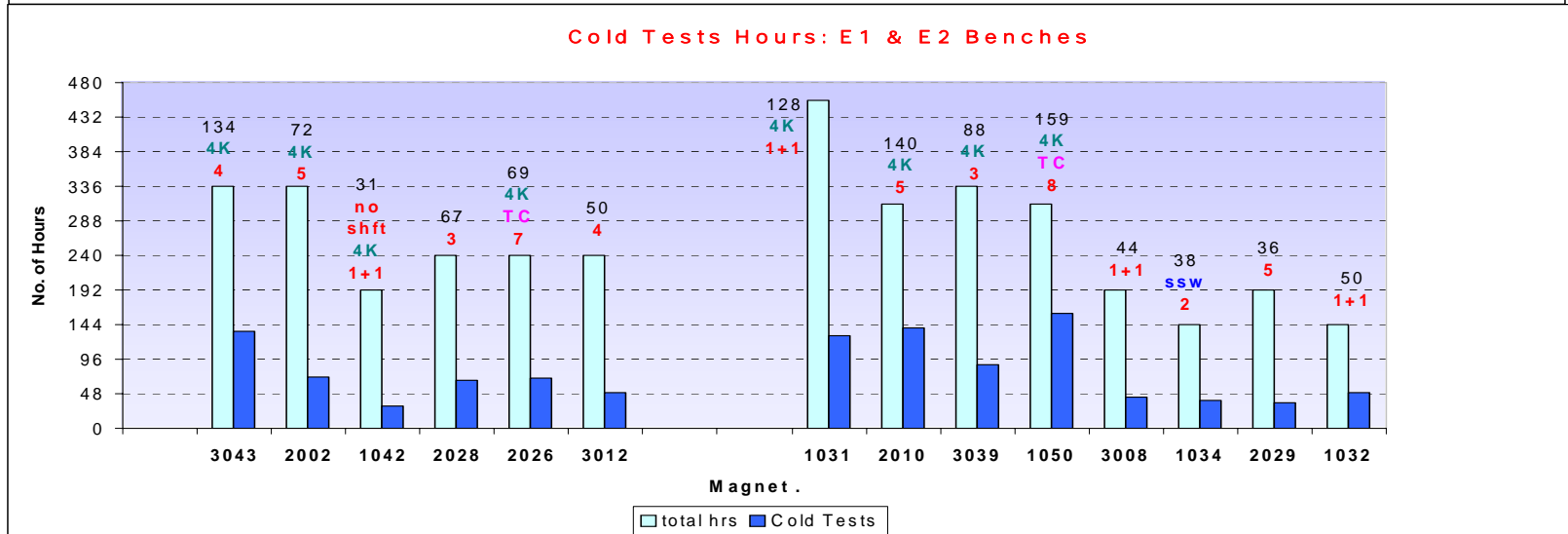
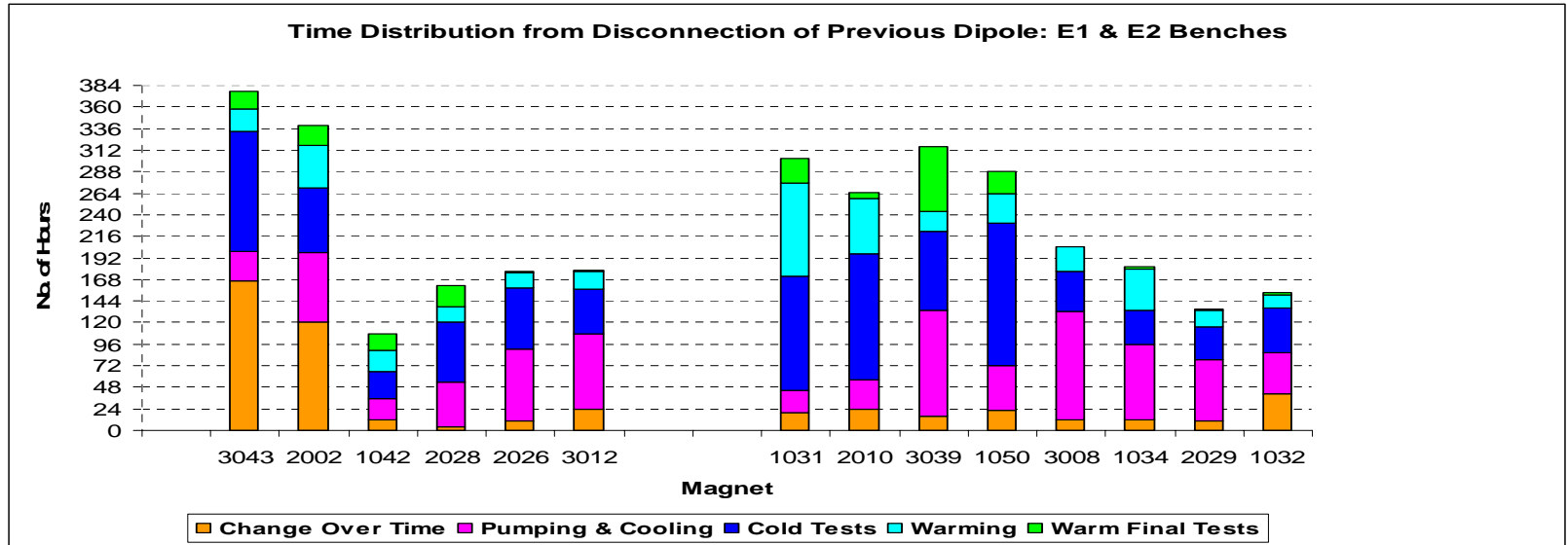


Time Distribution from Disconnection of Previous Dipole

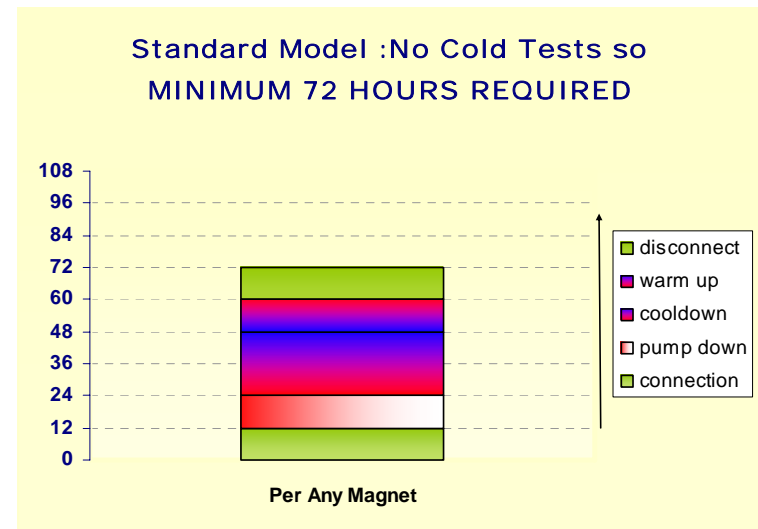
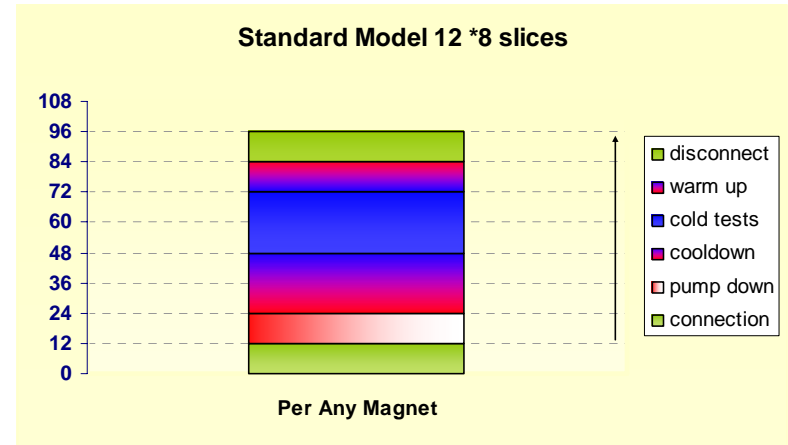
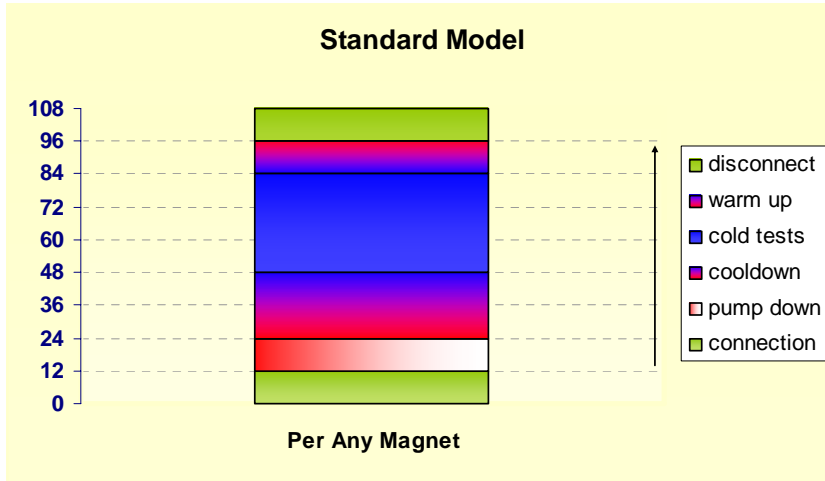
Time Distribution from Disconnection of Previous Dipole: E1 & E2 Benches



E Cluster Example

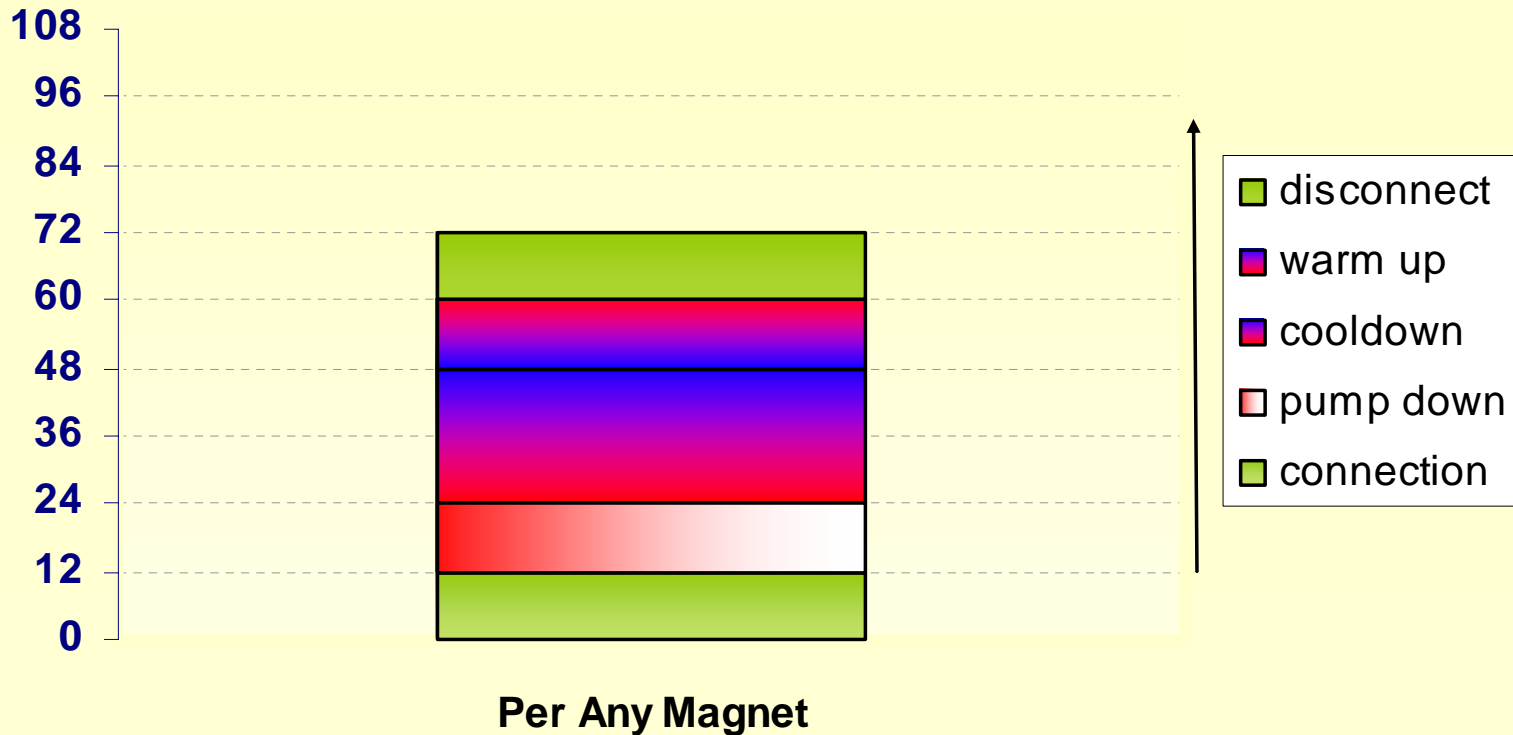


Standard Model Reminder



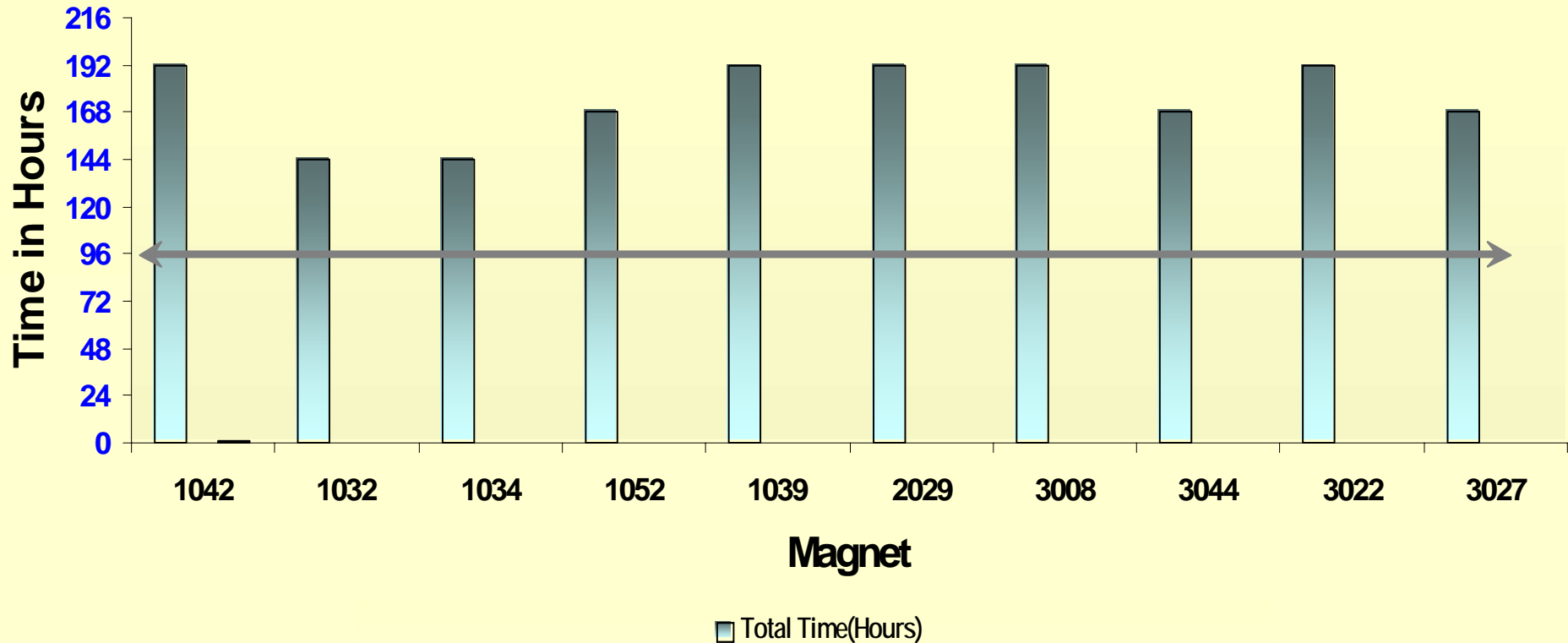
Standard Model : No Cold Tests & challenge to be able to do so in 72 hrs

