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CARE Report-04-005-NED



SECOND QUARTERLY REPORT OF THE NED COLLABORATION

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CARE/JRA4: 2nd Quarterly Report 2004

Title: Next European Dipole (NED)

Coordinator: A. Devred (CEA & CERN), Deputy: A. den Ouden (TEU)



Participating Laboratories and Institutes:

Institute (Participant Number)	Acronym	Country	Coordinator	Scientific Contact	Associated to
CCLRC-RAL (20)	CCLRC	GB	P. Norton	D.E. Baynham	
CEA/DSM/DAPNIA (1)	CEA	F	R. Aleksan	A. Devred	
CERN (19)	CERN	CH	H. Haseroth	D. Leroy	
INFN/Milano-LASA (10)	INFN-Mi	I	S. Guiducci	G. Volpini	INFN
INFN/Genova (10)	INFN-Ge	I	S. Guiducci	P. Fabbriatore	INFN
Twente University (13)	TEU	NL	A. den Ouden	A. den Ouden	
Wroclaw University (17)	WUT	PL	M. Chorowski	M. Chorowski	

Main Objectives: Research and Development on high performances Nb₃Sn cables and high field magnets design and manufacturing to push the technology beyond present LHC limits.

Cost:

Total Expected Budget	Allocated EU Funding
2093 k€	980 k€

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1 MANAGEMENT

1.1 Activity Coordination

The following actions have been carried out and/or are foreseen

- ✓ 19–21 November 2003: participation of A. Devred (CEA&CERN) and A. den Ouden (TEU) to CARE Kick Off meeting at CERN
- ✓ 13 January 2004: visit of A. Devred (CEA&CERN) to INFN-Ge
- ✓ 16 January 2004: visit of P. Védérine (CEA) and A. Devred (CEA&CERN) to CIEMAT
- ✓ 27 January 2004: visit of A. Devred (CEA&CERN) to TEU
- ✓ 13 February 2004: A. Devred (CEA&CERN), P. Lebrun and L. Rossi (CERN) to INFN-Mi
- ✓ 23–24 February 2004: participation of A. Devred (CEA&CERN) to 1st CARE Steering Committee and Dissemination Board meetings in Paris, France
- ✓ 19 March 2004: visit of F. Rondeaux and P. Védérine (CEA), A. Devred (CEA&CERN) to CCLRC
- ✓ 22–24 March 2004: participation to Workshop on Accelerator Magnets Superconductor (WAMS) organized within the framework of AMT Work Package of HEHIHB Network Activity
- ✓ 13 April 2004: visit of A. Devred (CEA&CERN) and M. Pojer (CERN) to INFN-Ge
- ✓ 2–3 June 2004: visit of B. Baudouy and F. Michel (CEA), A. Devred (CEA&CERN), R. Van Weelderren (CERN) to WUT
- ✓ 24–25 June 2004: participation of A. Devred (CEA&CERN) and A. den Ouden (TEU) to 2nd CARE Steering Committee and Dissemination Board meetings in Warsaw, Poland
- ⇒ 24 August 2004: visit of M. Chorowski to CEA/Saclay
- ⇒ 2–5 November 2004: participation to 1st CARE general meeting at DESY

1.2 Meetings

1.2.1 Steering Committee Meetings

The NED Steering Committee is made up of

- E. Baynham (CCLRC)
- A. Devred (CEA&CERN), Chairman
- D. Leroy (CERN)
- J.M. Rifflet (CEA)
- G. Volpini (INFN-Mi)
- A. den Ouden (TEU), Secretary

Steering Committee meetings are held every three months. Copies of the presentations and minutes of the meeting (when available) are posted on the NED website.

- ✓ 8 January 2004: CERN
participants: E. Baynham (CCLRC), A. Devred (CEA&CERN), D. Leroy, L. Oberli and O. Vincent-Viry (CERN), P. Fabbriatore (INFN-Ge), G. Volpini (INFN-Mi), A. den Ouden (TEU)

