

# Status of arc interconnect

On behalf of the interconnection  
coordination team and the all  
intervening parties

# Summary

- Highlights
- LHC interconnection cockpit
- Status sector by sector
- Consolidation in sector 7-8
- Status inspection for PIM
- Coordination

# Highlights I

Brazing of 13KA bus bar



US welding of M line spools



US welding of N line spools



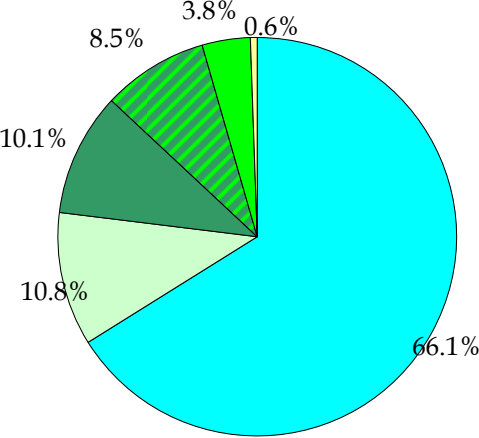
# Highlights II



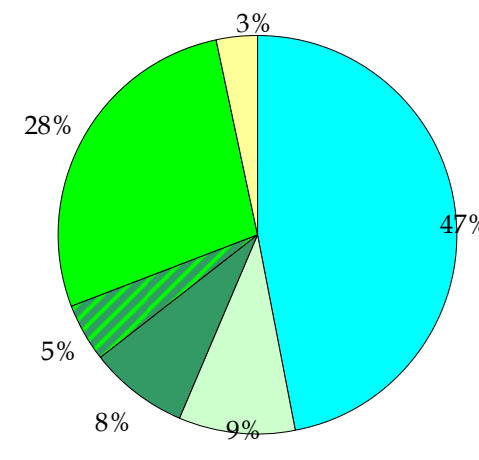
ELQA assembly tests between  
DFBA R and DFBA L including  
DS regions



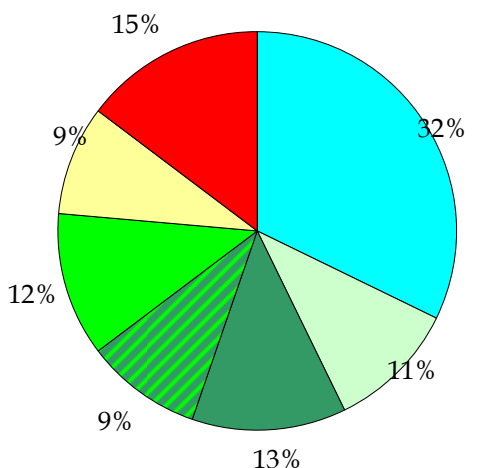
Other  
Welding of X, E, C', K lines  
completes



- Magnet to magnet electrical interconnection completed in February
- Magnet to magnet electrical interconnection completed in March
- Magnet to magnet electrical interconnection completed in April
- Magnet to magnet electrical interconnection completed in May
- Magnet to magnet electrical interconnection completed in June and July
- Magnet to magnet electrical interconnection completed in August



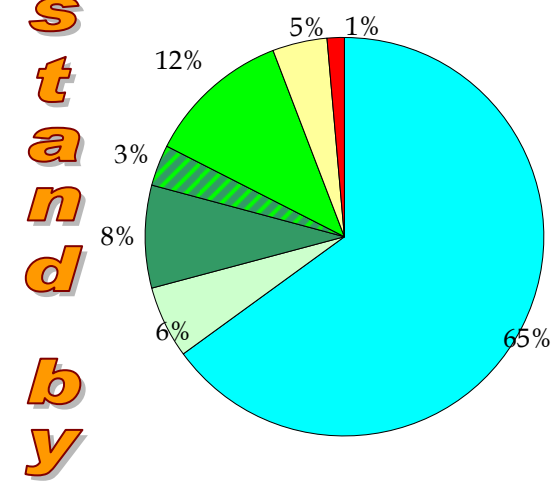
- N line segments welds completed in February
- N line segments welds completed in March
- N line segments welds completed in April
- N line segments welds completed in May
- N line segments welds completed in June and July
- N line segments welds completed in August



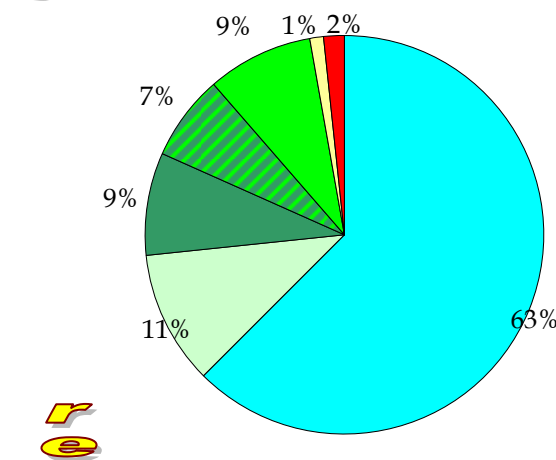
- Jumpers closed in February
- Jumpers closed in March
- Jumpers closed in April
- Jumpers closed in May
- Jumpers closed in June and July
- Jumpers closed in August
- Jumpers still to be closed

