

Construction & Integration Session -Summary

Monday, Jun 09, 15:30 – 16:30

infrastructure works – priorities, financing
final specs for plastic muon veto
cryoinfrastructure integration: heater
water plant construction and integration
+ water tank cleaning

Tuesday, Jun 10, 16:30 – 17:00

cryostat cleaning
temporary / final lock lock installation
schedule for parallel works

K.T.Knöpfle

MPI Kernphysik, Heidelberg

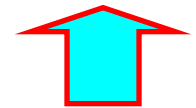
ktkno@mpi-hd.mpg.de

GERDA Collaboration Meeting at LNGS

9 - 11 June 2008

15:00 – 17:30

16:30 – 18:00



Too few time
allocated

More
ad-hoc meetings
needed!

Datei Bearbeiten Ansicht Chronik Lesezeichen Extras Hilfe

http://www.mpi-hd.mpg.de/ge76/internal/index.html

Erste Schritte Aktuelle Nachrichten ... Gerda Home Page Google SP ON SPIEGEL ONLINE - N... Home Page of the H... LEO Deutsch-Englisch

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For relevant conferences see the [RAL neutrino industry page](#)

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[Safety Documentation](#)

[GERDA Scientific / Technical Reports \(GSTR\)](#)

including template and example

Internal documents of Task Group 01 [TG01 internal](#)

Internal documents of Task Group 11 [TG11 internal](#)

>>> GERDA Installation <<<

[1. Installation meeting of Jan 14, 2008](#)

[2. Installation meeting of Apr 22, 2008](#)

[3. Installation meeting of May 08, 2008](#)

[4. Installation meeting of May 28, 2008](#)

[Questionnaires returned for June 2008 collaboration meeting](#)

[Documents for infrastructure & installation works](#)



15:30 – 15:50 Infrastructure works for GERDA in Hall A – priorities, financing
Intro: ktk

15:50 – 16:00 Final specs for plastic muon veto
Intro: P.Grabmayr

16:00 – 16:15 Cryoinfrastructure integration , focus: heater
Intro: B.Schwingenheuer

16:15 – 16:30 Water plant construction and integration
Intro: M.Balata

in addition Water tank cleaning
Intro: C. Cattadori

~~15:30 – 15:50~~ Infrastructure works for GERDA in Hall A – priorities, financing

works to be done (suggest to discuss priorities only): **priority \equiv priority in time**

‘LNGS responsibility’

- removal of explosion proof door prio 2
- water drainage system prio 2’
- ventilation prio 2’
- safety move to GERDA
- optical fibers erase
- electrical system prio 1 - most available !?

~~estimate/requested: 220 kEuro +VAT~~

all needed

‘GERDA responsibility’

- installations in GERDA building
- electrical , fibers, datacom, phone } prio 1
- water? No!, gas, press. air , N2 }

all needed

~~15:50 – 16:00~~ Final specs for plastic muon veto

Intro: P.Grabmayr

10 panels (50x200x3 cm) available, 10 more in preparation room to improve μ - γ separation

no final specs but clear strategy:

phase 1 : single layer OK

phase 2 : double layer considered for improved μ - γ separation

upgrade of PMTs:

wait for test results Hamatsu ‚green‘ vs. Photonics XP3112

misc:

weight OK for double layer on new roof of clean room! –check establish cable routing from roof to ‚crymu‘

~~16:00 – 16:15~~ Cryoinfrastructure integration , focus: heater

Intro: B.Schwingenheuer

Where to get the water for the heater from?

cooling water – definitely YES! Check reliability, cleanliness!
Filter, ferroxyl test needed?

WT water - definitely YES! ~~As backup at least, or default?~~

▶ ~~establish operational scenario!~~

changed Thursday, June12: cooling water OK!!

UPS : we need verified & written up info about available options!