- special guests: L. Rossi (CERN), H. ten Kate (CERN&TEU)
- ✓ 25 March 2004: CERN
participants: B. Baudouy and J.M. Rifflet (CEA), A. Devred (CEA&CERN),
D. Leroy and R. van Weldeeren (CERN), F. Toral (CIEMAT), G. Volpini
(INFN-Mi), E. Baynham and S. Canfer (CCLRC), A. den Ouden (TEU)
special guests: A. Yamamoto (KEK), S. Gourlay (LBNL)
- ✓ 8 July 2004: CERN
participants: E. Baynham and S. Canfer (CCLRC), A. Devred (CEA&CERN),
F. Rondeaux and P. Védrine (CEA), T. Boutboul, D. Leroy, L. Oberli,
V. Previtali, O. Vincent-Viry, R. van Weldeeren (CERN), P. Fabbriatore and S.
Farinon (INFN-Ge), M. Sorbi (INFN-Mi), A. den Ouden (TEU)
special guests: –
- ⇒ *next meeting: 28-29 October 2004 at CEA/Saclay*

1.2.2 External Scientific Advisory Committee Meetings

The NED External Scientific Advisory Committee (ESAC) is made up of:

- J.L. Duchateau (CEA)
- P. Lebrun (CERN)
- L. Rossi (CERN)
- R.M. Scanlan (LBNL, retired)
- J.B. Strait (FNAL)
- H.H.J. ten Kate (CERN&TEU)

The first ESAC meeting was held at CERN on 24 March 2004. Copies of the presentations are available on the NED website.

The first ESAC report was issued on 29 April 2004.

Table 1.a: Overview of meetings, workshops and events (co)organized by NED or with NED contributions in 2004

NA/JRA Activity	January	February	March	April	May	June	July	August	September	October	November	December
CARE steering meeting		23 Paris				24-25 Warsaw					5 Hamburg	
NED steering meeting	8 CERN		25 CERN				8 CERN			28-29 Saclay		
NED ESAC meeting			24 CERN									
H3 network meeting			22-24 WAMS Archamps								8-11 HHH CERN	
Participation to meetings of other collaborations												
US-LARP						17-18 LAPAC FNAL						
Conferences & workshops with activity contrib.												
EPAC'04							5-9 Lucerne			3-8 Jacksonville		
ASC'04												

Table 1.b: List of meetings, workshops and events (co)organized by or pertinent to NED in 2004

Date	Title/subject	Location	Main organizer	Number of participants	Comments and Web site
March 22-24	WAMS	Archamps	CERN	100	http://amt.web.cern.ch/amt/activities/workshops/WAMS2004/WAMS2004_index.htm
Nov. 8-11	CARE-HHH	CERN	CERN		http://care-hhh.web.cern.ch/care-hhh/

2 DISSEMINATION

2.1 Website

All information pertinent to the NED JRA are posted on the following web-site, set-up and maintained by A. den Ouden (TEU)

<http://lt.tnw.utwente.nl/project.php?projectid=9>

2.2 List of talks

Table 2.2: List of review talks given by NED Collaborators

#	2.2.1.1.1.1.1.1 Title	Speaker and lab	Location	Date
1	NED Status Report	A. Devred (CEA&CERN) and T. Taylor (CERN) on behalf of the NED Collaboration	KEK, Tsukuba, Japan	9 March 2004
2	Next European Dipole (NED) Overview	A. Devred (CEA&CERN) on behalf of the NED Collaboration	Journées de l'Association Française de Froid, Belfort, France	25 May 2004
3	Next European Dipole (NED) Overview	A. Devred (CEA&CERN) on Behalf of the NED Collaboration	Department Of Energy (DOE), Washington, DC, USA	16 June 2004.
4				
5				
6				
7				
8				
9				