**Completed**

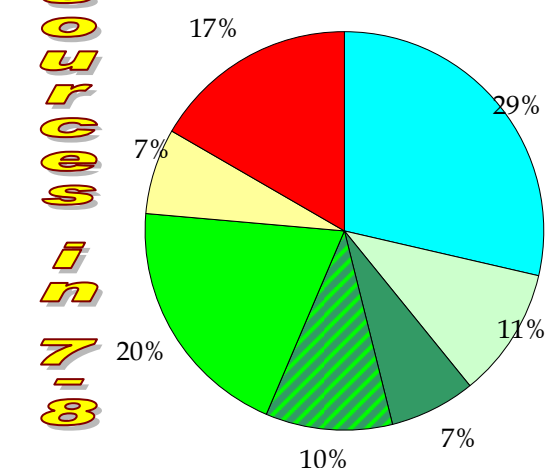
**Completed**



- PIM installations completed in February
- PIM installations completed in March
- PIM installations completed in April
- PIM installations completed in May
- PIM installations completed in June and July
- PIM installations completed in August
- PIM installations to be completed



- Cryogenic lines interconnects completed in February
- Cryogenic lines interconnects completed in March
- Cryogenic lines interconnects completed in April
- Cryogenic lines interconnects completed in May
- Cryogenic lines interconnects completed in June and July
- Cryogenic lines interconnects completed in August
- Cryogenic lines interconnects to be completed