Detailed TO DO and/or JOB LIST:

- ▶ Submit modified PID for approval to LNGS
- ▶ engineering design for tubing, piping, etc... needed
- ▶ integral design & approach for CRYO and WATER PLANT
e.g. optimum placement of heater & water plant components
- ▶ **Ad hoc meeting for detailed discussion suggested! URGENT!**

~~16:15 – 16:30~~

Water plant construction and integration

Intro: M.Balata

4 to 8 m³/h flow rate

big progress : detailed design presented for discussion,

great schedule :

Sep 30: tender to be assigned

Nov 30: construction & commissioning completed

- immediate input:
- ▶ check flanges/pipe layout on WT roof in order to keep optimum access to manifold
 - ▶ check location of level sensor – should not block gallery
 - ▶ integral design for mount of heater and water plant in ground floor of GERDA bldg. needed (water plant/heater are about 3.5x4.6x1 / 3x1x1 m)
 - ▶ new CDI , share cost with Borexino ?
- higher priority: maintenance of pumps!

Insert: Water tank cleaning

Intro: C.Cattadori

Unambiguous agreement:

- 1) Clean WT asap, i.e. immediately after hydraulic test.
- 2) Use water/hot steam + basic detergent for efficient degreasing.
- 3) For rather dirty bottom, use in addition soft acid treatment.
- 4) Cleaning of cryostat's/skirt's external surfaces to be done within the same job / by same company. ► Get quote if necessary.....

Subsequent mounting of VM2000 foil & PMTs to be done in clean procedure.

- Possibility for subsequent welding of additional studs much desired by TG5 & TG6 .
Check respective formalities w.r.t. legal requirements resp. responsibilities!

TUESDAY

16:30 – 16:50 Integration of temporary lock – shutter mount

Mounting procedure of final lock

Intro: B.Majorovits

15:50 – 17:15 Schedule for parallel works at GERDA site until Jan 2008

Intro: K.T.Knoepfle

~~17:15 – 17:30~~ Cryostat cleaning

Intro: S.Schoenert done! - Discussion



18:10: end forced by Russia - Spain (1:4)

~~16:30 - 16:50~~ Integration of temporary lock – shutter mount

Mounting procedure of final lock

Intro: B.Majorovits

Detailed procedure already available for safety review by NIER

A few details to be added:

- show lock support structure at different mounting steps
- support of shutter during transfer from temporary lock to lock
 - ▶ worked out by coop MU - HD
- details of fixation lock – shutter (rot. flange?, stud screws?)

~~15:50 – 17:15~~ Schedule for parallel works at GERDA site until Jan 2008

Intro: K.T.Knoepfle

A short look back to Cracow meeting:

GERDA schedule as of Cracow Meeting

Sequential works in Hall A:

cryostat delivered to Hall A	23 oct 07	→ 13 mar 08	+6 mo
copper shield installed	1 20 nov 07		
cleaned & tested	2 14 jan 08		
WT installed	2 17 mar 08		
cleaned & tested	0.5 07 apr 08		
GERDA bldg erected	2 30 may 08		
clean room floor installed	1 01 jul 08		
lock installed	6 19 dec 08		
cleaned & tested	1 30 jan 09		
Rn emanation measurements	0.5 13 feb 09		
argon fill	1 13 mar 09	→ 13 sep 09	!???

↑ months

6 mo

Can we catch up?
Where?

GERDA schedule as of Cracow Meeting

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↑ months

6 mo

Can we catch up?
Where?

We Can !

© Obama

from Cracow meet.

Overall Schedule of Hall A Works

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	
1	SCHEDULE of GERDA works in Hall A from June 2008 to March 2009 (X : execute , c : commission, C : completed)																																																
2																																																	
3	Month				J				J				A				S				O				N				D				J				F				M								
4	Week				24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	1	2	3	4	5	6	7	8	9	10	11	12	13			
5																																																	
6	WT/GERDA bldg	X	X	X	X	X	X																																										
7	Clean room																								X	X	X	X	X	X																			
8																																																	
9	Cryostat																																																
10	cleaning									x	x	x	x	x	x	x	x	x	x																														
11	wrap with thermal isolation															X	X								X	X																							
12	fill with Lar																																																
13	Cryo-Infrastructure																																																
14	install manifold																				X	X	X																										
15	install big tubes											X	X	X	X																																		
16	install rest - but																												X	X	X	X	X																
17	heater																																																
18	Water tank (WT)																																																
19	cleaning																																																
20	drainage test																																																
21	install pipe from Borexino																																																
22	install water plant																												X	X	X																		
23	Muon Veto - water																																																
24	install foil in WT																				X	X																											
25	install PMs in WT																										X	X	X	X	X	X																	
26	install rest of cables																																																
27	Muon Veto - plastic																																																
28	install scintillators																																																
29	Lock																																																
30	install provisional lock																																																
31	Installations in GERDA bldg																																																
32	electricity																																																
33	gas tubes, water																																																
34	access to manifold																																																
35	Rn monitor																																																

