

COMPTE-RENDU DE REUNION

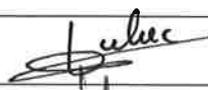
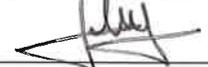
Référence : PSN-EXP/SNC/2015- **813**

Date : June 22 - 26, 2015

Lieu : Lawrence Livermore National Laboratory (LLNL), CA, USA

Objet : LLNL-IRSN collaboration exchange in the framework of the DOE/IRSN collaboration

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	Nom	Date	Visa
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Summary

This minute summarizes the discussions during the week June 22 - 26 between IRSN and LLNL in the framework of the PRINCESS project (PProject for IRSN Neutron physics and Criticality Experimental data Supporting Safety) and in accordance with the US Nuclear Criticality Safety Program (NCSP).

These discussions mainly dealt with criticality accident (the agenda is presented in Appendix A), but other points related to Nuclear Criticality Safety were also discussed (for example, the LLNL-IRSN collaboration agreement, the use of COG with Promethee software (possibility for a Workshop at ICNC), ISSA Benchmark, FREYA/FISSION, collaboration in the Nuclear Data field).

In parallel to these discussions, measurements were performed around the LLNL ^{252}Cf source, in particular with the highest activity source to investigate the behaviour of IRSN neutron individual dosimeter in the saturation range and also irradiation of IRSN active device measurements.

LLNL and IRSN actions following this week are presented in Appendix B.

Appendix A

Day/Date	Time/Location	Topic	Invited LLNL Personnel
Monday 6/22/2015	7:30 West Badge Office	Badging	Hickman
	8:30 – 9:30 B253 Meyers Room	Introductions, Review of LLNL Organization and Operations, Review of weeks' activities	Heinrichs, Merritt, Hickman, Percher, Wong, Jeffers, Tai, Worley, Sundsmo, Carl, Scorby, Zywiec, Hudson, Topper, Bowden, Gonzales
	9:30 – 12:00 B255, B253 Labs	Tours: ISSA, RCL, BLAB, RML, WBC, SLAB, External Dosimetry Labs	Percher, Hickman, Zywiec, Hudson, Jeffers, Wong, Carl, Topper
	12:00 – 13:30	Lunch	
	13:30 – 15:00 B253 Meyers Room	Planning for RCL dosimeter irradiations for the week	Carl, Hickman, Heinrichs, Scorby
	15:00 – 16:00 B255	Start overnight irradiations	Carl, Hickman, Hudson
Tuesday 6/23/2015	8:30 – 9:00 B253 Meyers Room	Greetings & Review of Days' Activities	Heinrichs, Hickman, Scorby, Hudson
	9:00 – 10:00 B255	Set up for next dosimeter irradiations	Carl, Hickman
	10:00 – 12:00 B253 Meyers Room	Receipt & Installation Planning for ISRN equipment at NADLAB	Heinrichs, Hickman, Hudson, Wong, Scorby
	12:00 – 13:30	Lunch	
	13:30 – 14:30	Set up for next dosimeter irradiations	Carl, Hickman, Bowden
	14:30 – 16:00 B253 Meyers Room	Review of and Requirements for IER- 148 (Training, Access, Exposure Plan, etc.)	Heinrichs, Hudson, Hickman, Wong, Scorby
Wednesday 6/24/2015	08:30 – 9:00 B253 Meyers Room	Greetings & Review of Days' Activities	Heinrichs, Hickman, Scorby, Hudson
	9:00 – 10:00 B255	Set up for next dosimeter irradiations	Carl, Hickman
	10:00 – 11:00 B253 Meyers Room	CR--39 use for high range neutron doses	Tai, Hickman, Topper, Heinrichs, Scorby, Hudson, Bowden
	11:00 – 13:30	LLNL Safety Fair & Lunch	