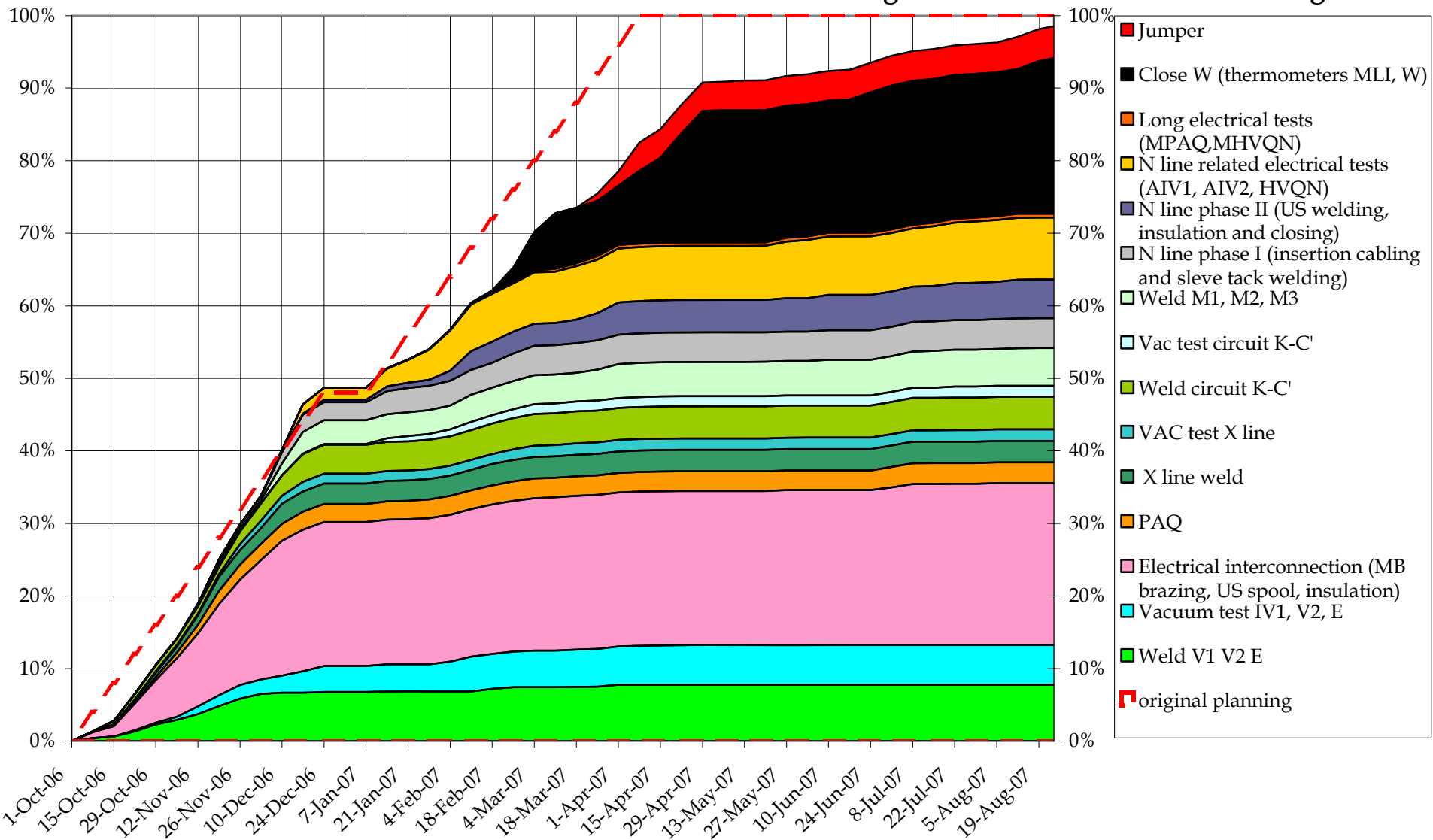


- W closures completed in February
- W closures completed in March
- W closures completed in April
- W closures completed in May
- W closures completed till in June and July
- W closures completed till in August
- W closures to be completed