Standard Model : No Cold Tests so
MINIMUM 72 HOURS REQUIRED



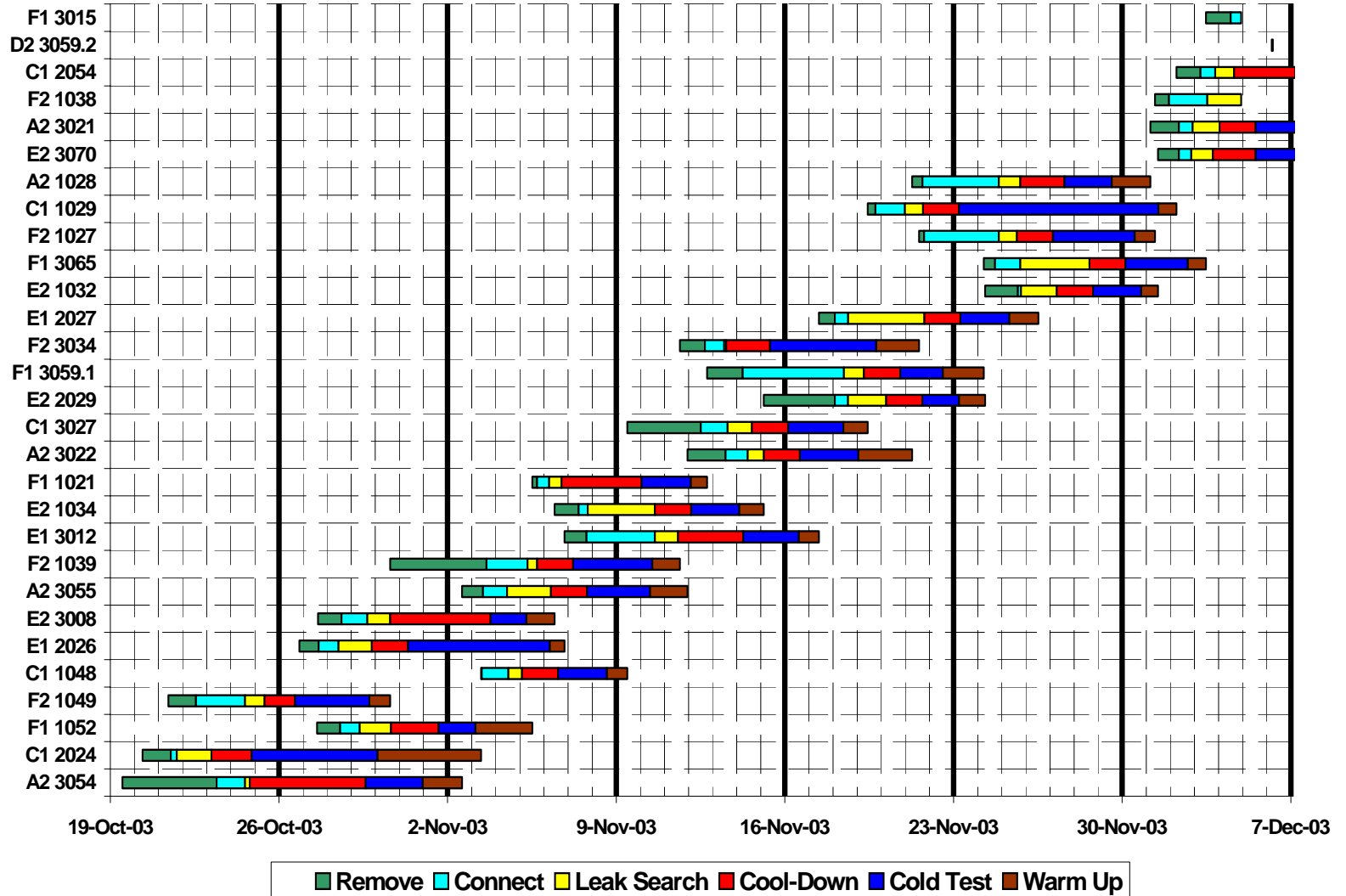
Total Occupancy Time For few Short-stay occupancy = best case examples so far (6-8 days)

Total Time : few best case examples



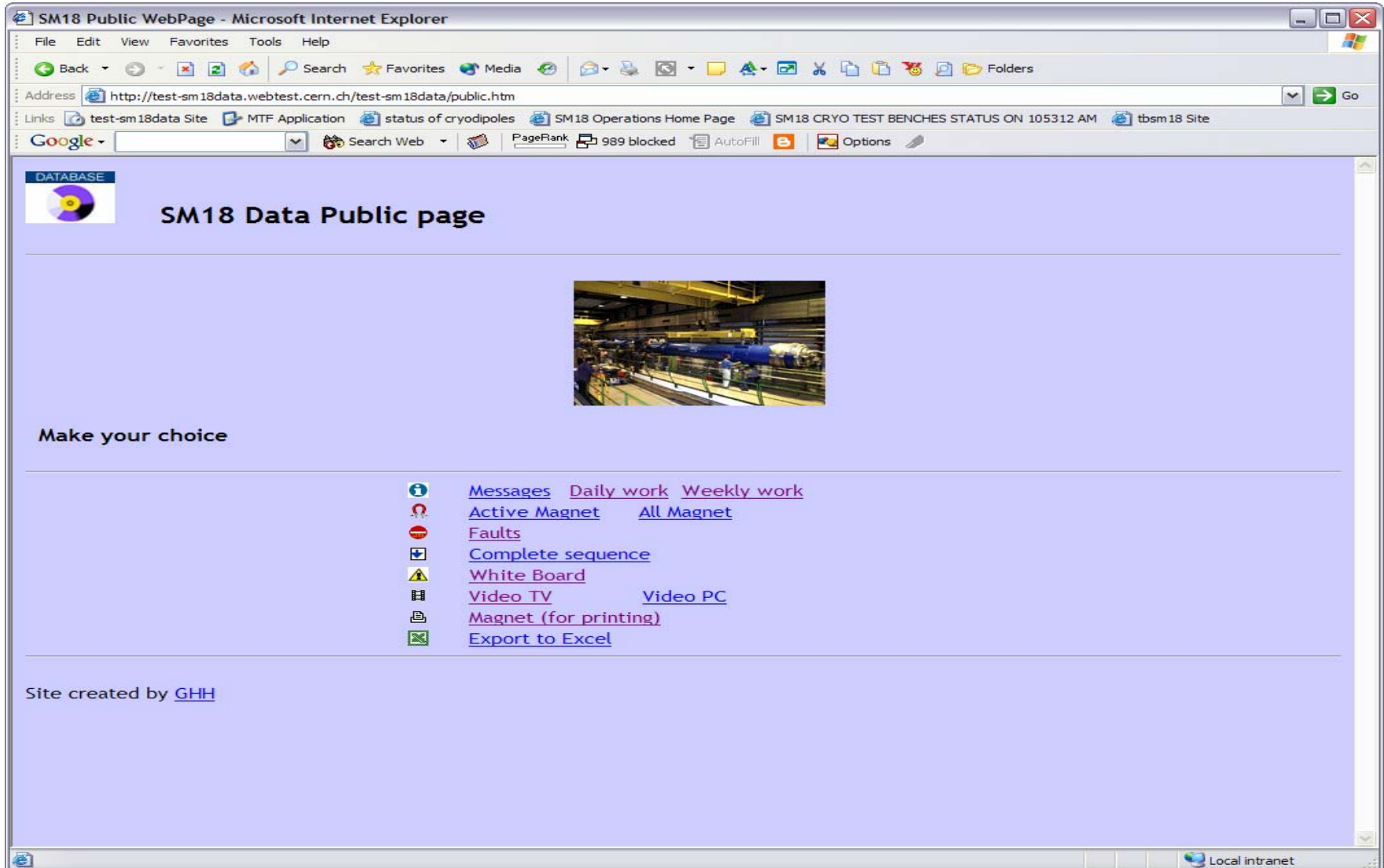
Typical times Extracted from SMTMS

[L.Walckiers]



- ❖ SMTMS
- ❖ Surveillance & Displays
- ❖ Faults Logging & general Logbook

- **SM Test & Measurement Storage Web site**



- **Keep a track of the tests according to :To Do List**
- **Statistics**
- **MTF EXCEL files export**

Magnet	Temperature	Time	Current	Comment	Result
MIBL2054	1.9 K	12/10/2003 9:10:17 AM	12000		
MIBL3659	1.9 K	12/10/2003 7:46:09 AM	12800		
MIBL3670	1.9 K	12/10/2003 8:47:07 AM	11800		
MIBR3015	1.9 K	12/10/2003 3:26:07 AM	11800		
MIBR1038	1.9 K	12/10/2003 12:10:00 PM	12310		

Magnet Name	Bench	Arrival Date	Departure Date	COWI	CDOP	CDOP2	Tests Sequence
MIBL2054	TIB1	12/2/2003		✓	✓	✗	✗
MIBL3659	TIB2	12/16/2003		✗	✗	✗	✗
MIBL3670	TIB2	12/12/2003		✓	✓	✗	✗
MIBR3015	TBF1	12/14/2003		✓	✗	✗	✗
MIBR1038	TBF2	12/1/2003		✓	✗	✗	✗

Sequence	Temperature	Time	Duration	Current	Result	
MBO Full Load Line + joints	1.9 K	12/10/2003 9:10:17 AM	12000			
PT6 Detraining	1.9 K	12/10/2003 7:46:09 AM	12800	✓	✓	
PT7 Magnet Trained	1.9 K	12/10/2003 8:47:07 AM	11800	✓	✓	
MBO LHC Cycle	1.9 K	12/10/2003 3:26:07 AM	11800	✓	✓	
PT7.1 Training 1	1.9 K	12/10/2003 12:10:00 PM	12310	✓	✓	
MBO initial position	1.9 K	12/9/2003 11:41:26 PM	1900	✓	✓	
PT5.1 1.5 KA Quench HF	1.9 K	12/9/2003 10:39:40 PM	1500	✓	✓	
PT5.1 1.5 KA Quench LF	1.9 K	12/9/2003 10:05:06 PM	1500	✓	✓	
PT4 Slow power abort check	1.9 K	12/9/2003 9:23:49 PM	1000	✓	✓	
PT3 QH Measure	1.9 K	12/9/2003 8:12:49 PM	0	✓	✓	
PT2 HQ Cold Test	1.9 K	12/9/2003 7:37:15 PM	0	✓	✓	
PT1 IAP @ cold	1.9 K	12/9/2003 6:32:17 PM	0	✓	✓	
Prep5 Pumping + Cool Down	Cooling	12/9/2003 7:00:00 PM	0	✓	✓	
Prep4 TRU Connection	Cooling	12/9/2003 6:26:21 PM	12:05:00 AM	0	✓	✓
Prep5 Pumping + Cool Down	Cooling	12/9/2003 10:25:10 PM	2	✓	✓	
ICS 2 Traveller AFTER Bobing	300 K	12/3/2003 12:45:02 PM	0	✓	✓	
Prep2 4 QH Measure	300 K	12/3/2003 12:10:22 PM	0	✓	✓	
Prep2 2 IAP @ warm HF	300 K	12/3/2003 11:12:15 AM	12:45:00 AM	2.5	✗	✗
Prep3 2 IAP @ warm LF	300 K	12/3/2003 11:04:28 AM	12:45:00 AM	2.5	✗	✗
Prep2 4 QH Measure	300 K	12/3/2003 10:20:33 AM	0	✗	✗	

Test	Temp	Cool Down	Monday 8 December 2003	Comment	OK
1 New Magnet arrived	300 K	0	10:59:18 PM		✓
2 Prep2 4 QH Measure	300 K	0	10:29:53 AM		✓
3 Prep2 2 IAP @ warm LF	300 K	2.5	11:24:26 AM	031120031103 qn01	✗
4 Prep2 2 IAP @ warm HF	300 K	2.5	11:12:15 AM	031120031123 qn01	✗
5 Prep2 4 QH Measure	300 K	0	12:10:22 PM		✓
6 X 2 Traveller AFTER Bobing	300 K	0	12:45:02 PM		✓
7 Prep2 4 QH Measure	300 K	0	10:25:10 PM		✓
8 Prep2 TRU Connection	Cooling	0	6:26:21 PM		✓
9 Prep2 Pumping + Cool Down	Cooling	0	7:00:00 PM		✓
10 Prep2 4 QH Measure	300 K	0	10:20:33 AM		✗
11 PT1 IAP @ cold	1.9 K	0	6:28:17 PM	031120031103 qn1 B	✓
12 PT2 HQ Cold Test	1.9 K	0	7:37:15 PM	031120031105 qn01	✓
13 PT3 QH Measure	1.9 K	0	8:12:49 PM		✓
14 PT4 Slow power abort check	1.9 K	1000	9:23:49 PM		✓
15 PT5.1 1.5 KA Quench LF	1.9 K	1500	10:05:06 PM	031120031206 qn01	✓
16 PT5.1 1.5 KA Quench HF	1.9 K	1500	10:39:40 PM	031120031214 qn01	✓
17 MBO initial position	1.9 K	1900	11:41:26 PM		✓
18 PT7.1 Training 1	1.9 K	12310	12:10:00 AM	031120031101	✓
19 MBO LHC Cycle	1.9 K	11800	3:26:07 AM		✓
20 MIBR3015	1.9 K	11800	3:26:07 AM		✓

Test	Temp	Cool Down	Monday 8 December 2003	Comment	OK
1 New Magnet arrived	300 K	0	10:59:18 PM		✓
2 Prep2 4 QH Measure	300 K	0	10:29:53 AM		✓
3 Prep2 2 IAP @ warm LF	300 K	2.5	11:24:26 AM	031120031103 qn01	✗
4 Prep2 2 IAP @ warm HF	300 K	2.5	11:12:15 AM	031120031123 qn01	✗
5 Prep2 4 QH Measure	300 K	0	12:10:22 PM		✓
6 X 2 Traveller AFTER Bobing	300 K	0	12:45:02 PM		✓
7 Prep2 4 QH Measure	300 K	0	10:25:10 PM		✓
8 Prep2 TRU Connection	Cooling	0	6:26:21 PM		✓
9 Prep2 Pumping + Cool Down	Cooling	0	7:00:00 PM		✓
10 Prep2 4 QH Measure	300 K	0	10:20:33 AM		✗
11 PT1 IAP @ cold	1.9 K	0	6:28:17 PM	031120031103 qn1 B	✓
12 PT2 HQ Cold Test	1.9 K	0	7:37:15 PM	031120031105 qn01	✓
13 PT3 QH Measure	1.9 K	0	8:12:49 PM		✓
14 PT4 Slow power abort check	1.9 K	1000	9:23:49 PM		✓
15 PT5.1 1.5 KA Quench LF	1.9 K	1500	10:05:06 PM	031120031206 qn01	✓
16 PT5.1 1.5 KA Quench HF	1.9 K	1500	10:39:40 PM	031120031214 qn01	✓
17 MBO initial position	1.9 K	1900	11:41:26 PM		✓
18 PT7.1 Training 1	1.9 K	12310	12:10:00 AM	031120031101	✓
19 MBO LHC Cycle	1.9 K	11800	3:26:07 AM		✓
20 MIBR3015	1.9 K	11800	3:26:07 AM		✓