	13:30 – 14:30 B255 R183	Set up for next dosimeter irradiations	Carl, Hickman
	14:30 – 16:00 B253 Meyers Room	Discussions about Caliban & Prospero intercomparison results and RPD publications (if time permits view Hankins B251 Safety Indoctrination)	Hickman, Wong, Heinrichs, Topper
Thursday 6/25/2015	08:30 – 9:00 B253 Meyers Room	Greetings & Review of Days' Activities	Heinrichs, Hickman, Scorby, Hudson
	9:00 – 10:00 B255	Set up for next dosimeter irradiations	Carl, Hickman
	10:00 – 12:00 B253 Meyers Room	US Approach to criticality dosimetry (standards, criteria) – Viewing of segments of Nuclear Criticality Heritage Video Conference	Hickman, Heinrichs, Scorby, Topper, Wong, Hudson
	12:00 – 13:30	Lunch	
	13:30 – 14:30 B255	Set up for next dosimeter irradiations	Carl, Hickman
	14:30 – 16:00 B253 Meyers Room	Review of Flattop Characterization activities	Heinrichs, Hudson, Hickman, Scorby
Friday 6/26/2015	08:30 – 9:00 B253 Meyers Room	Greetings & Review of Days' Activities	Heinrichs, Hickman, Scorby, Hudson
	9:00 – 10:00 B255	Set up for next dosimeter irradiations	Carl, Hickman
	10:00 – 12:00 B253 Meyers Room	Future Proposals & Collaborations on NAD development. Cf--252 Benchmarks discussions	Hickman, Heinrichs, Scorby ,Topper, Wong, Hudson
	12:00 – 13:30	Lunch	
	13:30 – 14:30 B255 R183	Set up for next dosimeter irradiations	Carl, Hickman
	14:30 – 16:00 B253 Meyers Room	Open Discussions	Hickman, Heinrichs, Scorby ,Topper, Wong, Hudson, Merritt, Worley

Appendix B

Subjects	LLNL Actions	IRSN Actions	Comments/information
Cf252 irradiation during the week	<ul style="list-style-type: none"> - to finish irradiation of IRSN CR39 and ship dosimeter to IRSN - irradiation in September 2015 for blind test comparison (~1 Gray?) between IRSN dosimeter and NAD - to provide pictures of the configurations performed during this week 	<ul style="list-style-type: none"> - to provide data from Radeye, TEPC and silicon diode - to provide dosimeter for blind test comparison with NAD scheduled in September 	
IER 147			<ul style="list-style-type: none"> - IER 147 will be published after IER 148 - Latest version CED2 (April 2013)
CALIBAN / PROSPERO		<ul style="list-style-type: none"> - to provide a first draft of slides for ICNC presentation by 4 September - to provide a draft for RPD publication by the end 2015 	
IER 148	<ul style="list-style-type: none"> - to provide information about the source and the room (for simulation) (+ COG input data?) 	<ul style="list-style-type: none"> - to give preferred period to perform the experiments - to ask Jerry McKamy for the DAF room 	<ul style="list-style-type: none"> - 1 week in June 2016 - At least 1 month before IER 148 and IER 252 - Latest version CED2 (September 2014)
IER 252	<ul style="list-style-type: none"> - to provide a first draft by October 2015 - to provide information about the source and the room (for simulation) 	<ul style="list-style-type: none"> - to give preferred period to perform the experiments - to give information about what IRSN want (kind of experiment, device, configuration etc.) - to ask Jerry McKamy for the DAF room 	<ul style="list-style-type: none"> - 2 weeks in March/April 2016 - At least 1 month before IER 148 and IER 252 - LLNL interested by gamma spectrometry (BGO) and ROSPEC/NE213 (Bruno ASSELINEAU)
IER 253			<ul style="list-style-type: none"> - Experiments planned in FY 2017 - Planning performed in FY 2016