**Standby**

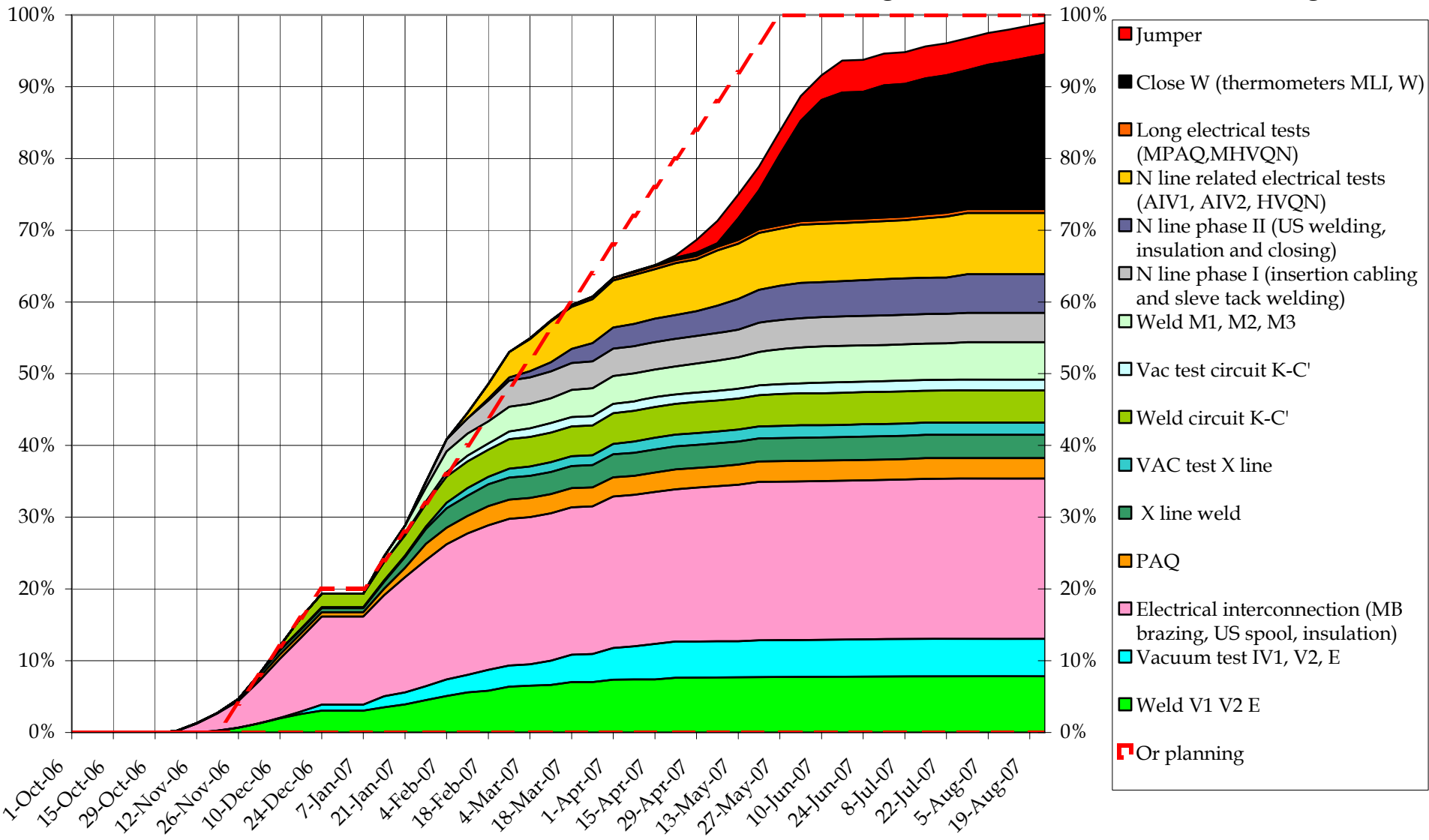
**7-8**

# Sector 3-4 general advancement view 24-August-2007



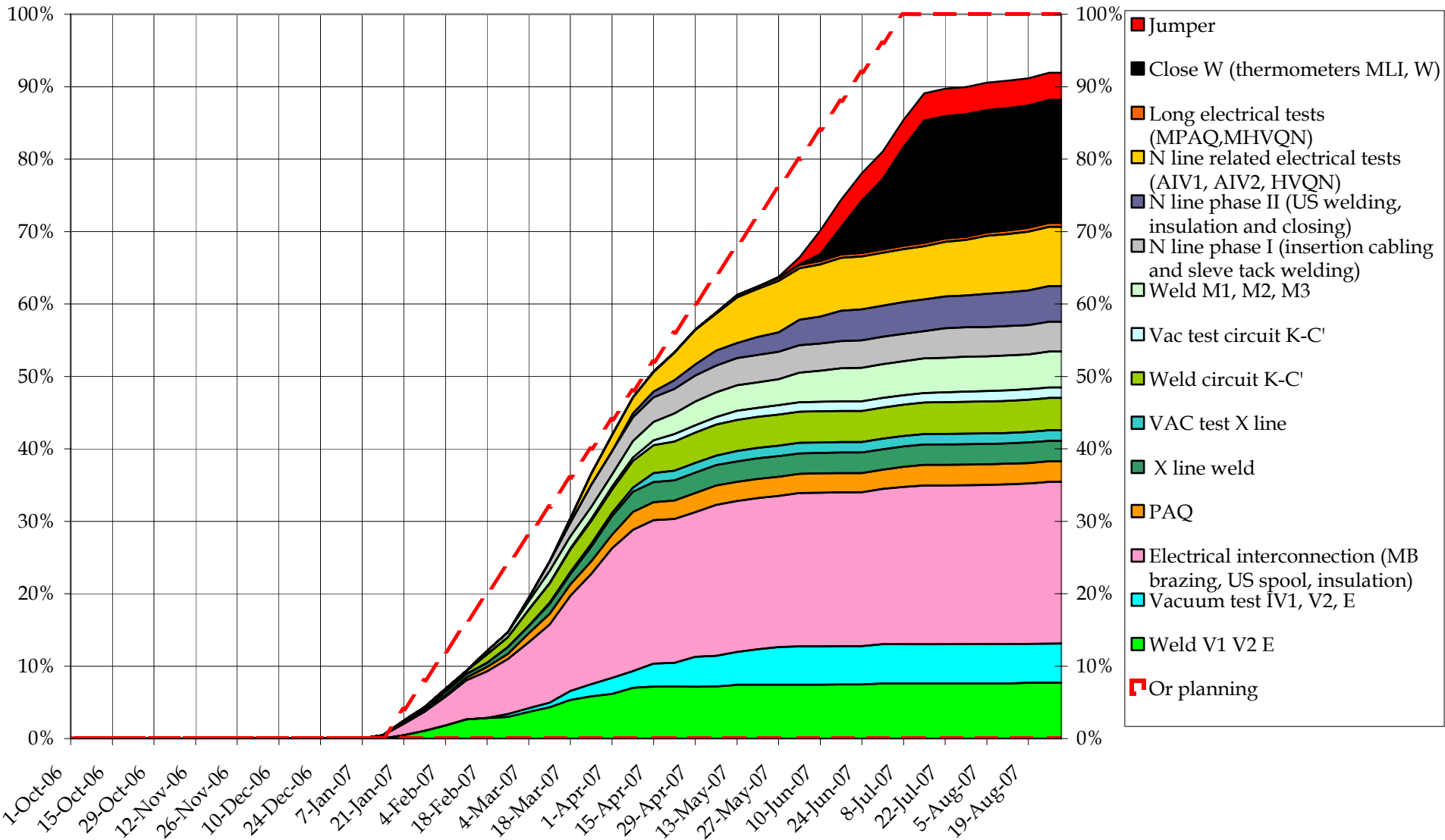
11 sector leak tight  
1 sector repaired closed  
1 new sector closed  
Last Ic need modification to W bellow: target end of week

# Sector 5-6 general advancement view 24-August-2007



12 sector leak tight  
 1 leak not found 2 10<sup>-7</sup>  
 Last Ic need modification to W bellow: target Thursday