SM18 operation magnets page - Microsoft Internet Explorer

Address: http://test-sm18data.webtest.cern.ch/test-sm18data/asp/GenericList.asp

Links: test-sm18data Site, MTF Application, status of cryodipoles, SM18 Operations Home Page, SM18 CRYO TEST BENCHES STATUS ON 105312 AM, tsm18 Site

Back to SM18 homepage | Reset | Refresh | db Info

SM18 operation Magnets page

Add New

Magnet Name	Bench	Arrival Date	Departure Date	CDW1	CDBP	CDAP	CDW2	
MBAL2054	TBC1	12/2/2003		✓	✓	✗	✗	Tests Sequence
MBAL3059_D2	TBD2	12/6/2003		✓	✗	✗	✗	Tests Sequence
MBBL3070	TBE2	12/2/2003		✓	✓	✓	✗	Tests Sequence
MBBR3015	TBF1	12/4/2003		✓	✗	✗	✗	Tests Sequence
MBBR1038	TBF2	12/1/2003		✓	✓	✗	✗	Tests Sequence

Records 1 to 5 of 5

Search For: Search Now

For any comments/changes please contact GHH

Actual Time 10 December 2003 - 11:55
Copyright CERN

To Do List page - Microsoft Internet Explorer

Address: http://test-sm18data.webtest.cern.ch/test-sm18data/asp/GenericList.asp

Links: test-sm18data Site, MTF Application, status of cryodipoles, SM18 Operations Home Page, SM18 CRYO TEST BENCHES STATUS ON 105312 AM, tsm18 Site

Magnet Page | Reset | Refresh | db Info

To Do List page

Add New

Show Standard Sequence of test

Sequence tests for magnet : **MBBR1038.**

Sequence	Temperature	Time	Duration	Current	Result	
MM3 Full Load Line + Joints	1.9 K	12/10/2003 8:50:17 AM		12000	✓	
PT8 Detraining	1.9 K	12/10/2003 7:46:09 AM		12850	✓	
PT7 Magnet Trained	1.9 K	12/10/2003 5:47:07 AM		12850	✓	
MM2 LHC Cycle	1.9 K	12/10/2003 3:26:07 AM		11850	✓	
PT7.1 Training 1	1.9 K	12/10/2003 12:10:00 AM		12310	✓	
MM1 MM position	1.9 K	12/9/2003 11:41:26 PM		1500	✓	
PT5.2 1.5 KA Quench HF	1.9 K	12/9/2003 10:39:40 PM		1500	✓	
PT5.1 1.5 KA Quench LF	1.9 K	12/9/2003 10:05:06 PM		1500	✓	
PT4 Slow power abort check	1.9 K	12/9/2003 9:23:48 PM		1000	✓	
PT3 QH Measure	1.9 K	12/9/2003 8:12:48 PM		0	✓	
PT2 HV Cold Test	1.9 K	12/9/2003 7:37:15 PM		0	✓	
PT1 IAP @ cold	1.9 K	12/9/2003 6:28:17 PM		0	✓	
Prep5 Pumping + Cool Down	Cooling	12/5/2003 7:00:00 PM		0	✓	
Prep4 TRU Connection	Cooling	12/5/2003 6:26:21 PM	12:05:00 AM	0	✓	
Prep5 Pumping + Cool Down	Cooling	12/4/2003 10:25:10 PM		2	✓	
ICS 2 Traveller AFTER Bolting	300 K	12/3/2003 12:45:02 PM		0	✓	
Prep2.4 QH Measure	300 K	12/3/2003 12:10:22 PM		0	✓	
Prep2.2 IAP @ warm HF	300 K	12/3/2003 11:12:15 AM	12:45:00 AM	2.5	✗	
Prep2.3 IAP @ warm LF	300 K	12/3/2003 11:04:26 AM	12:45:00 AM	2.5	✗	
Prep2.4 QH Measure	300 K	12/3/2003 10:20:33 AM		0	✗	

1 2 [Next >>]

Records 1 to 20 of 23

Microsoft Excel - test2054.xls

File Edit View Insert Format Tools Data Window Help

Type a question for help

Century Gothic 10 B I U

A1 magnetName

	A	B	C	D	E	F	G	H	I	J	K	L
1	magnetName	benchName	startDate	endDate								
2	MBAL2054	TBC1	12/2/2003									
3												
4	Test Results											
5												
6	testType	temperature	Time	File	Current	comment						result
7	Prep1 Lyre Test	300 K	12/3/2003 16:40		2							True
8	Prep2.1 Resistance Measurements	300 K	12/3/2003 17:20		0							True
9	Prep2.3 IAP @ warm LF	300 K	12/3/2003 18:00	L0312031811.qb01	2.5							True
10	Prep2.2 IAP @ warm HF	300 K	12/3/2003 18:15	L0312031822.qa01	0							True
11	Prep2.4 QH Measure	300 K	12/3/2003 18:50		0							True
12	Prep4 HV Test Warm	300 K	12/3/2003 18:55		0							True
13	ICS 2 Traveller AFTER Bolting	300 K	12/3/2003 20:41		0							True
14	Prep5 Pumping + Cool Down	Cooling	12/4/2003 15:25		0							True
15	Prep4 TRU Connection	Cooling	12/5/2003 18:19		0							True
16	PT1 IAP @ cold	4.4 K	12/7/2003 4:30		0							True
17	PT2 HV Cold Test	1.9 K	12/7/2003 7:15		0							True
18	PT3 QH Measure	1.9 K	12/7/2003 8:25		0							True
19	PT4 Slow power abort check	1.9 K	12/7/2003 8:45		1000							True
20	MM1 MM position	1.9 K	12/7/2003 9:00		1500							True
21	PT5.1 1.5 KA Quench LF	1.9 K	12/7/2003 9:15	L031207921.hb01	1500							True
22	PT5.2 1.5 KA Quench HF	1.9 K	12/7/2003 9:45	L0312070945.ha01	1500	Repeated as hf/LF was stopped in last quench						True
23	PT7.1 Training 1	1.9 K	12/7/2003 10:12	L0312071040.a01	11707							True
24	PT7.2 Training 2	1.9 K	12/7/2003 15:30	L0312071518.a02	11973							True
25	PT7.3 Training 3	1.9 K	12/7/2003 20:06	L0312072006.a03	12411							True
26	MM2 LHC Cycle	1.9 K	12/8/2003 8:27		11850							True
27	PT7.4 Training 4	1.9 K	12/8/2003 10:49	L0312081033.a04	12602							True
28	PT7.5 Training 5	1.9 K	12/8/2003 15:32	L0312081532.a05	12528							True
29	PT7.6 Training 6	1.9 K	12/8/2003 22:01	L0312082213.a06	12715							True
30	MM3 Full Load Line + Joints	1.9 K	12/9/2003 8:08		0							True
31	PT30 HV Test Cold	1.9 K	12/9/2003 11:27		0							True
32	PT7.7 Training 7	1.9 K	12/9/2003 15:01	L0312091403.a07	12763	OK						True
33	PT12 Warm Up	Warming	12/9/2003 15:10		0							True
34	MM12 TRU Disconnect	Warming	12/10/2003 3:08		0							True
35												
36	Current Table											
37												
38	testType	Current										
39	PT4 Slow power abort check	1000										
40	MM1 MM position	1500										
41	PT5.1 1.5 KA Quench LF	1500										
42	PT5.2 1.5 KA Quench HF	1500										
43	PT7.1 Training 1	11707										
44	PT7.2 Training 2	11973										
45	PT7.3 Training 3	12411										

Ready NUM

Statistics of Magnets Tested

Test result by date - Netscape

Print... Page Setup... Page: 1 of 1 Scale: 50% Portrait Landscape Close

TBA1 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
No Magnet on this bench				
TBA2 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
1	MEER1028	21-11-2003	01-12-2003	10
2	MEAR3021	01-12-2003	09-12-2003	8
TBB1 From 01-12-2003 to 08-12-2003				
No Magnet on this bench				
TBB2 From 01-12-2003 to 08-12-2003				
No Magnet on this bench				
TBC1 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
1	MEER1029	19-11-2003	02-12-2003	13
1	MEAL2054	02-12-2003	still under test	11
TBC2 From 01-12-2003 to 08-12-2003				
No Magnet on this bench				
TBD1 From 01-12-2003 to 08-12-2003				
No Magnet on this bench				
TBD2 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
	MEAL3059	06-12-2003	still under test	7
No Magnet on this bench				
TBE1 From 01-12-2003 to 08-12-2003				
No Magnet on this bench				
TBE2 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
1	MEER1032	25-11-2003	01-12-2003	6
2	MEEL3070	02-12-2003	09-12-2003	7
TBF1 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
1	MEAR3065	24-11-2003	04-12-2003	10
1	MEER3015	04-12-2003	still under test	9
TBF2 From 01-12-2003 to 08-12-2003				
Magnet	Start Date	End Date	Total Days	
1	MEER1027	21-11-2003	01-12-2003	10
1	MEER1038	01-12-2003	still under test	12

Magnet finished from 01-12-2003 to 08-12-2003 : 7

[Back to choice](#)

Done

Start Show Desktop 6 W Co... Log... Op... 5 N... Mee... Micr... Links RealPlayer webHRT Main Menu EN 18:06

Case of 1042 (no Anti-Cryostat)

Netscape

Print... Page Setup... Page: 1 of 1 Scale: 60% Portrait Landscape Close

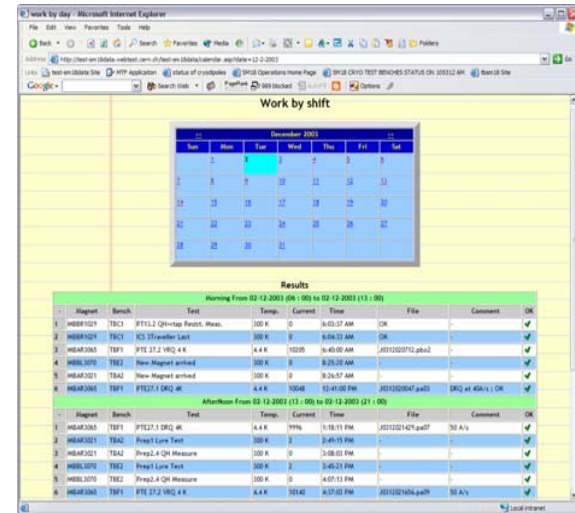
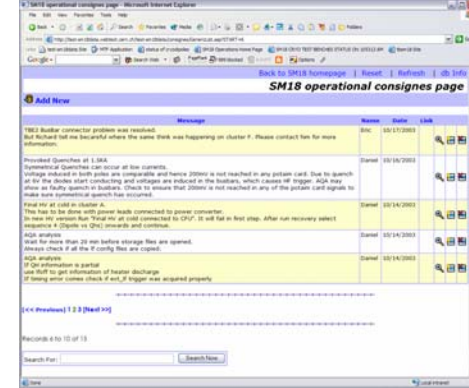
Tests Sequence for magnet 'MBBR1042' on bench TBE1							
	Test	Temp.	Current	Time	File	Comment	OK
Thursday 9 October 2003							
1	Prep1 Resistance Measurement	300 K	0	4:00:39 PM			✔
2	Prep2 HV Test Warm	300 K	0	5:30:24 PM			✔
Friday 10 October 2003							
3	Prep5 Lyre Test	300 K	0	10:57:12 AM		11.20 V for 2.00 Amps	✔
4	Prep7 HV Initial @ Warm	300 K	0	11:35:09 AM			✔
5	Prep6.1 IAP @ warm HF	300 K	0	3:30:00 PM	F0310101523		✔
6	Prep6.2 IAP @ warm LF	300 K	0	3:40:13 PM	F0310101542	Two errors, but heater discharge is OK	✔
7	Prep6.3 QH Measure	300 K	0	4:00:43 PM			✔
Tuesday 14 October 2003							
4.79 days (115 hours) for 300 K							
8	Prep12 Cool Down	Cooling	0	11:37:19 AM			✔
0.04 days (1 hours) for Cooling							
9	PT2 IAP @ cold	1.9 K	0	12:30:00 PM	F031014142.qc05, F0310141313.qc06	Ok! Only Pot-aim card adjustment as there are no shaft	✔
10	PT3 HV Cold Test	1.9 K	0	4:10:00 PM			✔
11	PT5.3 1.5 KA Quench LF	1.9 K	1500	6:09:00 PM	F0310141809.hb01		✔
12	PT5.4 1.5 KA Quench HF	1.9 K	1500	6:39:00 PM	F0310141837.ha01		✔
13	PT6.1 Training 1	1.9 K	12085	7:44:00 PM	F0310141944.a01		✔
Wednesday 15 October 2003							
14	PT7 Magnet Trained	1.9 K	12850	12:09:00 AM	F0310150009.n01		✔
15	PT7.1 Minimum NRJ	1.9 K	11850	12:53:00 AM	F0310150053.ka01	Vquench 520 V	✔
0.54 days (13 hours) for 1.9 K							
16	PT31 Warm Up	4.4 K	0	1:44:43 AM			✔
17	PT27 4 K Quench	4.4 K	10341	4:32:59 AM	F0310150430.n01		✔
18	PT27 4 K Quench	4.4 K	10342	7:12:28 AM	F0310150708.n02	Both the quench current is almost same	✔
0.38 days (9 hours) for 4.4 K							
19	PT11 Fast De-excitation	1.9 K	12850	10:30:00 AM			✔
20	PT12 HV @ Cold LAST	1.9 K	0	11:00:00 AM			✔
21	PT7.1 Minimum NRJ	1.9 K	3000	3:45:00 PM	F0310151614.ka02		✔
Thursday 16 October 2003							
0.83 days (20 hours) for 1.9 K							
22	PT31 Warm Up	Warming	0	6:09:40 AM			✔
0.50 days (12 hours) for Warming							
23	PT32 IAP @ Warm	300 K	2	6:16:16 PM	F0310161811.qa02		✔
24	PT35 QH Measure	300 K	0	6:50:00 PM			✔
Friday 17 October 2003							
25	Prep 13 Disconnect Magnet	300 K	0	7:49:32 AM			✔
26	PT34 HV Warm LAST	300 K	0	12:00:18 PM		Ok!	✔
0.75 days (18 hours) for 300 K							
Total Time for this magnet days, 16 hours, 16 minutes 10216 total							

Done

Start Show Desktop 3 W. Acr... CER... Co... Log... 2 M... 5 N... Links RealPlayer webHRT Main Menu EN 20:13

- Tools to help communication between shifts (especially 'consignes' and work done

- "Consignes"
- Calendar
- Information Displays for OP
- CERN standard Displays Distribution