<p>Preparation of the new experiments (IER 148, 252, 253)</p>	<ul style="list-style-type: none"> - to organize RAD worker 2 training (January 2016?) - to provide liquid and gaseous nitrogen in the NADLAB - to check if a training for chemical work is necessary - to provide information regarding the connection (for cables) from the reactor cell to the experimental room - to provide chemical (acid, 2 1L bottles) - to answer about interest for the IRSN Panasonic TLD reader (done) - to perform formalities for IRSN entries 	<ul style="list-style-type: none"> - to pass RAD worker 2 training - to provide an update list of device that will be used at NADLAB - to send information about devices (including electrical certification for USA) - to send information about the hood IRSN would like to buy (done) - to buy the security shower and the hood and the associated cost (except installation) - to give information about Li6 for TLD - to give information on calibration source IRSN would like to use (bring from France or can be provide by LLNL?) - to provide the number of linear feet (15?) necessary for IRSN instrumentation in the NADLAB - to send the first devices by sept/October and the last by December 2015 - to buy 2 storage devices for acid - to install and test the IRSN devices 	<ul style="list-style-type: none"> - NADLAB = mercury lab - If certified device → NADLAB - if not certified device → Livermore for certification - one IRSN visit in January 2016 (~10 days) (for rad training at LLNL and installation at NADLAB) - 3 months necessary to have entry access to the NADLAB
<p>BOMAB</p>		<ul style="list-style-type: none"> - to find BOMAB information on the website 	
<p>LLNL-IRSN collaboration agreement</p>		<ul style="list-style-type: none"> - to provide a draft for the collaboration agreement 	
<p>EURADOS</p>	<ul style="list-style-type: none"> - 	<ul style="list-style-type: none"> - greatly advise LLNL to come at EURADOS (February 2016, Milano) 	

New approach for victims of a criticality accident		<ul style="list-style-type: none"> - IRSN propose a draft (1 page) by February 2016 for NCSP about "the development of a new approach of the victims of the criticality accident" - to perform calculation of dose to organ for various morphologies 	
IER 321	<ul style="list-style-type: none"> - to update the IER 321 with information given by IRSN 	<ul style="list-style-type: none"> - to give information about test and experimental configuration (correction factor for orientation and partial body irradiation) 	
OECD benchmark Cf252	<ul style="list-style-type: none"> - to provide information about the source and the room (for simulation) - to submit new IER ASAP (after including IRSN table) 	<ul style="list-style-type: none"> - to provide date - to review of previous experiment (especially neutron spectrometry) - to send information on devices available at IRSN (BGO, ROSPEC, BSS?) 	<ul style="list-style-type: none"> - start by a bare configuration - exchanges between LLNL and IRSN for other configurations (concrete, polyethylene, etc.) - possibility to also use a Co and Cs source for the same configurations
Promethee	<ul style="list-style-type: none"> - to support this work (user of Promethee) - agree for subsequent actions (ICNC workshop, ANS meeting, ANS 8.1 WG (handbook), etc.) 	<ul style="list-style-type: none"> - to solve the "Calvin Curve" - to provide Promethee to LLNL - to organize a ICNC workshop with LLNL support 	IRSN presented the resolution of the heterogeneous repartition of the moderation for a plutonium sphere using Promethee
New IER proposal (full dosimetry exercise)		<ul style="list-style-type: none"> - to provide a draft by February 2016 	this proposal is not done this year
CR39 (high dose range)	<ul style="list-style-type: none"> - to Exchange of information on current advancement of work 	<ul style="list-style-type: none"> - to Exchange of information on current advancement of work 	

Silicon diode	- to perform additional test with diode	- to Send publication and diode reader when modified with unirradiated batch of diodes for additional test with Cf-252 source (done)	
TRIP (Thyroïde radioiodine intercomparaison program)		- to contact Franck Didier and possibly present at EURADOSE if LLNL not attending	
ISSA	- to provide information for the simulation of ISSA (drawings, ISSA safety case, etc.)		- LLNL is very flexible to perform experiments (date) - fission meter can't go into water (maybe above the water level (but electric problem))
FREYA/FISSION		- to contact LLNL by email to exchange about the possibilities of exchange - to add this topic to the Analytical Method effort between LLNL and IRSN	
Slide rules			- LLNL interested by plutonium system and various conversion factors - A « slide rule » meeting is planned in July for the NCSP executive meeting
Nuclear Data	-to Exchange of information on current advancement of work (FUDGE, etc.)	- to Exchange of information on current advancement of work	