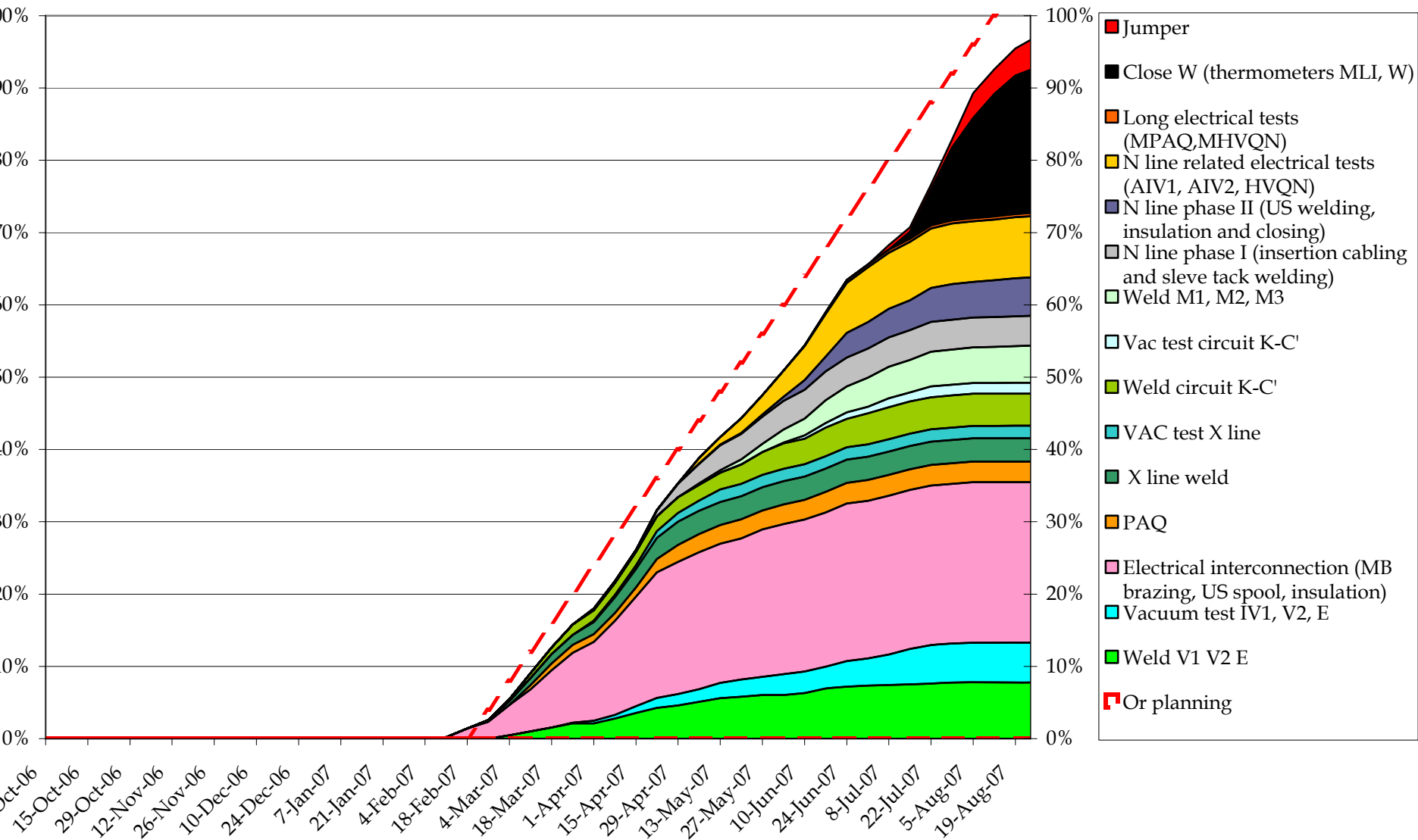
# Sector 2-3 general advancement view 24-August-2007