2.3 List of papers

Table 2.3: List of papers issued by NED collaborators

#	CARE document type and number	2.3.1.1.1.1.1 Title	Author(s) and Lab(s)	Reference	Date
1	N/a	High field accelerator magnets beyond LHC	A. Devred (CEA&CERN)	<i>Proceedings of the 2003 IEEE Particle Accelerator Conference</i> , IEEE catalogue 03CH37423, pp. 146–150, 2003	2003
2	N/a	High field accelerator magnet R&D in Europe	A. Devred (CEA&CERN), D.E. Baynham (CCLRC), L. Bottura (CERN), M. Chorowski (WUT), P. Fabbriatore (INFN-Ge), D. Leroy (CERN), A. den Ouden (TEU), J. M. Rifflet (CEA), L. Rossi, O. Vincent-Viry (CERN), G.Volpini (INFN-Mi)	To appear in the Proceedings of the 18 th International Conference on Magnet Technology, Morioka, Japan, October 20–24, 2003	TBD
3	TBD	Performance limits and IR design of a possible LHC luminosity upgrade based on NbTi SC magnet technology	F. Ruggiero, O. Brüning, R. Ostojic, L. Rossi, W. Scandale, T. Taylor (CERN), A. Devred (CEA&CERN)	To appear in the Proceedings of the 2004 European Particle Accelerator Conference, Lucerne, Switzerland, July 5–9, 2004	TBD
4	TBD	Status of the Next European Dipole (NED) Activity of the Coordinated Accelerator Research in Europe (CARE) Project	A. Devred (CEA&CERN), B. Baudouy (CEA), D.E. Baynham (CCLRC), T. Boutboul (CERN), S. Canfer (CCLRC), M. Chorowski (WUT), P. Fabbriatore, S. Farinon (INFN-Ge), H. Félice (CEA), P. Fessia (CERN), J. Fydrich (WUT), M. Greco (INFN-Ge), J. Greenhalgh (CCLRC), D. Leroy (CERN), P. Loverige (CCLRC), F. Michel (CEA), L. R. Oberli (CERN), A. den Ouden (TEU), D. Pedrini (INFN-Mi, J. Polinski (WUT), V. Previtali (CERN), L. Quettier, J. M. Rifflet (CEA), J. Rochford (CCLRC), F. Rondeaux (CEA), S. Sanz (CIEMAT), S. Sgobba (CERN), M. Sorbi (INFN-Mi), F. Toral-Fernandez (CIEMAT), R. van Weelderen (CERN), P. Védrine (CEA), O. Vincent-Viry (CERN), G. Volpini (INFN-Mi)	To be presented at the Applied Superconductivity Conference, Jacksonville, FL, October 3–8, 2004	TBD
5					
6					
7					

3 ADDITIONAL STAFF HIRING

One position has been officially advertised on the ESGARD and NED web-sites since 6 April 2004. The goal is to fill it up by next September.

Table 3: Temporary staff hiring

#	Lab	Job Type	Duration	Work subject	Status
1	INFN-Mi	Fellow	1 year	Quench protection computation (supervisor: G. Volpini)	Searching
2					
3					

4 STATUS OF THE WORK

The data to fill up Table 4 have yet to be collected.

Table 4: Status of the expenditures per participant and activity at the end of June 2004

Participants	Integrated cost for permanent staff in 2004		Integrated cost for temporary staff in 2004		Integrated cost for equipment in 2004		Integrated cost for consumable in 2004		Integrated cost for travel in 2004	
	engaged	spent	engaged	spent	engaged	spent	engaged	spent	engaged	spent
CCLRC										
CEA										
CERN										
INFN-Mi										
INFN-Ge										
TEU										
WUT										

4.1 Work Package 1: Management and Communication (M&C)

The participating laboratories have acknowledged reception of 75 % of the E.U. allocation for the first 18 months. Efforts are being made to organize accounting in a convenient way both for the laboratories and the activity coordinator who has to integrate the information (see Table 4).

Detailed implementation plans of all Work Packages have been established and launched and all collaborators have now started their activities.

4.2 Work Package 2: Thermal Studies and Quench Protection (TSQP)

The following actions have been carried out and/or are foreseen

4.2.1 TSQP WP coordination

4.2.2 Transfer Measurements

4.2.2.1 Specifications' drafting

- ✓ 28 January 2004: preparatory meeting at CEA/Saclay participants: B. Baudouy, P. Chesny, B. Hervieu, F. Michel and J.M. Rifflet (CEA), A. Devred (CEA&CERN)
- ✓ 27 February 2004: programme proposal issued by B. Baudouy (CEA)
- ✓ March 2004: review of programme proposal by P. Lebrun and D. Leroy (CERN) and approbation by SC meeting
- ✓ 4 May 2004: cryostat specification issued by B. Baudouy, B. Hervieu and F. Michel (CEA)
- ✓ May 2004: specification submitted for review to P. Lebrun and R. Van Weelderren (CERN) and M. Chorowski (WUT)
- ✓ 8 June 2004: final cryostat specification issued by B. Baudouy, B. Hervieu and F. Michel (CEA)