SM18 LHC Magnet Test Facility			
TBA1	_	_	
TBA2	_	_	
TBB1	_	_	
TBB2	_	_	
TBC1	MBAL2054	MM12 TRU Disconnect	Warming
TBC2	-	-	
TBD1	_	_	
TBD2	MBAL3059_D2	Prep3 HV Initial @ Warm	300 K
TBE1	-	Not Activated	
TBE2	MBSL3070	Finished Ready to go	300 K
TBF1	MBBR3015	ICS 2 Traveller AFTER Bolting	300 K
TBF2	MBBR1038	MM3 Full Load Line + Joints	1.9 K

Refreshed on 10/12/2003 at 12h21

Operational Status of Testing at any Instant

SM18 LHC Magnet Test Facility

TBA1	_	_	
TBA2	_	_	
TBB1	_	_	
TBB2	_	_	
TBC1	MBAL2054	MM12 TRU Disconnect	Warming
TBC2	-	_	
TBD1	_	_	
TBD2	MBAL3059_D2	Prep3 HV Initial @ Warm	300 K
TBE1	-	Not Activated	
TBE2	MBBL3070	Finished Ready to go	300 K
TBF1	MBBR3015	ICS 2 Traveller AFTER Bolting	300 K
TBF2	MBBR1038	MM3 Full Load Line + Joints	1.9 K

Refreshed on 10 /12/ 2003 at 12h21

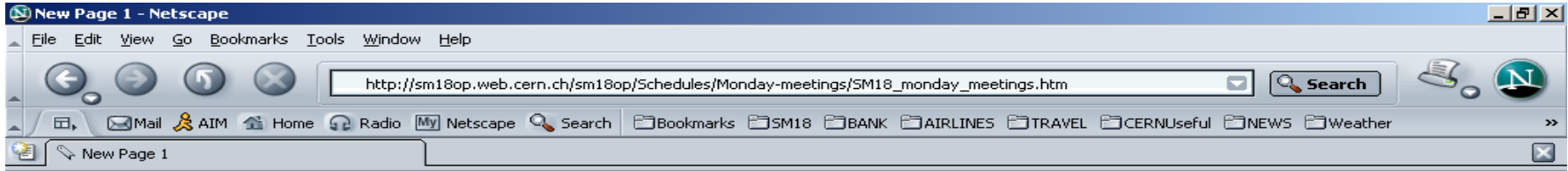
Global Status Display for Operation & Anticryostat Surveillance

CLUSTER	HEATERS	CURRENT	CFB	CRYO	ANTICRYO
C	<input checked="" type="checkbox"/> CHARGED	<input checked="" type="checkbox"/> MAIN	<input checked="" type="checkbox"/> AUX	C1	<input checked="" type="checkbox"/> 1.9
	<input checked="" type="checkbox"/> HIGH FIELD	<input type="text" value="-4"/>	CD <input type="text" value="Inf"/>	238	<input checked="" type="checkbox"/> 4.5
	<input checked="" type="checkbox"/> LOW FIELD		EF <input type="text" value="Inf"/>	296	<input checked="" type="checkbox"/> 4.5
	PLC <input checked="" type="checkbox"/> LEFT <input type="checkbox"/> RIGHT				
E	<input checked="" type="checkbox"/> CHARGED	<input checked="" type="checkbox"/> MAIN	<input checked="" type="checkbox"/> AUX	E1	<input checked="" type="checkbox"/> 1.9
	<input checked="" type="checkbox"/> HIGH FIELD	<input type="text" value="0"/>	CD <input type="text" value="Inf"/>	297	<input checked="" type="checkbox"/> 4.5
	<input checked="" type="checkbox"/> LOW FIELD		EF <input type="text" value="Inf"/>	2	<input checked="" type="checkbox"/> 4.5
	PLC <input checked="" type="checkbox"/> LEFT <input type="checkbox"/> RIGHT				
F	<input checked="" type="checkbox"/> CHARGED	<input checked="" type="checkbox"/> MAIN	<input checked="" type="checkbox"/> AUX	F1	<input checked="" type="checkbox"/> 1.9
	<input checked="" type="checkbox"/> HIGH FIELD	<input type="text" value="Inf"/>	CD <input type="text" value="Inf"/>	295	<input checked="" type="checkbox"/> 4.5
	<input checked="" type="checkbox"/> LOW FIELD		EF <input type="text" value="Inf"/>	104	<input checked="" type="checkbox"/> 4.5
	PLC <input checked="" type="checkbox"/> LEFT <input type="checkbox"/> RIGHT				

Survey

Update period Iteration

PROGRAM COMMISSIONING IN PROGRESS...



SM18 Weekly Meetings

2003											
Jan.	Feb.	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
13.01.03	03.02.03	03.03.03	07.04.03	05.05.03	02.06.03	07.07.03	04.08.03	01.09.03	07.10.03	04.11.03	02.12.03
20.01.03	10.02.03	10.03.03	14.04.03	12.05.03	09.06.03	14.07.03	11.08.03	09.09.03	14.10.03	11.11.03	09.12.03
27.01.03	17.02.03	17.03.03	28.04.03	19.05.03	16.06.03	21.07.03	18.08.03	16.09.03	21.10.03	18.11.03	16.12.03
	24.02.03	24.03.03		26.05.03	23.06.03	28.07.03	25.08.03	22.09.03	28.10.03	25.11.03	
		31.03.03			30.06.03			30.09.03			



Schedule for next & Follow up of past

Meeting_Week 49_2003.doc - Microsoft Word

File Edit View Insert Format Tools Table Window Help

100% Arial Black 16 B I U

Final Showing Markup Show

vc/13-Dec-03

Week 49 starting 01 dec 03

SM18 Operation SCHEDULE Meeting (Tuesdays)

Schedule for this week :

BENCH	CURRENT MAGNET	STATUS Today(2/12/03)	Forward look, & Next Magnet
TBA1	NOT Active		
TBA2	3021	Connection	
TBC1	1029	To remove	<u>next ?</u>
TBC2	SSS04	Warming up	Next <u>sss</u>
TBD2	Use 3059	FOR COMMISSIONING	
TBE1		NEEDS REPAIR	
TBE2	3070	Connection + pumpdown	
TBF1	3065	4.4 k & Warm up	Disconnect & bring new
TBF2	1038	Connection +	

In ninline ?

Page 1 Sec 1 1/5 At 4.4cm Ln 5 Col 3 REC TRK EXT OVR English (U.K.)

Start Show Desktop 4 W Ac... C... 2 I... Lo... 3 M... 4 N... 2 Links RealPlayer webHRT Main Menu 14:48

Meeting_Week 49_2003-1.doc - Microsoft Word

File Edit View Insert Format Tools Table Window Help

Type a question for help

Final Showing Markup Show

75% Monotype Corsiva 12

2 1 1 1 2 1 3 1 4 1 5 1 6 1 7 1 8 1 9 1 10 1 11 1 12 1 13 1 14 1 15 1 16 1 17 1 18 1

Problems of Last week

Date	Problem	Type	Application/ soft.	Action/advise
Tuesday 25_A	TBC1: vapour appearing in the anticyrostat after cleaning	MTM		Patrick called. Temperature checks. OK Excessive alcohol used during the cleaning.
Tuesday 25_N	TBC1: IAP @ cold; POTAIM, Qloc card amplitudes not adjustable.	MTM	IAP	
Tuesday 25_N	TBC1: After slow PA sunMTA20 hung	AB-CO		
Tuesday 25_N	TBC1: Provoked Quench all HF Server hung.	AB/CO		Shutdown of Sunmta19 and re-start.
Tuesday 25_N	TBC1: Training quench 1 No folder in MATEST for 1029	MTM		Quench table stored in desktop of PC
Tuesday 25_N Wednesday 26_M Sunday 30_morning	TBC1: (3059) WP04 dielectric test step 4 not present TBE1 (2027) WP04, WP07 dielectric test step 15 not present	EST/ISS AT/ADM	MTF	Solved from Monday 2/12.
Wednesday 26_M	TBE1: IAP @warm not done. Magnet already disconnected. Two travellers for the magnet 2027?	MTM		Authorization of disconnection signed by OP team but no checks that IAP was performed (no signature).
Wednesday 26_M	TBE2: Warm up : LF DAQ showing MXI move error in crate 1 DAQ not getting armed.	MTM		Giorgio called. Reset then OK
Thursday 27_M	TBF2: SPA. Not able to arm HF, LF acquisition.	MTM		

Page 3 Sec 2 3/5 At Ln Col REC TRK EXT OVR English (U.K)

Start Show Desktop 4 W Ac... C... 2 I... Lo... 3 M... 4 N... M... Links RealPlayer webHRT Main Menu EN 14:54

Faults Logbook (old version)

Logbook - [STR Sat 22 Nov 03 Morning]

File Edit View Tools Window Help

#	Time	TBA2	TBC1	TBC2	TBE2	TBF1	TBF2	Event Description
01	06:00					01		Uttam, Sridhar, David
02	06:06					01		TBA2: MBBR 1028 ; New Magnet under connection TBC1: MBBR 1029; Cooling Down TBE1: MBAR 2027; Magnet is cooling down; 5.3 K TBE2: MBAR 2029; Magnet is cooling down after first training quench; 2.3 K TBF1: MBAL 3059; Magnet is cold but problem in IFS box TBF2: MBBR 1027; New Magnet is under connections
03	08:42					01		TBE2: Training Quench # 2 at 11770 A
04	09:32					01		TBE1: IAP @ Cold; T-Coil testing
05	10:00					01		TBF1: HV test on dipole vs ground was repeated. At 1500 V, the leakage current=51 nA, whereas, at 1800 V, the maximum leakage current= 61 microamp.
06	12:29					01		TBE2: Training Quench # 3 at 12209 A

#	Category	Element	Fault Description
01	HV insulation	TBF1	

Start Show Desktop 3 2 N Ac... C... C... Lo... 2 M BE... Links RealPlayer webHRT Main Menu EN 17:12

Automatic Extraction of Faults Statistics for any given period

STR 13/11/03 Night No Fault

STR 14/11/03 Mornin No Fault

STR 14/11/03 Afternc	14/11/2003 16:00	14/11/2003 21:00	STR	TBC1	Cryogenics	Liquefactor
STR 14/11/03 Afternc	14/11/2003 16:00	14/11/2003 21:00	STR	TBF1	Cryogenics	Liquefactor
STR 14/11/03 Afternc	14/11/2003 16:00	14/11/2003 21:00	STR	TBF2	Cryogenics	Liquefactor

STR 14/11/03 Night No Fault

STR 15/11/03 Mornin No Fault

STR 15/11/03 Afternc No Fault

STR 15/11/03 Night	15/11/2003 23:30	16/11/2003 03:06	STR	TBC1	Cryo NOT OK	current leads	spare broken
STR 15/11/03 Night	16/11/2003 01:00	16/11/2003 03:06	STR	TBF2	Electronics	switch box	trigger sent
STR 15/11/03 Night	16/11/2003 03:06	16/11/2003 03:06	STR	TBF2	MMP		serial communication

STR 16/11/03 Mornin	16/11/2003 06:51	16/11/2003 13:00	STR	TBF2	Power converters	lead water
---------------------	------------------	------------------	-----	------	------------------	------------

STR 16/11/03 Afternc No Fault

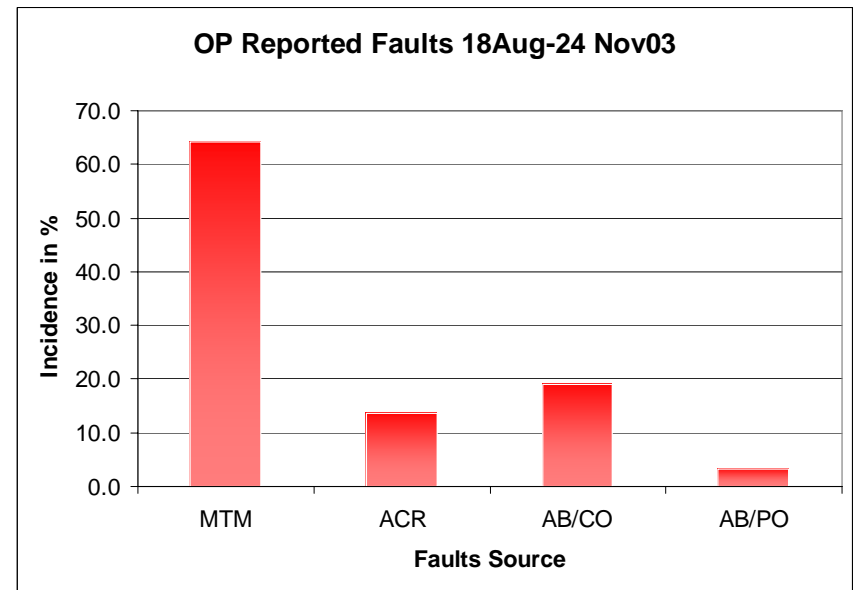
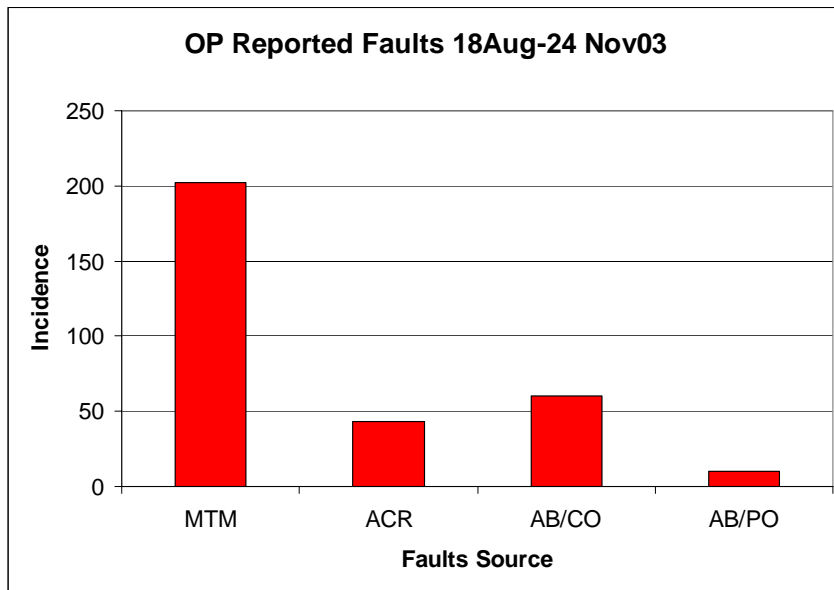
STR 16/11/03 Night	16/11/2003 22:09	17/11/2003 06:00	STR	TBC1	Protection systems	V bus external card
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STR 17/11/03 Mornin	17/11/2003 06:00	17/11/2003 07:42	STR	TBC1	Protection systems	V bus external card
---------------------	------------------	------------------	-----	------	--------------------	---------------------

STR 17/11/03 Mornin	17/11/2003 08:37	17/11/2003 11:30	STR	TBC1	Protection systems	V bus external card
---------------------	------------------	------------------	-----	------	--------------------	---------------------