10 sectors provided  
6 leak tight  
4 under investigation

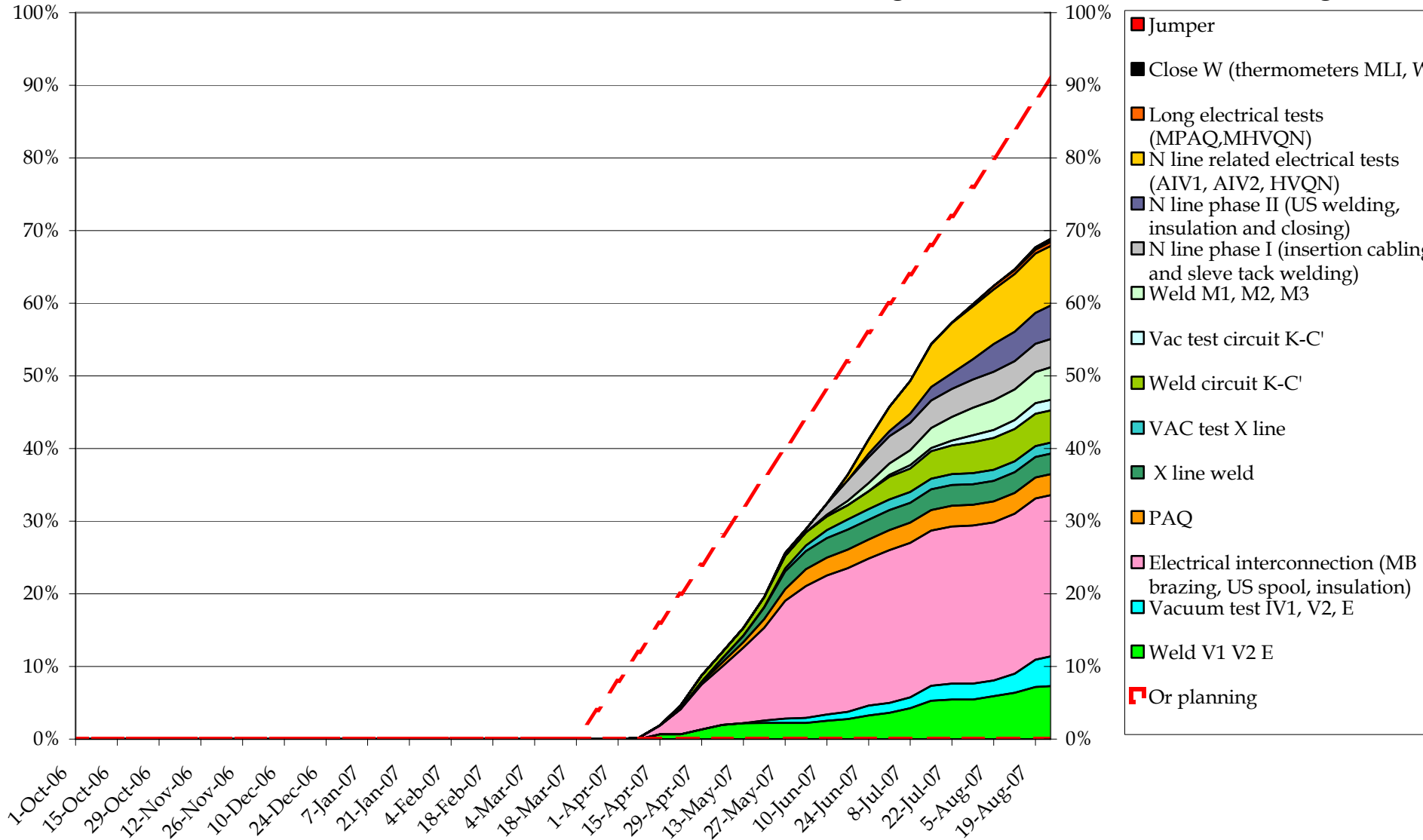


# Sector 6-7 general advancement view 24-August-2007



11 sectors provided  
 2 leak tight  
 9 under test  
 Target mid of next week

# Sector 1-2 general advancement view 24-August-2007



Ready to start closing  
 Postpone for openings W in 1-2  
 As soon as resources available we will start closing W

# Closing on 1-2

- Closing of W bellow would start next week (Tuesday-Wednesday). Possible strategies
  - Weld plug ins, close everything
  - Do not weld pim, close places without pim without mli and screen
  - Close only W bellow to go for cold mass tests

# 7-8 consolidation

Intervention	status	remark
Change PIM DS	Pim cut ready to weld new	stopped
Change of 1055 with 1334	Electrical IC completed and tested ok. Welds and local vac test undergoing	4.5 week will be needed. Feasible in 4
Repair SSS 500	All bus bar shortened, 2 brazed. No need of insulation reinforcement  Campaign to change flanges	See photo later
Inner triplet repair	Q1L8: transport today	
O rings on DFBA/Q& R7 IC	Intervention in September	

# 7-8 consolidation

Intervention	status	remark
Improve electrical insulation of DFBAO 6kA	Intervention performed, electrical test not conform, high current leakage. New test on Friday	
Replace X bellow in qbqi.8l8	Done	Leak test to be performed later when XB circuits closed
Inspection of beam line bellow	All use as is except one nested bellow in QBBI.10R7. It has been reinforced with resin	
Reinforcement of the instrumentation splices for the interconnection cryostat	done	