Sub-Task completed

4.2.2.2 Cryostat design and manufacturing

- ✓ 3 June 2004: preparatory visit to Kryosystem (Poland) participants: B. Baudouy, F. Michel (CEA), A. Devred (CEA&CERN) R. van Weelderren (CERN), M. Chorowski, J. Fydrych and J. Polinski (WUT), B. Adamowicz, G. Michalski and G. Strychalski (Kryosystem)
- ⇒ Early July 2004: call for tender
- ⇒ Early August 2004; contract's handout
- ⇒ End of September 2004: Production Readiness Review
- ⇒ End of December 2004: completion of manufacturing
- ⇒ Early January 2005: reception test at WUT
- ⇒ End of January 2005: shipment to CEA/Saclay

4.2.2.3 Heat exchanger module fabrication

- ✓ 22 June 2004: design specifications issued by B. Baudouy and F. Michel (CEA)
- ✓ 1st July 2004: call for tender issued by F. Michel (CEA)
- ✓ 15 July 2004: reception of answers to call for tender
- ⇒ 6 September 2004: purchase requisition to be issued by F. Michel (CEA)
- ⇒ End of December 2004: completion of manufacturing

4.2.2.4 Facility integration/commissioning

Not started

4.2.2.5 Measurements and data analysis

Not started

4.2.3 Quench Protection Computation

- ✓ 5 March 2004: draft computation programme issued by M. Sorbi and G. Volpini (INFN/Mi)
- ✓ March 2004 SC meeting: discussion of computation programme
- ✓ April–June 2004: compilation of material properties

- ⇒ Summer 2004: computation to be started on baseline magnetic configuration
- ⇒ 31 December 2004: interim report (INFN/Mi); EU milestone
- ⇒ 30 June 2005: final report (INFN/Mi); EU deliverable

Table 4.2a: Status of the lowest Sub-Tasks level in the TSQP WP

WBS #	Title	Original begin date (Annex 1)	Original end date (Annex 1)	Estimated Status	Revised end date
2.1	TSQP WP Coordination				
2.2	Heat Transfer Measurements				
2.2.1	Specifications	1 January 2004	31 March 2004	Completed	June 8, 2004
2.2.2	Cryostat design and manufacturing	1 April 2004	31 Dec. 2004	Ongoing	On time
2.2.3	Heat exchanger manufacturing	1 April 2004	31 Dec. 2004	Ongoing	On time
2.2.4	Facility integration and commissioning	1 January 2005	31 March 2004	Not started	On time
2.2.5	Measurements and data analysis	1 April 2005	31 Dec. 2006	Not started	On time
2.3	Quench protection computation	1 April 2004	30 June 2005	Ongoing	On time

Table 4.2b: Status with respect to the milestones and deliverables due in the TSQP WP

WBS #	Title	Responsible Lab(s)	Due date in Annex 1	Status	Revised delivery date
2.2.4	Report on test facility commissioning (deliverable)	CEA and WUT	31 March 2005	Not started	On time
2.2.5	Interim report on measurements (milestone)	CEA	31 December 2005	Not started	On time
2.2.5	Final report on measurements (deliverable)	CEA	31 December 2006	Not started	On time
2.3	Interim report on quench protection computation (milestone)	INFN-Mi	31 December 2004	Not started	On time
2.3	Final report on quench protection computation (deliverable)	INFN-Mi	30 June 2005	Not started	On time

4.3 Work Package 3: Conductor Development (CD)

The following actions have been carried out and/or are foreseen

4.3.1 CD WP coordination

4.3.2 Preliminary design of 15 T dipole magnet

- ✓ September 2003–present: preliminary design computations carried out by O. Vincent-Viry (CERN) under D. Leroy supervision (CERN)
- ✓ January 2004 SC meeting: first presentation of preliminary design computations by O. Vincent-Viry (CERN)
- ✓ 4 May 2004: meeting at CEA to review magnetic configurations and choice of a baseline for 88 mm aperture participants: H. Félice, L. Quettier, J.M. Riflet, P. Védrine (CEA), A. Devred (CEA&CERN), D. Leroy and O. Vincent-Viry (CERN)
- ✓ 2 August 2004: seminar at CERN by O. Vincent-Viry (CERN) on preliminary magnet designs
- ⇒ August 2004: interim report extended to 130 and 160 mm apertures (CERN)
- ⇒ 31 December 2004: final report (CERN); EU deliverable