STR 17/11/03 Afternc No Fault

Faults statistics



Faulty Quenches C-Cluster

C 1	1 0 1 9	S S L	K 0 3 0 3 1 4 1 7 0 0 . n 0 1	
C 1	1 0 1 9	S S L	K 0 3 0 3 1 7 0 9 1 0 . n 0 2	
C 1	1 0 1 9	S S L	K 0 3 0 3 1 7 1 3 1 2 . n 0 3	
C 1	1 0 1 9	S S L	K 0 3 0 3 1 7 1 6 2 9 . n 0 4	
C 1	1 0 1 9	S S L	K 0 3 0 3 2 7 0 8 3 9 . n 0 5	
C 1	1 0 1 9	S S I	K 0 3 0 3 2 7 1 0 5 7 . n 0 6	
C 1	1 0 1 9	M M	K 0 3 0 3 0 4 1 5 0 4 . m d 0 1	cl a m p
C 1	1 0 1 9	T r a i n i n g	K 0 3 0 3 0 7 1 6 5 9 . a 0 4	I n i t c l a m p
C 1	1 0 2 4	S S L	L 0 3 0 6 0 9 1 6 1 6 . n 0 1	
C 1	1 0 2 4	1 / 2 H F 2	L 0 3 0 6 0 2 2 2 3 1 . h a 0 2	V b u s I n t
C 1	1 0 2 4	a l l H F	L 0 3 0 6 0 4 1 2 5 4 . h a 0 5	V b u s E x t
C 1	2 0 2 5	T r a i n i n g	L 0 3 0 7 3 1 0 0 3 4 . a 0 4	V c l a m p - e x t
C 1	3 0 4 1	S S L	L 0 3 0 8 2 1 0 2 1 4 . n 0 1	V c l a m p - e x t
C 1	3 0 4 1	S S L	L 0 3 0 8 2 4 0 4 2 2 . n 0 4	V c l a m p - e x t
C 1	3 0 4 1	S S L	L 0 3 0 8 2 4 1 0 2 2 . n 0 6	V c l a m p - i n t
C 1	3 0 4 6	S S L	L 0 3 0 9 0 2 1 4 2 6 . n 0 2	V c l a m p
C 1	3 0 4 6	S S L	L 0 3 0 9 0 2 1 7 5 8 . n 0 3	V c l a m p - e x t
C 1	3 0 4 6	S S L	L 0 3 0 9 0 2 2 2 5 2 . n 0 5	V c l a m p - e x t
C 1	3 0 4 6	P r o v . Q u e n c h @ 1 . 5 K A	L 0 3 0 9 0 7 0 8 0 1 . h a 0 2	V b u s - e x t
C 1	3 0 4 6	P r o v . Q u e n c h @ 1 . 5 K A	L 0 3 0 9 0 7 0 8 5 0 . h a 0 3	V b u s - e x t
C 1	3 0 4 6	P r o v . Q u e n c h @ 1 . 5 K A	L 0 3 0 9 0 7 0 9 1 6 . h a 0 4	V b u s - e x t
C 1	3 0 4 6	D R Q	L 0 3 0 9 1 0 1 4 3 2 . p a 0 1	V b u s - e x t
C 1	3 0 4 6	D R Q	L 0 3 0 9 1 0 1 5 0 8 . p a 0 2	V c l a m p - e x t
C 2	1 0 1 5	S S L	L 0 3 0 4 0 3 0 9 4 9 . n 0 1	e x t c l a m p
C 2	1 0 1 5	S S I	L 0 3 0 4 0 3 1 6 1 0 . n 0 2	
C 2	1 0 1 5	S S L	L 0 3 0 4 0 4 0 8 4 3 . n 0 3	
C 2	1 0 1 5	S S I	L 0 3 0 4 0 4 1 2 3 3 . n 0 4	
C 2	1 0 1 5	S S L	L 0 3 0 4 0 4 1 7 4 0 . n 0 5	
C 2	3 0 0 5	S S L	K 0 3 0 4 1 7 1 1 0 0 8 . n 0 1	
C 2	3 0 0 5	S S L	K 0 3 0 4 2 3 1 9 3 7 . n 0 4	
C 2	3 0 0 5	S S L	k 0 3 0 4 2 3 2 3 4 2 . n 0 5	
C 2	3 0 0 5	S S L	k 0 3 0 4 2 4 0 3 5 2 . n 0 6	
C 2	3 0 0 5	S S L	k 0 3 0 4 2 4 0 7 0 7 . n 0 7	
C 2	3 0 0 5	D R Q	K 0 3 0 4 2 4 1 1 1 4 . p a 0 1	
C 2	3 0 0 5	D R Q	K 0 3 0 4 2 4 1 5 2 1 . p b 0 1	
C 2	3 0 1 3	S S L	k 0 3 0 5 1 6 0 2 5 7 . n 0 1	
C 2	3 0 1 3	S S L	k 0 3 0 5 2 7 2 3 3 2 . n 0 2	
C 2	3 0 1 3	S S L	k 0 3 0 5 2 8 0 3 0 7 . n 0 3	
C 2	3 0 1 3	S S L	k 0 3 0 5 2 8 1 6 5 5 . n 0 4	
C 2	3 0 1 3	S S L	k 0 3 0 5 2 8 2 1 4 0 . n 0 5	
C 2	3 0 1 3	S S L	k 0 3 0 5 2 9 0 2 5 5 . n 0 6	
C 2	3 0 1 3	D R Q	k 0 3 0 5 2 9 0 7 0 4 . p a 0 1	
C 2	3 0 1 3	D R Q	k 0 3 0 5 2 9 1 1 5 6 . p a 0 2	
C 2	3 0 1 3	V R Q	k 0 3 0 5 3 0 0 0 1 8 . p a 0 3	V C l a m p e x t a t 9 7 9 1 A
C 2	3 0 1 3	M i n e n e r g y	K 0 3 0 5 2 3 2 0 2 6 . k a 0 4	e n t r y i n f a u l t y l i s t o f q u e n c h t a b l e
C 2	3 0 1 3	M i n e n e r g y	K 0 3 0 5 2 6 1 9 4 4 . k a 0 4	V c l a m p I n t a s p e r q u e n c h t a b l e
C 2	1 0 2 6	S S L	K 0 3 0 6 2 0 2 1 5 3 . n 0 1	V c l a m p a t 7 3 0 2 A
C 2	1 0 2 6	S S L	K 0 3 0 6 2 0 0 1 1 0 . n 0 2	V c l a m p a t 5 7 6 9 A
C 2	1 0 2 6	S S L	K 0 3 0 6 2 0 0 4 1 1 . n 0 3	V c l a m p a t 9 9 5 3 A
C 2	1 0 2 6	S S L	K 0 3 0 6 2 0 0 4 1 1 . n 0 4	V c l a m p a t 1 0 0 8 9 A

Improvements Foreseen or Desirable

By Definition, OP takes a *detached view* in requesting changes or improvements that ENCOMPASS all parties involved which leads to successful OPERATION

The few points here are based WITHIN THE CONFINES OF HOW IT WAS DEFINED & SUPPOSED TO WORK

- Magnet Connectors : longer hrs & hours of working
- Cryogenics: Better interaction in ICS-ACR(ALLS), instilling OP culture, more frequent experts presence in SMCR , [future e-Traveller will Help]
- MTM : SSS (= Support, Support & Support ... for :
 - all Equipment,
 - Shafts handling,
 - Special Equip Handling....
- MAS : Tests and Tests Economy, Info passing to OP
- MEL: IFS Boxes, reliability & Support
- & last but not least : AB-Controls & AB-Power Group Support in Faults Fixing etc.

E-Traveller (Jerome A.)

LAUSANNE

F2 1038 Phase:13-WARM UP TO 300 [K] Step:0 CRYO 902-* CRYOSTAT : VIDE CASSE	F1 3015 Phase:2-CONNECTING MAGNET Step:0 CRYO 301-* TEST CAPILLAIRES	E2 3070 Phase:12-LHe VAPORIZATION Step:1 MTM 1010-* DECONNECTION ALIMENTATION 2 [A] * TESTS IAP	E1 1033 Phase:2-CONNECTING MAGNET Step:0 ICS 102-* TESTS ELECTRIQUES H.V. AVANT CONNECTION	D2 9936 Phase:8-COOL STAND-BY Step:0 ICS 102-* TESTS ELECTRIQUES H.V. AVANT CONNECTION	D1 1234 Phase:7-QUENCH DEPRESSURIZATION Step:10 MTM 202-* TEST IAP
---	--	---	--	--	--

JURA

C2 SSS8 Phase:6-COOLDOWN TO 80 [K] Step:0 CRYO 702-* AIMANT EN CONDITION DE TEST	C1 2054 Phase:5-OVC LEAK CHECK Step:0 MTM 601-* ACCORD POUR DEMARRER REFROIDISSEMENT	B2 Libre B2 0000 -	B1 9901 B1 9901 MTM 201-* TEST LYRE	A2 3021 A2 3021 -	A1 Libre A1 0000 -
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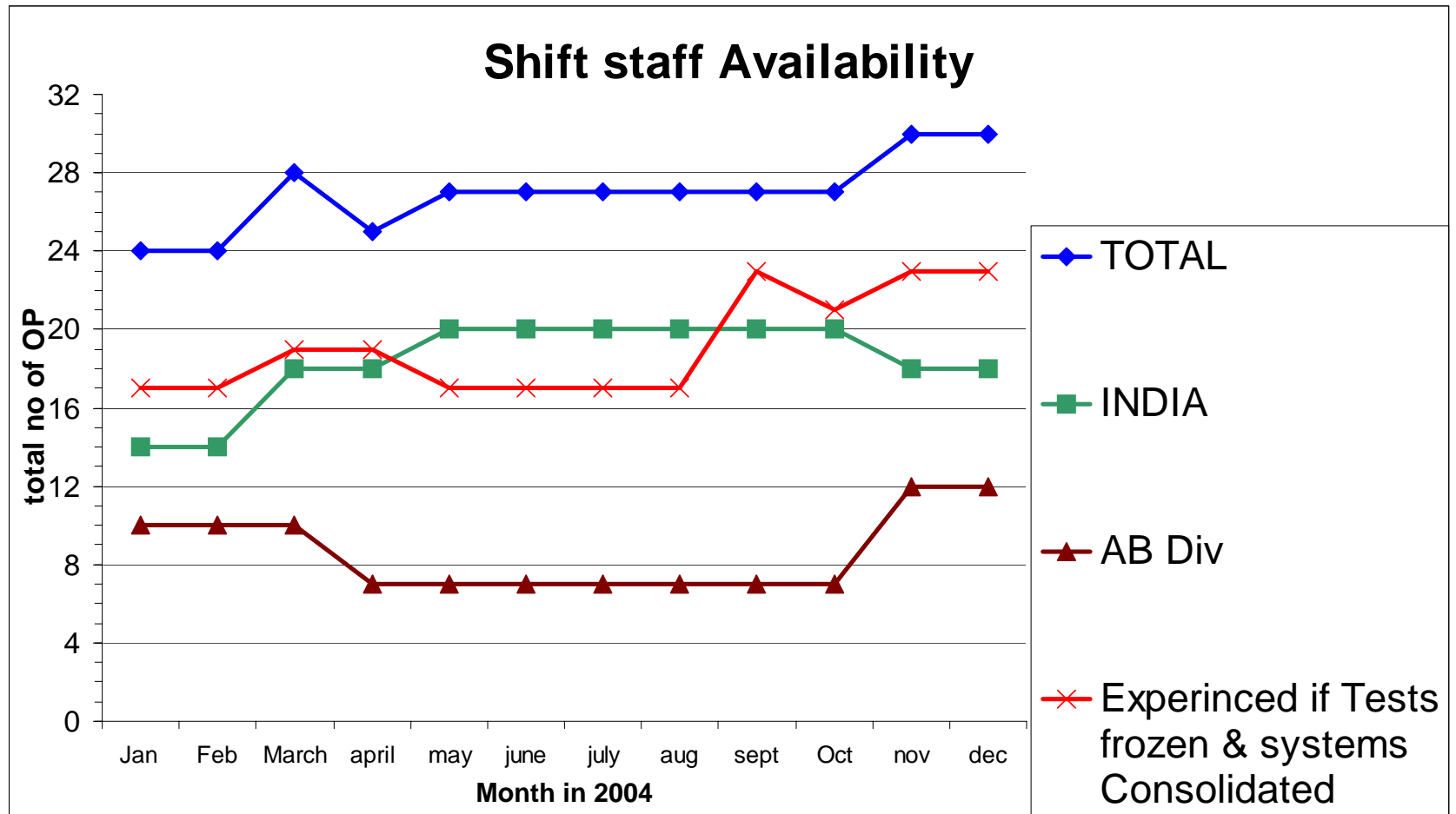
BELLEGARDE

connecting - try right clicking and selecting 'U'

Glimpse at Future

- Staff Profile
- Guesstimates

Staffing Profile necessary in 2004

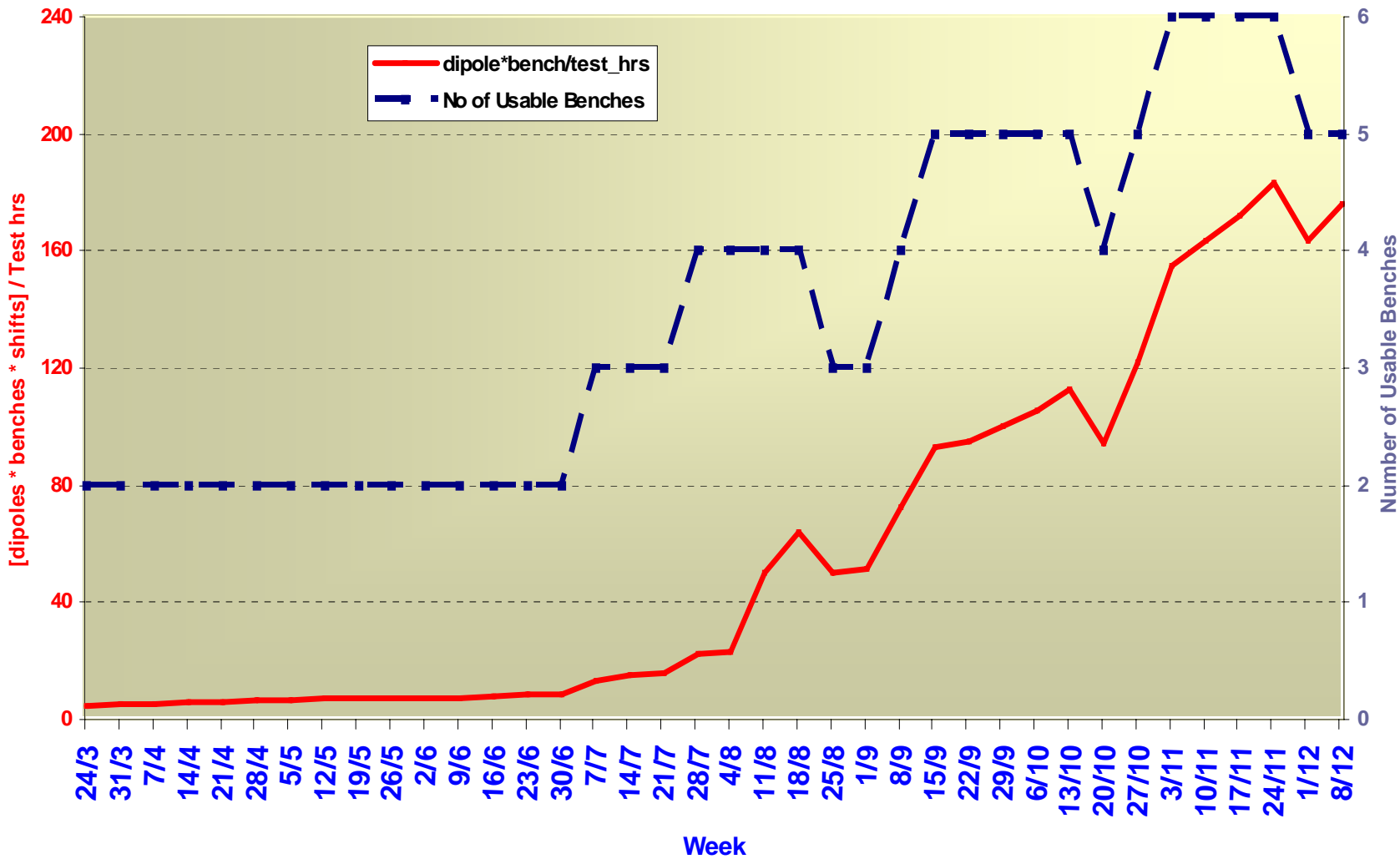


Near Future Estimates Feb-June 04

- For Dipoles and extrapolating from current experience :
 - Feb: 24+2 Assumes both D2 , D1 operational in early Feb
 - March: 28+2
 - April: 32+3
 - May: 36+3
 - June: 40+3
- TOTAL: ~ **173 Dipoles** (*in addition to ones already tested*)
 - **SSS remains an uncharted territory** from the OP point of view and we need some experience before estimating the numbers
 - **It really depends on :**
 1. **how a full Cluster may be equipped & dedicated solely for SSS testing,**
 2. **OP-friendliness of SSS Tests Equipment,**
 3. **SSS OP Methods DEFINED &**
 4. **OP EXPERIENCE GAINED**
 - **However,** a conservative estimate would be ~ **13 SSS** till end June if we use the C1, C2 in cohabitation mode like up to now.
 - **GRAND TOTAL GUESSTIMATE (Dipoles + SSS) ~ 186**