# 7-8 consolidation

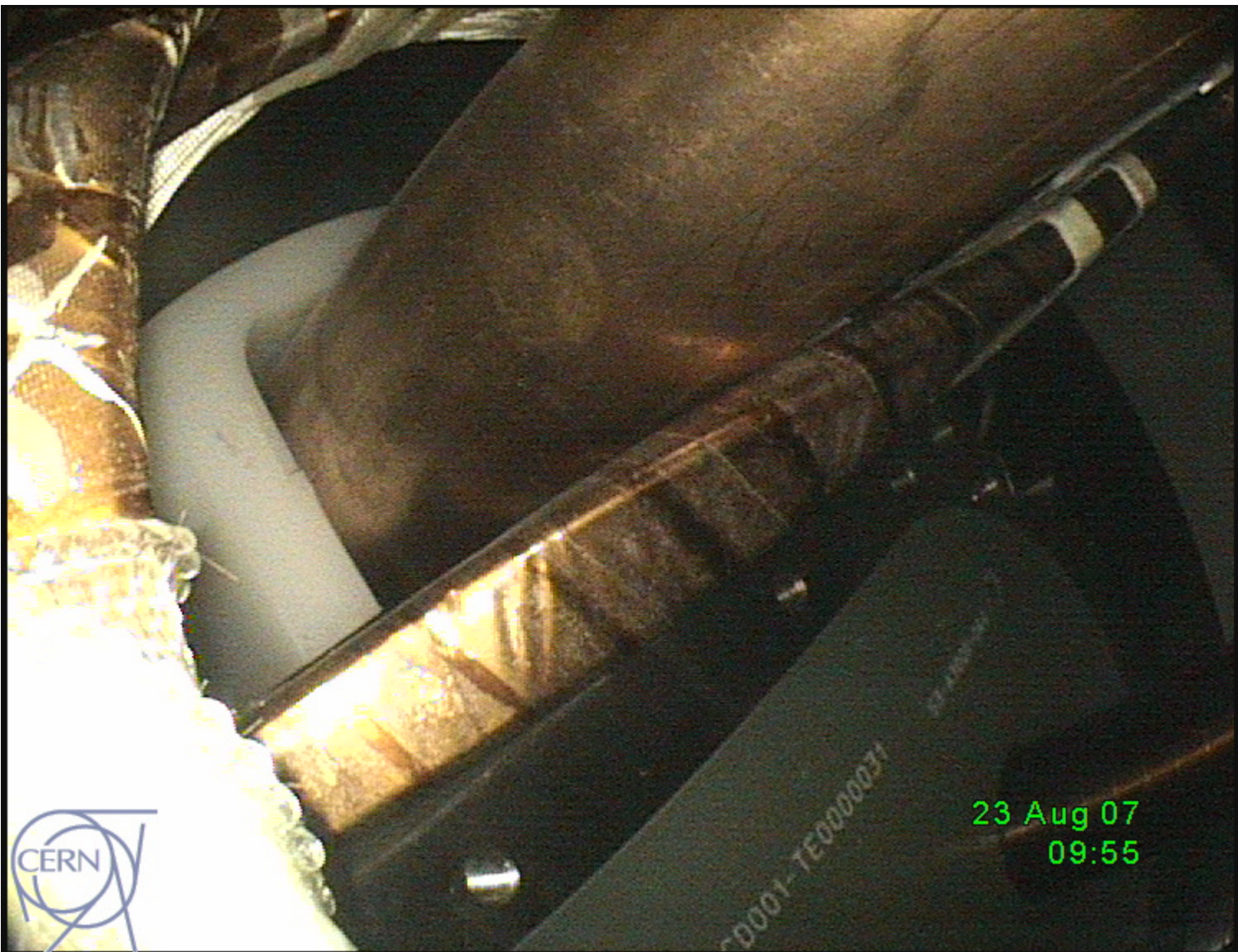
Intervention	status	remark
Verification Q4-D2	IC is ok Results of endoscope inspection in beam lines did not show any big problem. Declared use as is by vacuum Consolidation of jacks week 35-36 TS-IC	
Short in Q22L8	Short found and repaired replacement of flanges needed and undergoing	
Leaking Y line in Q9L8	Problem on Y line repaired. Phase separator still to be closed	

# 7-8 consolidation

Intervention	status	remark
Leak 32L8 cold mass circuit	Found on a weld brought down from surface on (connection flexible M2N)	Repair postpone to wait depressurization
Repair DFBMC	Measurements undergoing today before closing. Use as is	
Leak C' /K 7R7	Not found, new connection C' opened in qdqi.7r7	

**At the moment about 120 ICs have been opened in 7-8. Remember that to re-close the sector 4-5 weeks will be needed**

Remember: contact bus bar with heat exchanger pipe. SSS type D







	IC slot	QBBI.A 25L8	QBQI.2 5L8	QQBI.2 4L8	QBBI.B 24L8	QBBI.A2 4L8	QBQI.2 4L8	QQBI.2 3L8	QBBI.B2 3L8	QBBI.A2 3L8	QBQI.23 L8	QQBI.22 L8	QBBI.B 22L8	QBBI.A 22L8	QBQI.2 2L8	QQBI.21 L8	QBBI.B2 1L8	QBBI.A21 L8	QBQI.21 L8	
visual	v1																			
	v2																			
RF	v1																			
	v2																			
Endo	v1																			
	v2																			
X-ray	v1											OK								
	v2											OK								