4.3.3 Wire and cable specifications' drafting

- ✓ 11 May 2004: first draft specification issued by D. Leroy (CERN) and communicated to A. Devred (CEA&CERN)
- ✓ 14 May 2004: first draft reviewed by A. Devred (CEA&CERN)
- ✓ 18 May 2004: second draft specification issued by D. Leroy and communicated to A. Devred (CEA&CERN) and A. den Ouden (TEU)
- ✓ 1 June 2004: third draft specification issued by D. Leroy and communicated to NED SC
- ✓ 4 June 2004: Specification Committee Meeting at CERN participants: T. Boutboul, P. Bryant (Chairman), P. Lebrun, D. Leroy, L. Oberli, L. Rossi (CERN), H.H.J. ten Kate (CERN&TEU)]
- ✓ 18 June 2004: final specification issued by D. Leroy (CERN); EU deliverable

Sub-Task completed

4.3.4 Wire development and manufacturing

- ✓ 12 December 2003: preparatory visit to Alstom/MSA participants: A. Devred (CEA&CERN), D. Leroy, T. Boutboul and L. Oberli (CERN)]
- ✓ 15 December 2003: preparatory visit to EAS participants: A. Devred (CEA&CERN), D. Leroy and L. Oberli (CERN) + SMI representative
- ✓ 27 January 2004: preparatory visit to SMI participants: A. Devred (CEA&CERN), D. Leroy, T. Boutboul, L. Oberli and A. Unervick (CERN) + EAS representatives
- ✓ 23 June 2004: call for tender issued to Alstom/MSA, EAS, OK Cu, OK SI and SMI
- ⇒ 20 August 2004: meeting at CERN with SMI and EAS to prepare answer to call for tender

- ⇒ 23 August 2004: meeting at CERN with OK to prepare answer to call for tender
- ⇒ 24 August 2004: meeting at CERN with Alstom to prepare answer to call for tender
- ⇒ 6 September 2004: tenders' opening at CERN
- ⇒ 30 June 2005: first results on wire development; EU milestone
- ⇒ 30 June 2006: final wire production; EU deliverable

4.3.5 Wire Characterization

4.3.5.1 Task coordination

- ✓ March 2004: setting up of Working Group on Wire Characterization, chaired by A. den Ouden (TEU)
- ✓ 19 May 2004: first Working Group meeting at CERN participants: L. Quettier (CEA), V. Previtali (CERN), P. Fabbriatore and M. Greco (INFN/Ge), D. Pedrini and G. Volpini (INFN/Mi), A. den Ouden (TEU)
- ⇒ 22 September 2004: second Working Group meeting at CERN
- ⇒ 30 December 2005: interim report on wire characterization; EU milestone
- ⇒ 30 June 2006: final report on wire characterization; EU deliverable

4.3.5.2 Critical current measurements at CEA

Not started

4.3.5.3 Critical current measurements at INFN/Mi

Not started

4.3.5.4 Critical current measurements at TEU

Not started

4.3.5.5 Magnetization measurements at INFN/Ge

- ✓ 21 January 2004: preparatory meeting at CERN participants: A. Devred (CEA&CERN), D. Leroy (CERN) and P. Fabbriatore (INFN/Ge)
- ✓ 23 March 2004: first report on preliminary measurements issued by P. Fabbriatore and M. Greco (INFN/Ge)
- ✓ 23 March 2004–13 April 2004: review of preliminary measurements by A. Devred (CEA&CERN) and D. Leroy (CERN)

4.3.6 Cable development and manufacturing

Not started

4.3.7 Cable Characterization

Not started

4.3.8 Mechanical Studies

- ✓ 28 January 2004: parameters of mechanical model for 19-subelement, internal tin wire issued by A. Devred (CEA&CERN)
- ✓ 30 January 2004: mesh proposal issued by S. Farinon (INFN/Ge)
- ✓ Early February 2004: review of mesh proposal by A. Devred (CEA&CERN), D. Leroy (CERN) and C. Verwaerde (Alstom/MSA)
- ✓ February 2004–present: review of material properties
- ✓ 25 March 2004: informal discussion of preliminary computation results participants: A. Devred (CEA), D. Leroy (CERN), S. Farinon (INFN/Ge), C. Verwaerde and P. Mocaer (Alstom/MSA)]