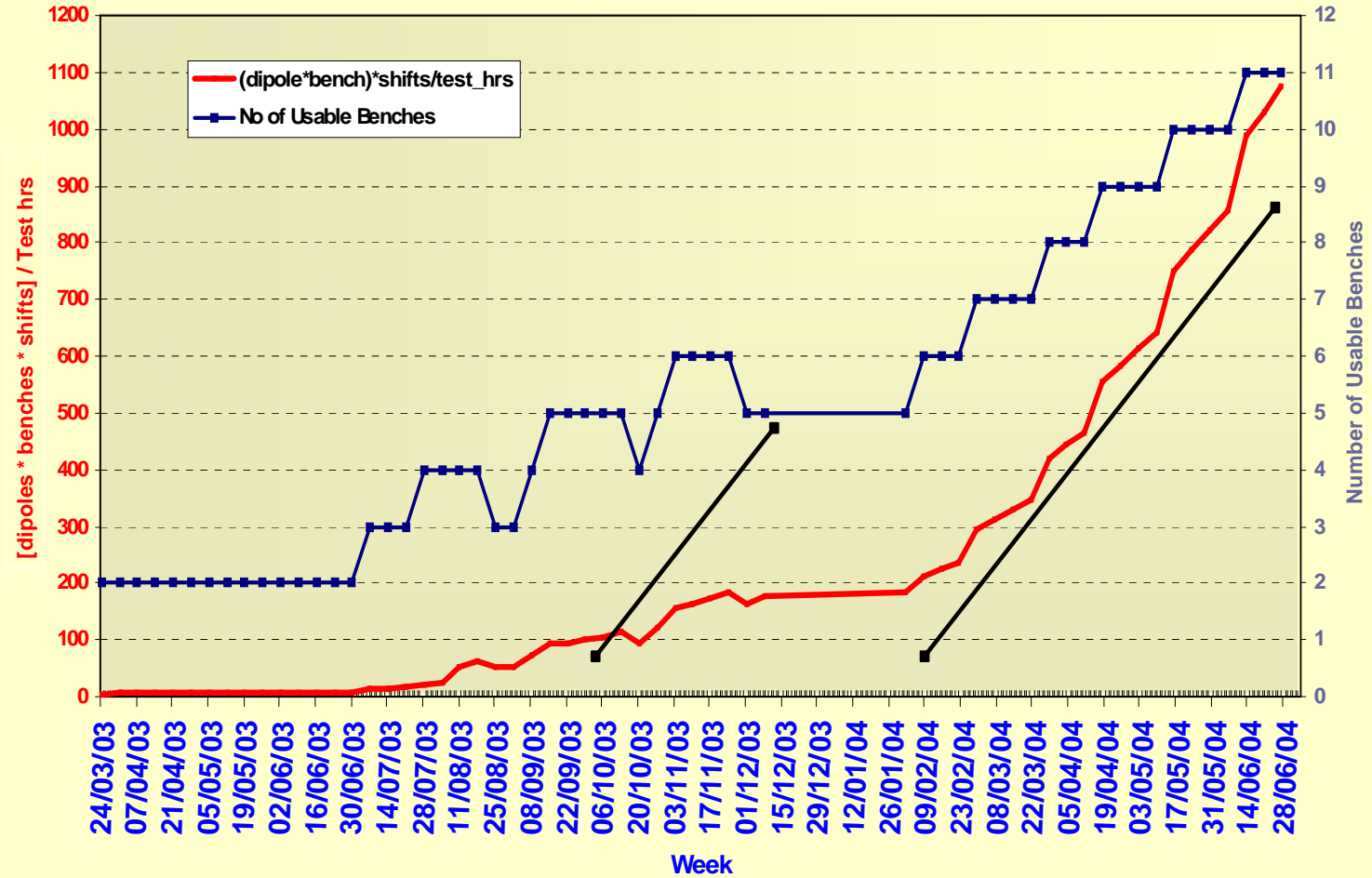
Tested Dipoles, Benches, Shifts & Test hrs

[dipoles x benches x shifts/ test hrs] & [no. of Usable Benches] vs. Date



Crystal ball gazing...

[Dipoles x Benches x Shifts/ Test Hrs] & [no. of Dipole Usable Benches]



Attempts at Projection Feb-June 04

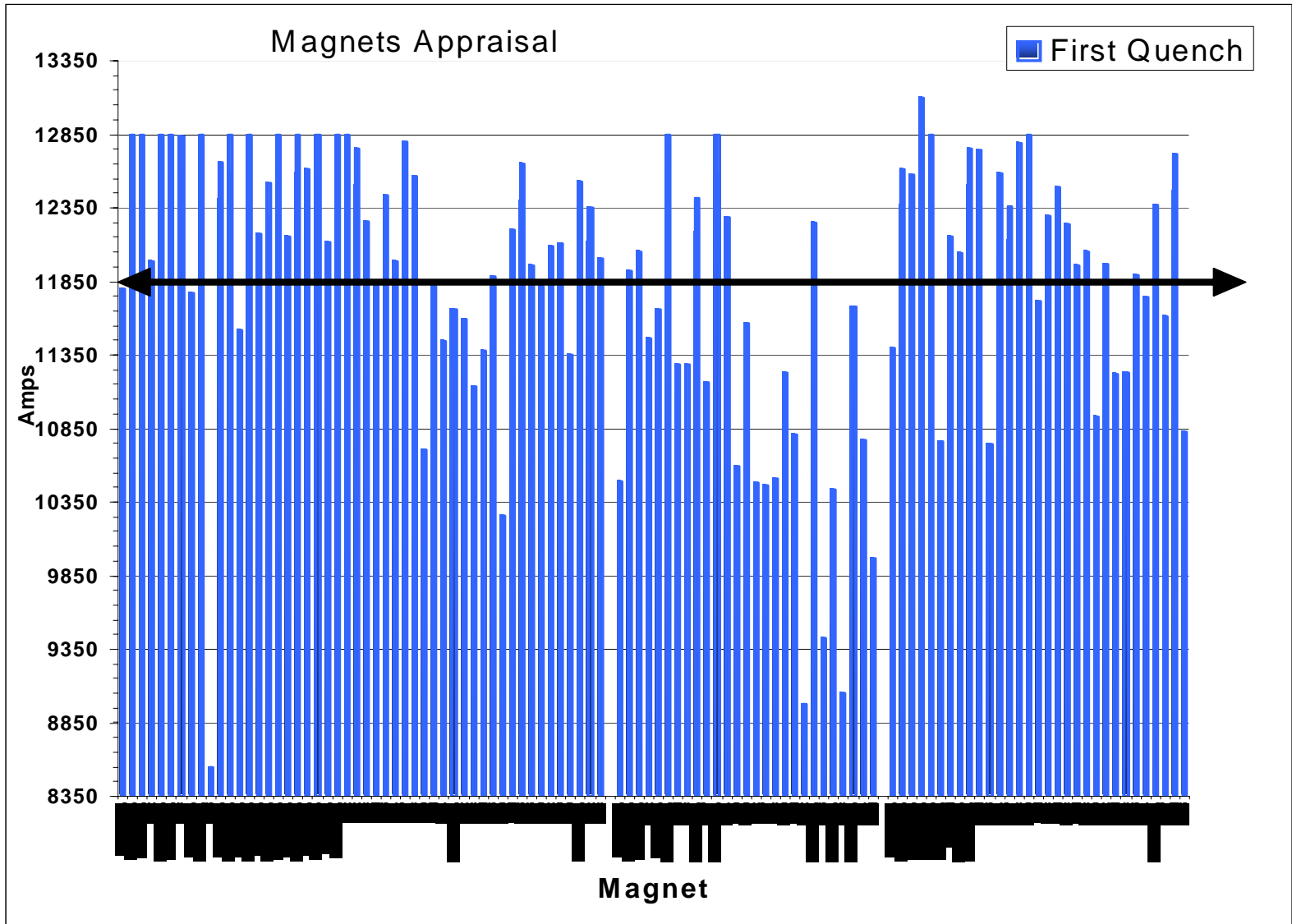
- Postulate from L.Walckiers (Dipoles & SSS Total ~ 214)

Hyp : 1 MB or SSS per bench per week										
	N benches				MB	SSS	S4		Total	
	MB	SSS	S4	Total						
26/01/2004	6	1		7	0	0	0		0	D2
02/02/2004	6	1		7	6	1	0		7	
09/02/2004	7	1		8	13	2	0		15	D1
16/02/2004	7	1		8	20	3	0		23	
23/02/2004	7	1		8	27	4	0		31	
01/03/2004	7	1		8	34	5	0		39	
08/03/2004	8	1		9	42	6	0		48	B1
15/03/2004	8	1		9	50	7	0		57	
22/03/2004	8	2		10	58	9	0		67	B2
29/03/2004	8	2		10	66	11	0		77	
05/04/2004	8	2		10	74	13	0		87	
12/04/2004	8	2		10	82	15	0		97	
19/04/2004	8	2		10	90	17	0		107	
26/04/2004	8	2		10	98	19	0		117	
03/05/2004	8	2		10	106	21	0		127	
10/05/2004	8	2		10	114	23	0		137	
17/05/2004	6	5	1	12	120	28	0.5		148.5	A1 A2
24/05/2004	6	5	1	12	126	33	1		160	
31/05/2004	6	5	1	12	132	38	1.5		171.5	
07/06/2004	6	5	1	12	138	43	2		183	
14/06/2004	6	5	1	12	144	48	2.5		194.5	
21/06/2004	6	5	1	12	150	53	3		206	
28/06/2004	6	5	1	12	156	58	3.5		217.5	
Already accepted					90	3				

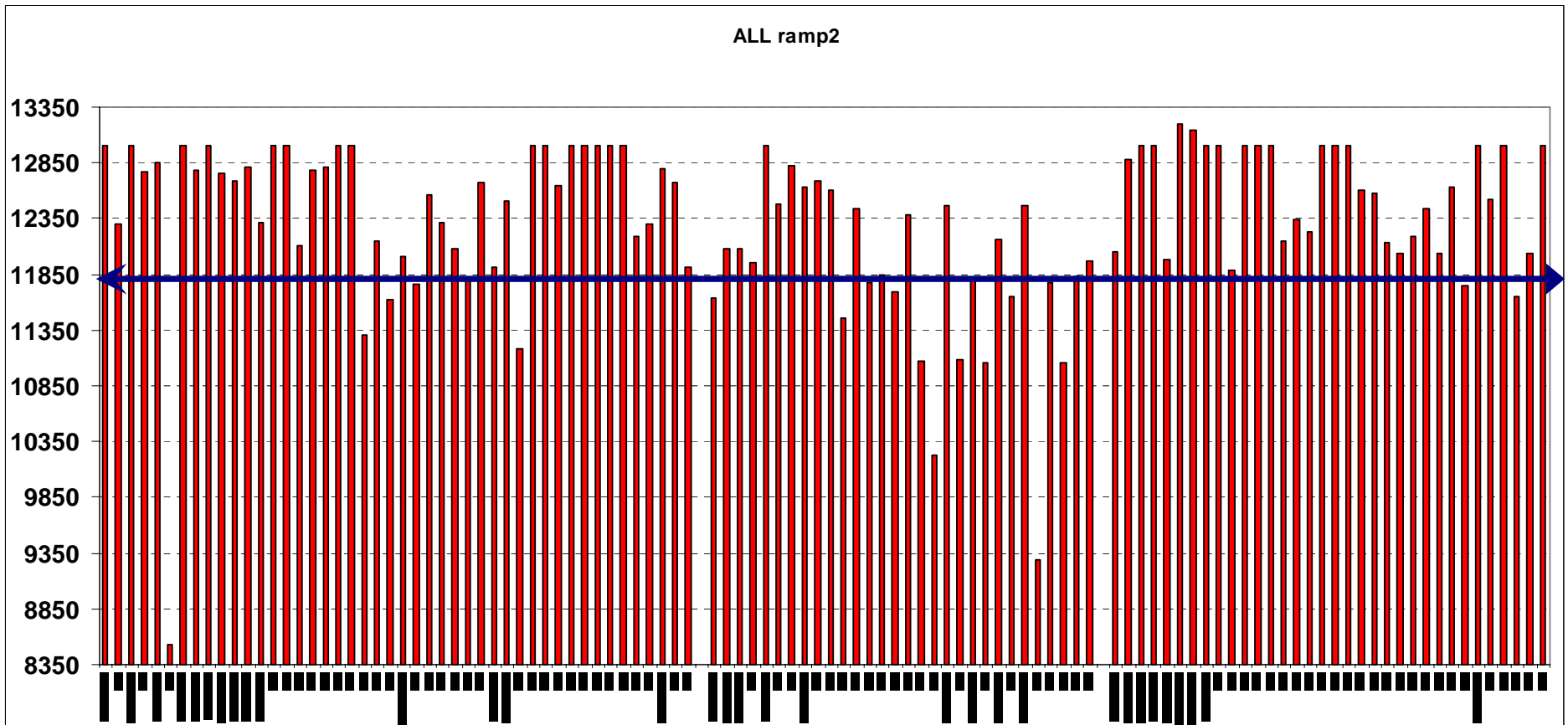
Tests Programme Reductions

- Proposal for Quench Level & test acceptance
- Anticryostats & SSW only for Magnetic M'ments

First Quench Level: All Magnets to 11Nov03



Ramp2 Levels for All Magnets to 11Dec03



Propose 2 Quench CERN Internal Criteria (only because everyone talks of minimizing no of Quenches ... due to time & Cryo hard limits)