on critical path

?!

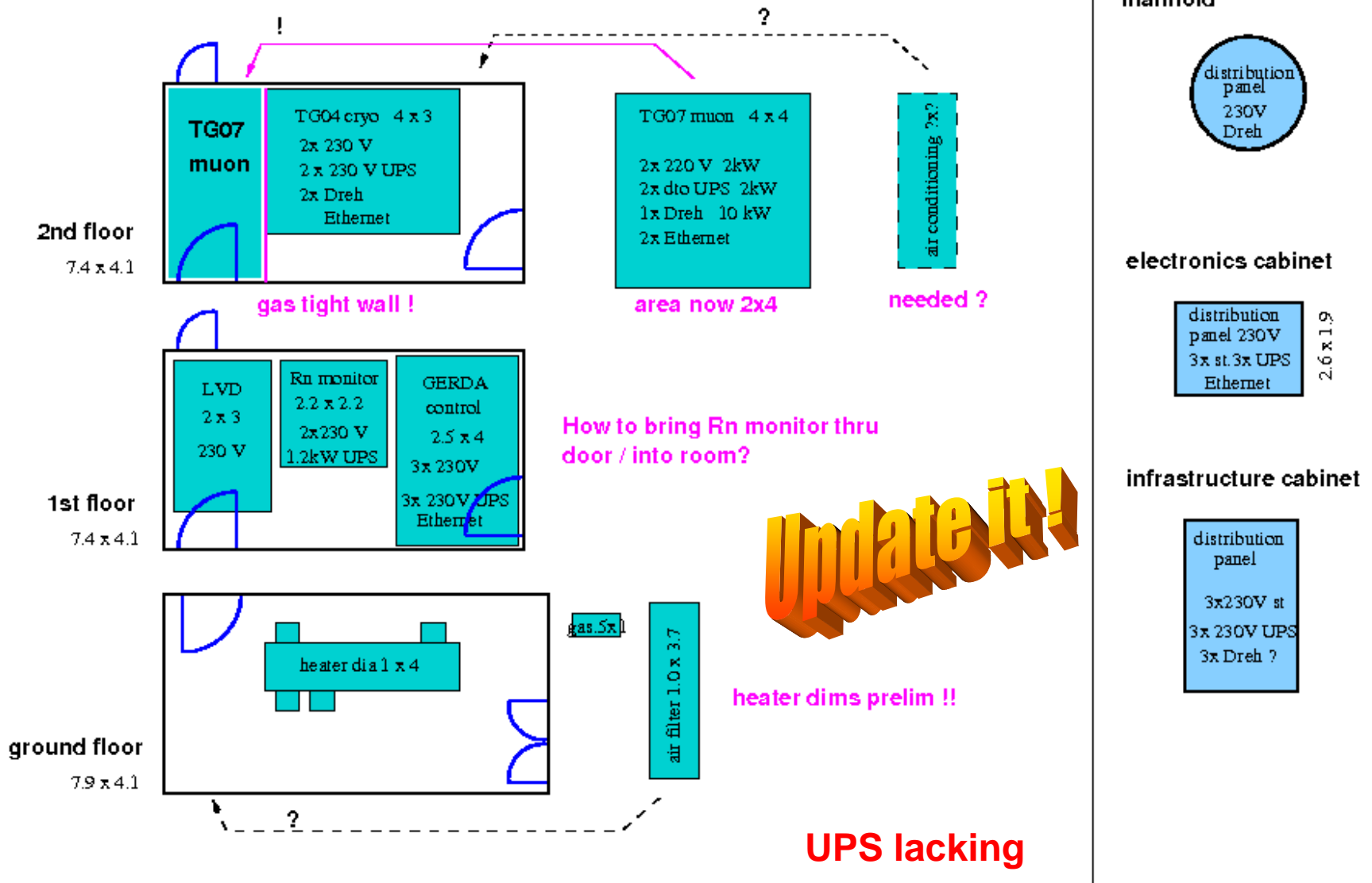
~~15:50 – 17:15~~ Schedule for parallel works at GERDA site until Jan 2008