- ✓ 9 June 2004: first meeting at CERN to review material properties and discuss computation results
participants: A. Devred (CEA&CERN), T. Boutboul, P. Fessia, D. Leroy and S. Sgobba (CERN), S. Farinon and R. Musenich (INFN/Ge), P. Loverage (CCLRC)
- ✓ 7 July 2004: second meeting at CERN to review material properties and discuss computation results
participants: A. Devred (CEA&CERN), T. Boutboul, P. Fessia, L. Oberli M. Pojer and S. Sgobba (CERN), P. Fabbriatore and S. Farinon (INFN/Ge)

Table 4.3a: Status of the lowest Sub-Tasks level in the CD WP

WBS #	Title	Original begin date (Annex 1)	Original end date (Annex 1)	Estimated Status	Revised end date
3.1	CD WP Coordination				
3.2	Preliminary design	1 January 2004	31 Dec. 2004	80% complete	On time
3.3	Conductor specifications	1 April 2004	30 June 2004	Completed	On time
3.4	Wire development	1 July 2004	30 June 2006	Not started	On time
3.5	Wire characterization				
3.5.1	Definition of procedures	1 January 2005	31 March 2005	Ongoing	Early
3.5.2	Ic measurements at CEA	1 July 2005	31 Dec. 2006	Not started	On time
3.5.3	Ic measurements at INFN/Mi	1 July 2005	31 Dec. 2006	Not started	On time
3.5.4	Ic measurements at TEU	1 July 2005	31 Dec. 2006	Not started	On time
3.5.5	Magnetization measurements at INFN/Ge	1 July 2005	31 Dec. 2006	Starting	Early
3.6	Cable development and manufacturing	1 October 2005	31 Dec. 2006	Not started	On time
3.7	Cable characterization	1 January 2006	31 Dec. 2006	Not started	On time

Table 4.3b: Status with respect to the milestones and deliverables due in the CD WP

WBS #	Title	Responsible Lab(s)	Due date in Annex 1	Status	Revised delivery date
3.2	Report on preliminary design (deliverable)	CERN	31 December 2004	Ongoing	On time
3.5	Conductor specifications (deliverable)	CERN	30 June 2004	Completed	On time
3.4	Interim report on wire development (milestone)	CERN	30 June 2005	Not started	On time
3.4	wire unit lengths (deliverable)	CERN	30 June 2006	Not started	On time
3.5	Interim report on wire characterization (milestone)	CEA, INFN/Ge, INFN/Mi, TEU	31 December 2005	Not started	On time
3.5	Final report on wire characterization (deliverable)	CEA, INFN/Ge, INFN/Mi, TEU	30 June 2006	Not started	On time
3.6	Cable unit lengths (deliverable)	CERN	31 December 2006	Not started	On time
3.7	Report on cable characterization (deliverable)	TEU	31 December 2006	Not started	On time

4.4 Work Package 4: Insulation Development & Implementation (IDI)

At a meeting held at CEA/Saclay on Sub-Task 4.4 (innovative insulation), it was decided to propose to the July 2004 NED Steering Committee meeting to modify the scope of work of this Sub-Task to better suit the Activity needs and to match its schedule and deliverables with that of Sub-Task 4.3 (conventional insulation).

The proposed modifications are

- To change the scope of work of sub-Task 4.4.2 from “Pre-impregnation/wrapping bench” to “Characterization tests,”
- To extend the scope of the report on conventional insulation test programme due on 31 July 2004 (task 4.3) to include the test programme on innovative insulation,
- To extend the sub-task duration until 31 December 2005 and to delay the delivery of the report on innovative insulation (initially due on 30 June 2005) until this date.

The following actions have been carried and/or are foreseen

4.4.1 IDI WP Coordination

4.4.2 Specifications' Drafting

- ✓ 6 May 2004: version 1 of specifications issued by S. Canfer (CCLRC)
- ✓ 11 May 2004: conference call on insulation specifications
participants: S. Canfer and J. Greenhalgh (CCLRC), F. Rondeaux (CEA), A. Devred (CEA&CERN), A. den Ouden (TEU)
- ✓ 11 May 2004: Version 2 of specifications issued by S. Canfer (CCLRC)
- ✓ 25 May 2004: Version 2.2 of specifications issued by S. Canfer (CCLRC)
- ✓ 23 June 2004: Version 2.3 of specifications issued by S. Canfer (CCLRC)
- ✓ 22 July 2004: final specifications; EU milestone
Sub-Task completed