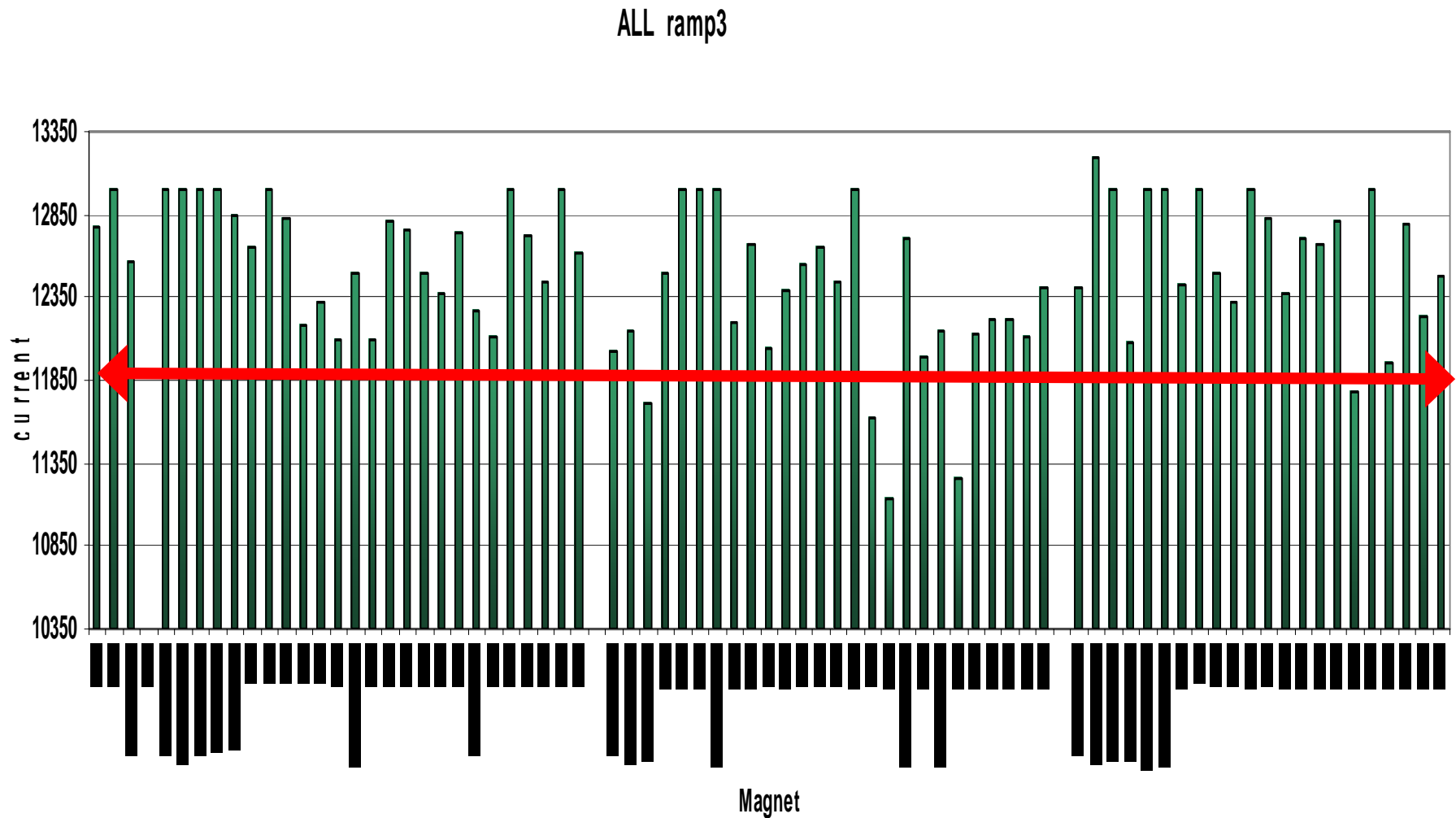
- **If on 2nd ATTEMPT (ramp) the Dipole passes or Equates :**

11850 Amps = 8.33 Tesla THEN,

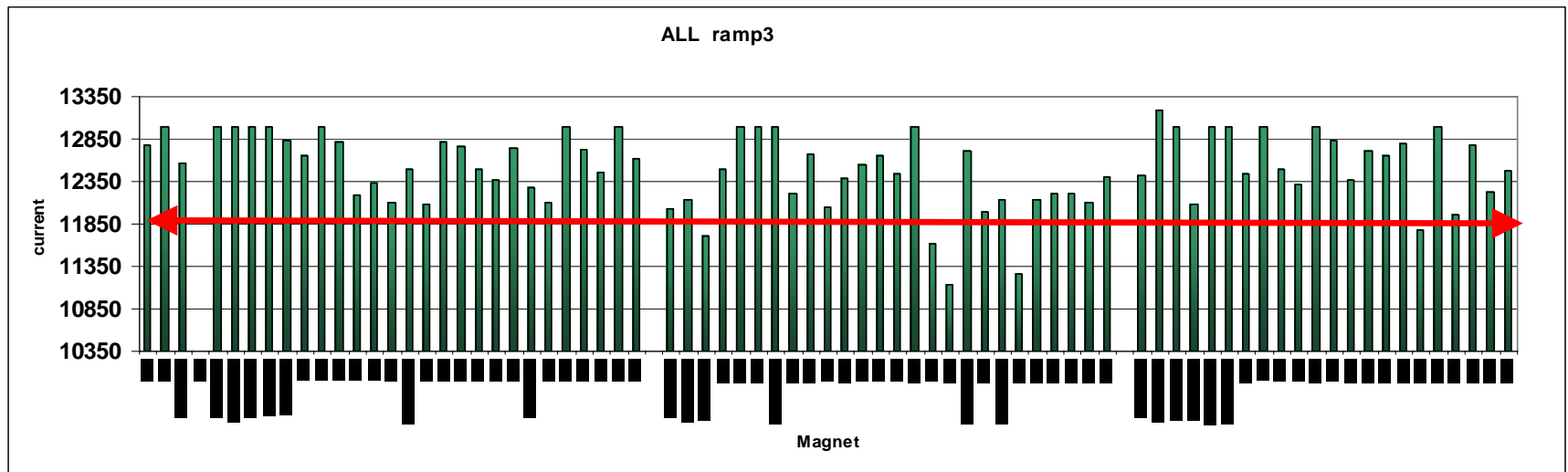
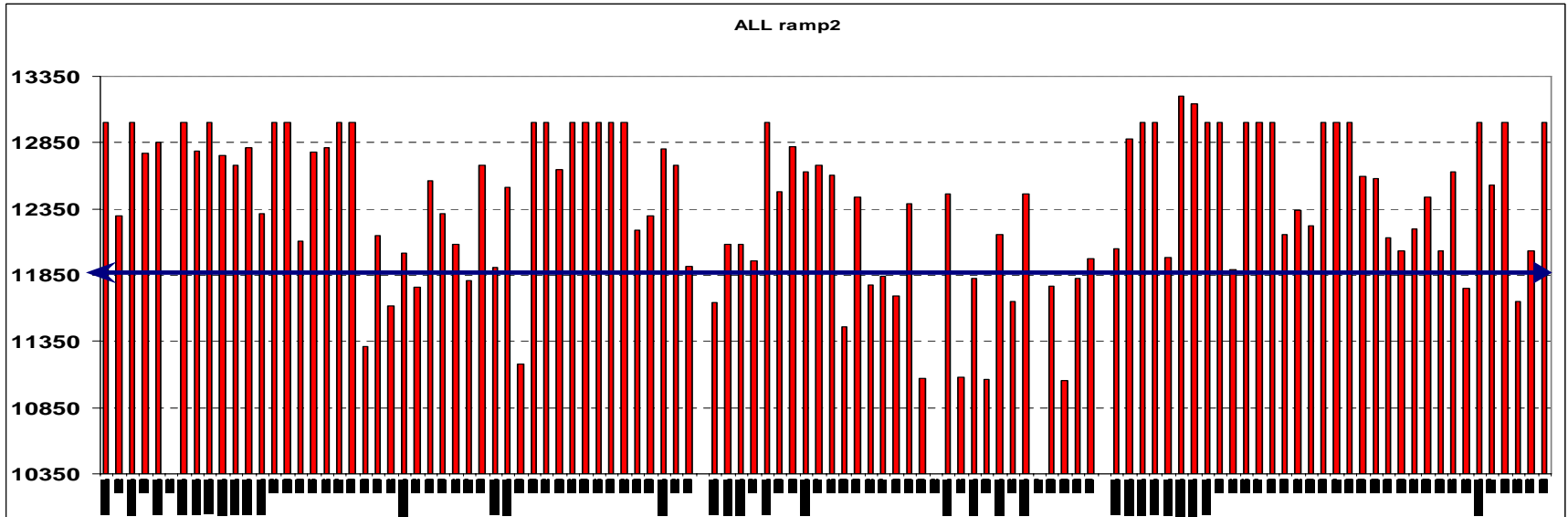
- **THE DIPOLE QUENCH PERFORMANCE IS CONSIDERED SATISFACTORY & HENCE, STOP FURTHER TRAINING , ..etc**

Ramp3 Levels for All Magnets to 11Dec03

[does not seem to give additional info on 'goodness']



Ramp2 & Ramp3



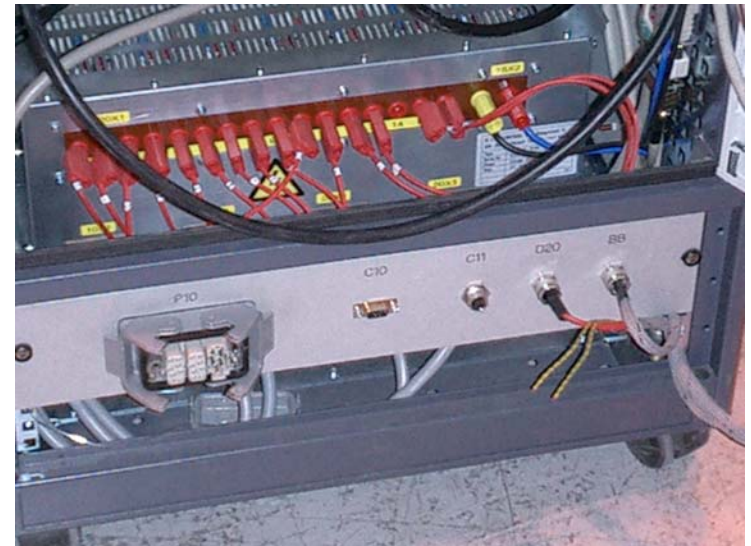
Proposal: MM & Anticryostats : way forward if indeed we are short of time....

- We have enough Anticryostats+ MRB's to Equip Magnets
- Shafts are limited in numbers, very fragile and a nightmare in getting them in or out at the right time & on right magnet and under all operation scenarios
- IF COLD-WARM Correlation is sufficient then, Single Stretch Wire (SSW) may complement with enough information(Integral Field, Angle) to go forward. **SSW requires Anticryostats**
- **PROPOSE TO MOUNT ANTICRYOSTATS ON ALL DIPOLES & MAKE SSW M'MENT ONLY ; NO SHAFT MOUNTING EXCEPT in SPECIAL CASES**
 - **Caveat: SSW MUST BE ROBUST & OPERATION-FRIENDLY**
- FURTHER BONUS in TIME : Do 1 Aperture only in SSW if 'magnetically' acceptable

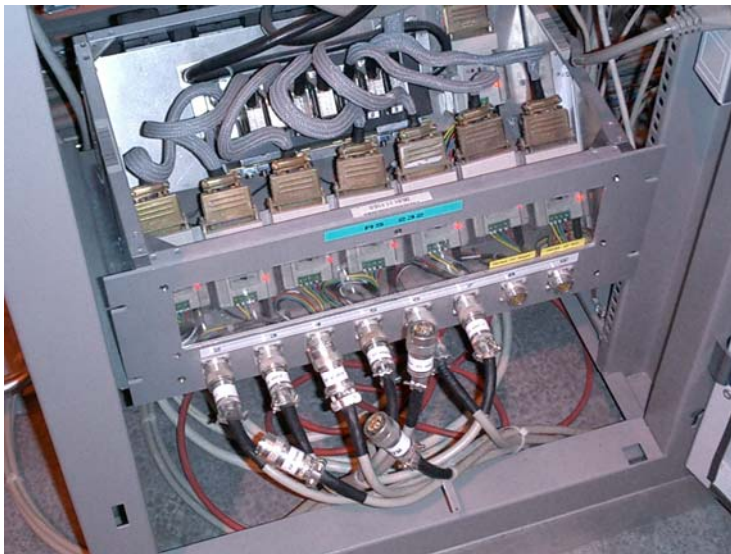
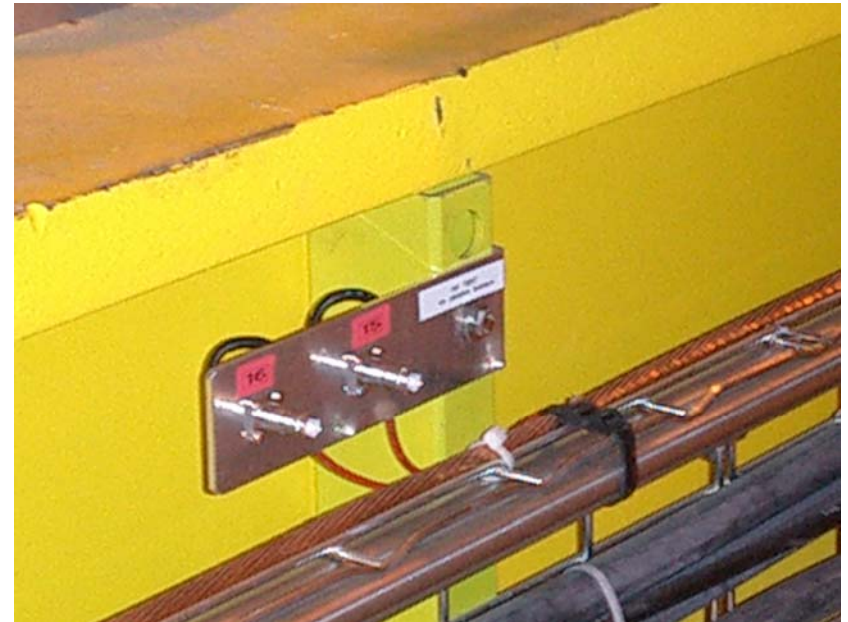
No Shafts in Routine Tests and Simplification

1. No Shafts mean no quench location & enormous simplicity in setting up for tests for Quench Location hardware (QLoc channels, etc)
2. No mobile rack & TRU connections & error-prone , fragile cabling
3. No need for OP to Analyse Q location signals
4. No need for shaft alignment checks
5. No need for Magnetic M'ment System Checks at 1500A
6. No LHC cycle or Load Line & enormously reduced quantity of hardware ,software use (MUX, MXI, Motor .. Errors that have never been resolved but would now go away !)
7.

Mobile Racks, Cables, Connections



Mobile Racks & Cables /Connectors



16 December 2003
V.Chohan

Follow-up Review of Reception
tests of Cryomagnets

Epilogue

On the whole, Ambience has been good...



AT-MTM, Indian Associates from 4 different Institutes, AB-OP, AB-PO, AB-CO, AT-ACR(ALLS) all do work together....