	IC slot	QQBI.2 0L8	QBBI.B 20L8	QBBI.A 20L8	QBQI.2 0L8	QQBI.19 L8	QBBI.B 19L8	QBBI.A 19L8	QBQI.19 L8	QQBI.18 L8	QBBI.B1 8L8	QBBI.A1 8L8	QBQI.1 8L8	QQBI.1 7L8	QBBI.B 17L8	QBBI.A1 7L8	QBQI.17 L8	QQBI.16L 8	QBBI.B1 6L8	
visual	v1																			
	v2																			
RF	v1																			
	v2																			
Endo	v1																			
	v2																			
X-ray	v1				OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
	v2				OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

	IC slot	QBBI.A 16L8	QBQI.1 6L8	QQBI.1 5L8	QBBI.B 15L8	QBBI.A1 5L8	QBQI.1 5L8	QQBI.1 4L8	QBBI.B1 4L8	QBBI.A1 4L8	QBQI.14 L8	QQBI.13 L8	QBBI.B 13L8	QBBI.A 13L8	QBQI.1 3L8	QQBI.12 L8	QBBI.B1 2L8	QBBI.A12 L8	QBQI.12 L8	
visual	v1																			
	v2																			
RF	v1			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
	v2			OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
Endo	v1																		OK	OK
	v2																		OK	OK
X-ray	v1	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK
	v2	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK

	IC slot	QQE1.1 1L8	QEB1.1 1L8	QBBI.1 1L8	QBQI.1 1L8	QQBI.10 L8	QBBI.1 0L8	QBQI.1 0L8	QQBI.9L 8	QBBI.9L 8	QBQI.9L 8	QQBI.8L 8	QBBI.8 L8	QBQI.8 L8	QQDI.7 L8					
visual	v1	NOT OK				OK			OK			OK								
	v2	OK				OK			NOT OK			OK								
RF	v1		OK	OK	OK		OK	OK		OK	OK		OK	OK						
	v2		OK	OK	OK		OK	OK		OK	OK		OK	OK						
Endo	v1	NOT OK	OK	OK	OK		OK	OK	OK	OK	OK		OK	OK	OK					
	v2	OK	OK	OK	OK		OK	OK	OK	OK	OK		OK	OK	OK					
X-ray	v1		OK	OK	OK		OK	OK	OK	OK	OK		OK	OK	OK					
	v2		OK	OK	OK		OK	OK		OK	OK		OK	OK	OK					



# Element length IC-IC plane [m]

Q7R7	7.75
Q8R7	7.75
Q9R7	9.15
Q10R7	7.75
Q11R7	7.75
IC Cr R7	13.7
IC Cr L8	12.7
Q11L8	7.75
Q10L8	7.75
Q9L8	9.15
Q8L8	7.75
Q7L8	10.12
standard SSS	6.47
standard dipole	15.66

	PIM V1				PIM V2			
	Qty	Inspect ed	Not Ok	% Not Ok	Qty	Inspect ed	Not Ok	% Not Ok
IC type QQBI	45	22	1	5%	45	22	1	5%
IC type QBQI	46	20	0	0%	46	20	0	0%
IC type QBBI	92	42	0	0%	92	42	0	0%
	183	84	1	1%	183	84	1	1%

	PIM V1				PIM V2			
	Qty	Inspect ed	Not Ok	% Not Ok	Qty	Inspect ed	Not Ok	% Not Ok
IC type QQBI	8	8	4	50%	8	8	3	38%
IC type QQDI	1	1	0	0%	1	1	0	0%
IC type QQEI	1	1	1	100%	1	1	0	0%
IC type QBQI	7	7	0	0%	7	7	0	0%
IC type QEBI	1	1	0	0%	1	1	0	0%
IC type QBBI	1	1	0	0%	1	1	0	0%
IC type QDQI	1	1	0	0%	1	1	0	0%
IC type QEQI	1	1	0	0%	1	1	0	0%
IC type QBBI	8	8	0	0%	8	8	0	0%
	29	29	5	17%	29	29	3	10%

# Coordination

Request to the activities that normally run in the shadow of IC to check with the interconnection worksite managers the feasibility of intervention and the best moment. I.E.

- 1) Intervention in 8-1 for the qbqi.19l1: request of opening requiring C' cut when we should have started the flushing
- 2) Requests for BPM on sector just being re-pumped
- 3) Intervention on He gauges:
  - Vacuum broken in 19L7
  - Several joints are not replaced causing loss of time in the pumping activities



**FRAGILE**