4.4.3 Conventional Insulation

- ✓ 27 July 2004: first draft of conventional insulation Test Programme
- ⇒ 12 August 2004: second draft of conventional insulation Test Programme
- ⇒ September 2004: final conventional insulation Test Programme; EU milestone (to be extended to include innovative insulation test programme)
- ⇒ 31 December 2005: final report on conventional insulation; EU deliverable

4.4.4 Innovative Insulation

- ✓ 6 May 2004: preparatory meeting at CEA
participants: J.M. Rifflet, F. Rondeaux and P. Védrine (CEA), A. Devred (CEA&CERN); conclusions of this meeting are reported above
- ⇒ 30 August 2004: first draft of innovative insulation Test Programme

- ⇒ September 2004: final innovative insulation Test Programme; (to be added to EU milestone on conventional insulation Test Programme)
- ⇒ 30 June 2005: final report on innovative insulation; EU deliverable (to be delayed until 31 December 2005)

Table 4.4a: Status of the lowest Sub-Tasks level in the IDI WP

WBS #	Title	Original begin date (Annex 1)	Original end date (Annex 1)	Estimated Status	Revised end date
4.1	IDI WP Coordination				
4.2	Specification drafting	1 April 2004	30 June 2004	95% complete	Early July 2004
4.3	Conventional Insulation				
4.3.1	Literature survey	1 July 2004	30 Sept. 2004	Ongoing	On time
4.3.2	Tooling preparation	1 October 2004	31 Dec. 2004	Not started	On time
4.3.3	Component supply	1 October 2004	31 Dec. 2004	Not started	On time
4.3.4	Iterative tests	1 January 2005	30 Sept. 2005	Not started	On time
4.3.5	Data analysis	1 October 2005	31 Dec. 2005	Not started	On time
4.4	Innovative Insulation				
4.4.1	Tape weaving trial	1 July 2004	31 Dec. 2004	Not started	30 June 2005 ¹
4.4.2	Characterization tests ¹	1 July 2004	30 June 2005	Not started	31 December 2005 ¹

¹Change of Sub-Task scope and duration endorsed by July 2004 Steering Committee meeting.

Table 4.4b: Status with respect to the milestones and deliverables due in the IDI WP

WBS #	Title	Responsible Lab(s)	Due date in Annex 1	Status	Revised delivery date
4.2	Engineering specifications (milestone)	CCLRC	30 June 2004	Near completion	Early July 2004
4.3&4.4	Test Programme definition (milestone) ¹	CCLRC&CEA	31 July 2004	Ongoing	On time
4.3	Report on conventional insulation (deliverable)	CCLRC	31 December 2005	Not started	On time
4.4	Report on innovative insulation (deliverable)	CEA	30 June 2005	Not started	31 December 2005 ²

¹Change of report scope (to include test programme on innovative insulation) endorsed by July 2004 Steering Committee meeting.

²Change of delivery date (to match the one of the conventional insulation) endorsed by July 2004 Steering Committee meeting.

4.4.5 Working Group on Magnet Design and Optimization

CCLRC, CEA, CERN and CIEMAT have decided to join forces in order to create an informal Working Group on Magnet Design and Optimization (MDO).

The Working Group is made up of

- H. Félice (CEA)
- P. Fessia (CERN)
- P. Loveridge (CCLRC)
- J. Rochford (CCLRC)
- S. Sanz (CIEMAT)
- F. Toral-Fernandez (CIEMAT), Technical Secretary
- P. Védrine (CEA), Chairman

The following actions have been carried and/or are foreseen

- ✓ 19 May 2004: brainstorming session at CEA/Saclay
participants: H. Felice, L. Quettier and P. Védrine (CEA), A. Devred,
(CEA&CERN), P. Fessia (CERN), S. Sanz and F. Toral (CIEMAT),
P. Loveridge and J. Rochford (CCLRC)
- ⇒ 31 December 2004: review of 2-D magnetic configurations
- ⇒ 30 June 2005: review of 2-D mechanical configurations
- ⇒ 28 December 2005: review of 3-D configur

5 APPENDIX 1: DETAILED IMPLEMENTATION PLAN (GANTT CHART) FOR THE NED/JRA AS DESCRIBED IN THE TECHNICAL ANNEX OF CARE CONTRACT