Tests Methods & status

LIST OF OPERATION METHODS FOR POWER TESTS& Mag. M'ments IN SM18

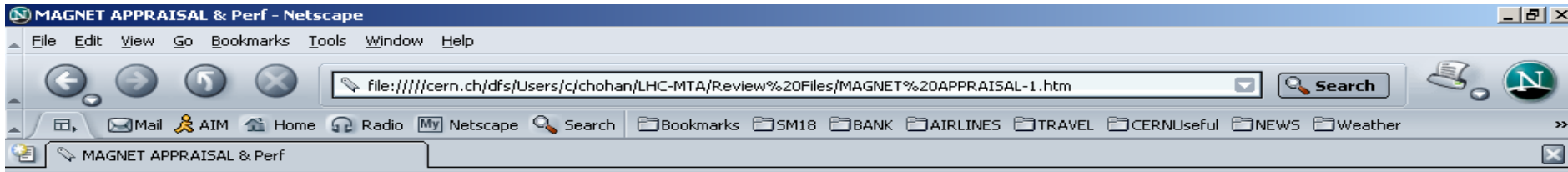
No	Tests Method	Prepared By	Revised/Updated By	Remarks
•	Slow Power Abort Check at 1000 A	P.K.Kavalan, <i>BARC, India,</i>	P.Radheshyam <i>CAT, India</i> DanielBabu, <i>BARC, India</i> S.Sridhar, <i>IGCAR, India</i>	
•	Provoked Quench at 1500 A, ALL LF	-do-	-do-	
•	Provoked Quench at 1500 A, ALL HF	-do-	-do-	
•	All Training Quenches at 1.8 K	-do-	-do-	
•	De-training and Fast De-excitation test	-do-	-do-	
•	Minimum Energy Quenches	-do-	-do-	
•	Short Sample Limit Quenches at 4.4 K	-do-	-do-	
•	Direct Ramp To Quench	-do-	-do-	
•	V-Precycle Ramp To Quench	-do-	-do-	
•	LHC Cycle	-do-	P.Radheshyam, <i>CAT, India</i>	
•	Full Load Line	-do-	P.Radheshyam, <i>CAT, India</i>	
•	MM positioning at 1500A	To be revised , if necessary		
•	Joints Resistance Measurement	O.Berrig, <i>CERN, Geneva</i>		
•	Instrument Analysis Procedure	B.Maurya, <i>BARC, India</i>	S.Malhotra , <i>BARC, India</i>	
•	RRR measurement		S.Malhotra, <i>BARC, India</i>	
•	HV tests		M. Gandhi, <i>CAT, India</i>	
•	A/C Transfer <i>Function</i>		R.Marathe, <i>CAT, India</i>	

16 December 2003
V.Chohan

Follow-up Review of Reception
tests of Cryomagnets

Control Room Now





MAGNET APPRAISAL & Perf. Sheet (MAPS)
Goodness Evaluation

MAGNET NAME : _____ BENCH NAME: _____ DATE OF ARRIVAL: _____

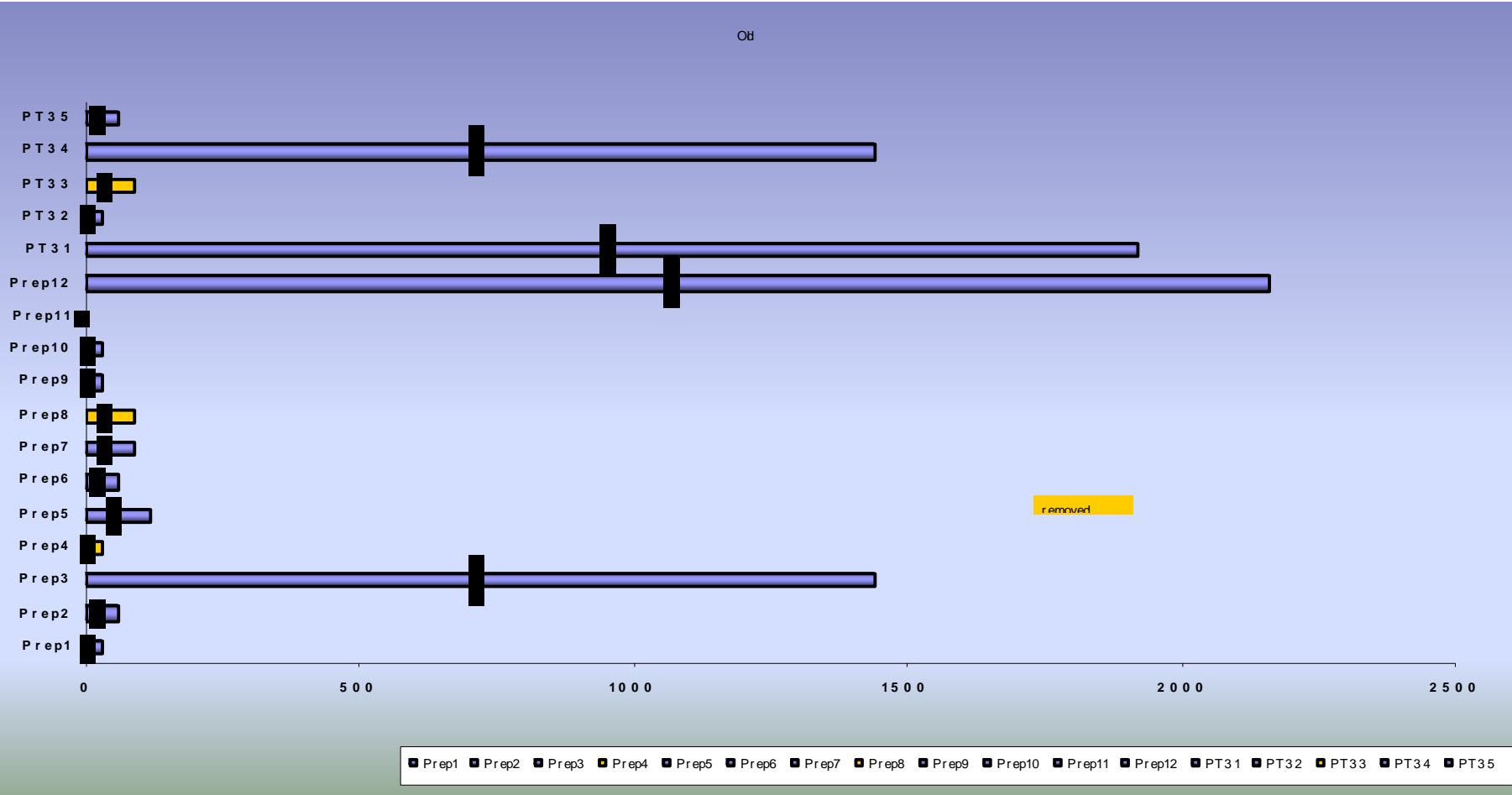
	NO EXHIBITS	NOX	OK	?	NO CREATED
1					
2					
	Temperature Sensor				
	Cryo Heater				
	Voltage Taps				
	Quench Heaters				
	Correctors				
	IRP at Warm Check : attach Hardcopy				
3					
4					
6					
8					
	1st Quench Level (T)				
	2nd Quench Level (T)				
	No of Quenches to ST				
	Max reached Field (T)				
	Purged 1500A H.Delays (~100ms)				
	H.Delays for Quenches > 10KA (<20-30ms)				
7					
8					
	Temperature Sensor				
	Cryo Heater				
	Voltage Taps				
	Quench Heaters				
	Correctors				
	IRP at Warm Check : attach Hardcopy				
9					



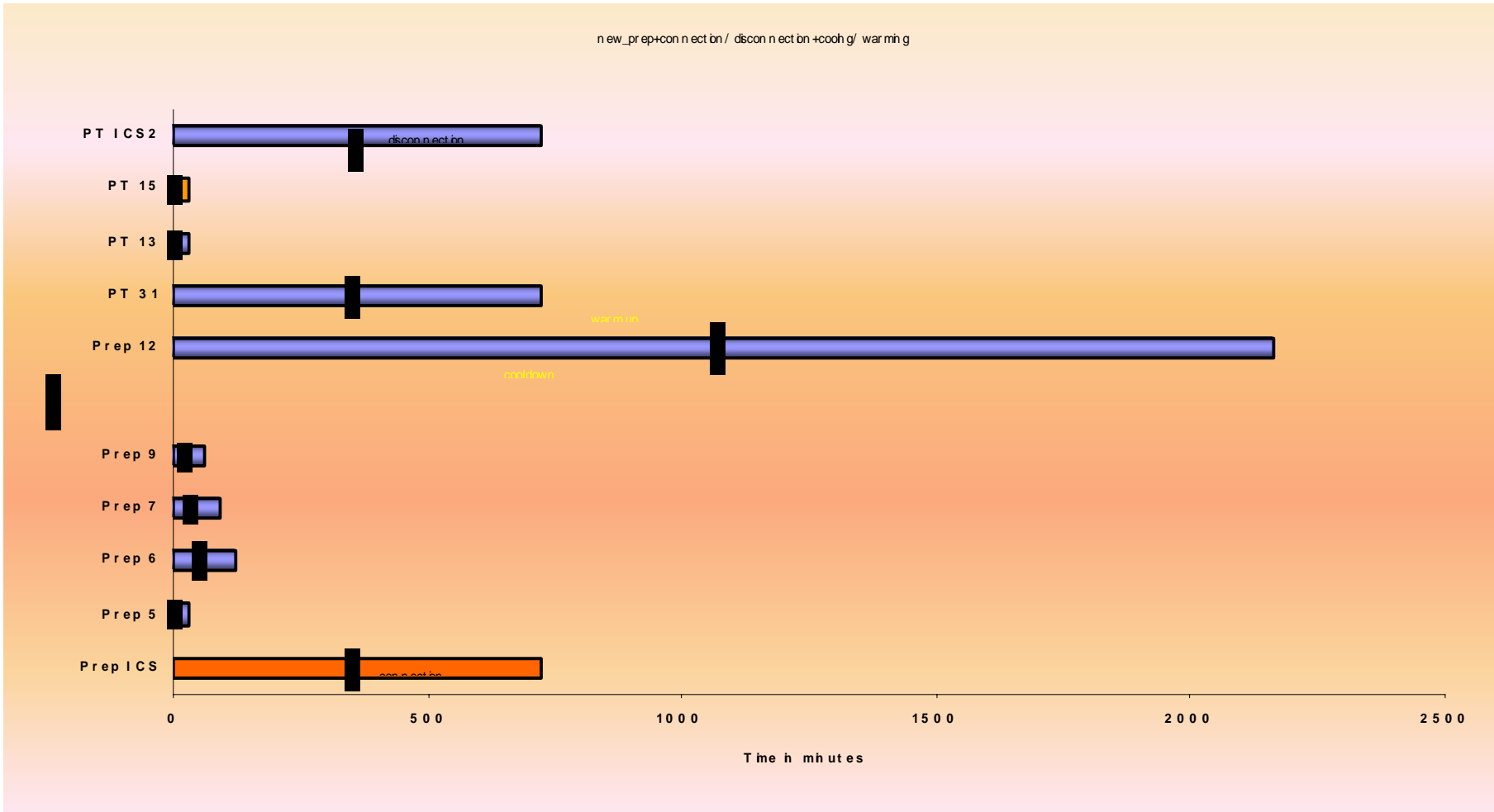
Cold Tests Shifts Personnel

Year2004	Jan	Feb	March	april	may	june	july	aug	sept	Oct	nov	dec	
1	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	kevin	
2	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	G-HH	
3	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	Jackie	
4	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	Ismael	
5	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	Niquille	
6	Florence	Florence	Florence	Florence	Florence	Florence	Florence	Florence	Florence	Florence	Florence	Florence	
7	Eric	Eric	Eric	Eric	Eric	Eric	Eric	Eric	Eric	Eric	Eric	Eric	
8	JacquesO	JacquesO	JacquesO									JacquesO	JacquesO
9	Dave	Dave	Dave									Dave	Dave
10	G.Adrian	G.Adrian	G.Adrian									G.Adrian	G.Adrian
11												AB11	AB11
12												AB12	AB12
13	daniel	daniel	daniel	daniel	M 34	M 34	M 34	M 34	M 34	M 34	M 34	M 34	1
14	uttam	uttam	uttam	uttam	M 35	M 35	M 35	M 35	M 35	M 35	M 35	M 35	2
15	M 22	M 22	M 22	M 22	M 22	M 22	M 22	M 22	M 22	M 42	M 42	M 42	3
16	M 23	M 23	M 23	M 23	M 23	M 23	M 23	M 23	M 23	M 43	M 43	M 43	4
17	M 24	M 24	M 24	M 24	M 24	M 24	M 24	M 24	M 24	M 24	M 24		5
18	M 25	M 25	M 25	M 25	M 25	M 25	M 25	M 25	M 25	M 25	M 25		6
19	shetty	shetty	shetty	shetty	M 36	M 36	M 36	M 36	M 36	M 36	M 36	M 36	7
20	ram	ram	ram	ram	M 37	M 37	M 37	M 37	M 37	M 37	M 37	M 37	8
21	Khare	Khare	Khare	Khare	Khare	Khare	M 38	M 38	M 38	M 38	M 38	M 38	9
22	Pareek	Pareek	Pareek	Pareek	Pareek	Pareek	M 39	M 39	M 39	M 39	M 39	M 39	10
23	Kasliwal	Kasliwal	Kasliwal	Kasliwal	Kasliwal	Kasliwal	M 40	M 40	M 40	M 40	M 40	M 40	11
24	Sridhar	Sridhar	Sridhar	Sridhar	Sridhar	Sridhar	M 41	M 41	M 41	M 41	M 41	M 41	12
25	M 26	M 26	M 26	M 26	M 26	M 26	M 26	M 26	M 26	M 26	M 26	M 26	13
26	M 27	M 27	M 27	M 27	M 27	M 27	M 27	M 27	M 27	M 27	M 27	M 27	14
27			M 28	M 28	M 28	M 28	M 28	M 28	M 28	M 28	M 28	M 28	15
28			M 29	M 29	M 29	M 29	M 29	M 29	M 29	M 29	M 29	M 29	16
29			M 30	M 30	M 30	M 30	M 30	M 30	M 30	M 30	M 30	M 30	17
30			M 31	M 31	M 31	M 31	M 31	M 31	M 31	M 31	M 31	M 31	18
31					M 32	M 32	M 32	M 32	M 32	M 32	M 32	M 32	19
32					M 33	M 33	M 33	M 33	M 33	M 33	M 33	M 33	20
33													21
34													22
Green Means Experienced													
Yellow Means New Arrivals													
	Jan	Feb	March	april	may	june	july	aug	sept	Oct	nov	dec	
TOTAL	24	24	28	25	27	27	27	27	27	27	30	30	
INDIA	14	14	18	18	20	20	20	20	20	20	18	18	
AB Div	10	10	10	7	7	7	7	7	7	7	12	12	
Experienced if Tests frozen & systems Consolidated	17	17	19	19	17	17	17	17	23	21	23	23	

Preparatory Tests pre-23July03



Preparatory Tests post-23July03



- Quench Table
- Automatic Updates
 - Link with AT-ACR & e-Traveller
 - Link (from AB-OP) with AB-CO for certain Tests
- Whiteboard
- Faults handling
- MAPS, ...
- etc

Other Tools: Surveillance of certain Useful parameters for OP

- PC Based programme to Survey status of :
 - Benches Active /passive
 - Rotary Switch
 - Q Heaters HF/LF
 - Current Main or Aux
 - CFB
 - Cryogenic OK/NOK for 1.9 K or 4.4K
 - Anticryostat Temperature Condition OK/NOK (equip Protection)
- Display Mechanism using Video Distribution from PCR & fully supported all year long thro' D.Bakker/AB-CO