Intro: K.T.Knoepfle

From questionnaire action (no, slow return, returned info often incomplete):

- ▶ Many plans still pretty vague, clarification getting URGENT!
Each task group:
Please: Take template and fill in as detailed as possible.
Many more horizontal lines i.e. individual tasks to be identified
and to be scheduled!

- no conflict of parallel works so far
- two clear sequential work roads
WT hydraulic test - WT cleaning – cryostat wrapping/VM2000 foil – ...
GERDA bldg construction – basic installation – special installation
- water plant – heater locations to be tuned.....



Cryogenics:

Lots of To Do lists – remember Bernhard's talk

- DeMaCo will only provide cryogenic piping (most likely).
- other pipes – pressurized air for valve control provided by us
- design of fixation – installation of large diameter pipes before clean room floor is installed.
- these are
 - ▶ Part of my list - not discussed in detail – nevertheless urgent:
 - a) DN200 from “rupture disk” vacuum at cryostat to heater
 - b) DN200 from cryostat to GERDA pipes at Level 6000 (tube in HET 100)
 - c) DN50 from cryostat to pressure control valve at Level 6000
 - d) DN50(100?) from turbo pump at cryostat to forepump at Level 6000
- notice: pipes need compensators and good fixations: 5 kN force at 1.5 barg
- cable trays
 - Installation slots in GERDA bldg.
 - vertically (e.g. exhaust gas pipes,)
 - horizontally (e.g. press. air, ...)
- is Armaflex ok as insulation (LNG safety network connection)
- routing and fixation of pipes (LNG safety network connection)
- storage tanks: when do we get them? when is door removed?
- argon pipes to and from clean room (E. Ar. GAr)
- Access to manifold via WT roof from both sides:
 - several times mentioned – no result/action yet!? **Carla: Done!**
- UPS for cryogenics
- LNGS safety network connection
- walls around cryogenic infrastructure + oxygen monitor ?

Mo 15:00 – 15:40 / Tu

~~16:30 – 16:45~~ Cryostat cleaning

Intro: S.Schoenert

dust particle counter for QA
tape dust & X-ray a la SNO
check HEPAP filter

Start works ASAP in order to arrive at understanding of observation!

General agreement:

1) Verify result asap!

IF > 14 mBq

4th Rn emanation test – 3 days

2) Inspect, replace excentric, wet (alcohol, no water) cleaning and/or dust removal with N2 jet

IF > 14 mBq

5th Rn emanation test – min. 2 weeks

3) **?** – in any case BIG & TIME-CONSUMING effort
e.g. dismounting of Cu plates & ‘dry cleaning’

N.B: G.H.: **Is 14 mBq indeed the crucial limit?** ► If contamination sticking on surface, it will stay there after LAr fill.

G.Z.: Number of Rn test cycles limited due to time constraints.

- Prolific sessions with great discussions – although too short!
Concept of ‘convenors’ worked very well!
- As to tech. installation issues: More ad-hoc meetings of involved parties needed – ASAP! (no need to get OK from ‘plenary’)
- Funds for installations in GERDA bldg. available.
▶ Tender & order before summer break (Matthias /Stefano) !
- Most important task at present: **cryostat cleaning** -
Both nasty and interesting problem
Both intellectual and physical challenge - will keep us fit....
- Surprisingly big demand for a posteriori stud welding at WT bottom!
(even from members of the WT team ☺... - wird auch gut! ...)

Safety Course: 14:30 this afternoon!