

Program

Sunday 27 September 2015

18:00 - 19:00 Pre-registration
19:00 – 21:00 Welcome Drink

Monday 28 September 2015

8.30 - 9.00 Welcome Address

Prof. Dr. Eric van Walle, Director-General SCK•CEN

Dr. Leo Sannen, Manager Nuclear Materials Science (NMS) Institute, SCK•CEN, former chairman of the HOTLAB working group

9.00 - 10.30 Progress in Advanced Post Irradiation Examination Techniques

Chair : L. Sannen (SCK•CEN)

Program of the Analysis and Research Laboratory for Fukushima-Daiichi and Advanced Techniques to be Applied in the Laboratory

Y. Sekio, H. Yoshimochi, I. Kosaka, H. Hirano, T. Koyama and H. Kawamura

Fukushima Research Infrastructural Creation Center, Japan Atomic Energy Agency, Fukushima 970-8026, Japan

Acoustic sensors devoted to non-destructive fission gas characterization of LWR nuclear rod in hot lab facilities

J.Y. Ferrandis^{1,2}, E. Rosenkrantz^{1,2}, G. Lévêque^{1,2}, V. Auret³, R. Blachier³

¹University Montpellier, IES, UMR 5214, F-34000, Montpellier, France

²CNRS, IES, UMR 5214, F-34000, Montpellier, France

³EDF SEPTEN, Avenue Antoine Dutrievoz, F-69100 Villeurbanne, France

Integral LOCA tests at Studsvik

D. Minghetti, N. Snis

Studsvik Nuclear AB, SE-611 82 Nyköping, Sweden

Development of Large Blister Anneal Furnace for Testing Full Size LEU-10Mo Monolithic Fuel Plates

F. J. Rice, E. Matranga, D. Wahlquist and D. SELL.

Idaho National Laboratory, 2525 N Fremont Ave, Idaho Falls, Idaho, 83415, USA

10.30 – 11.00 Coffee break

11.00 - 12.30 Progress in Advanced Post Irradiation Examination Techniques

Chair : S. Van den Berghe (SCK•CEN)

Characterization of Neutron Irradiated CANDU-6 Inconel X-750 Garter Springs via Lift Out Three Point Bend Tests

¹C Howard, ¹S Parker, ²C Judge, ³M Griffiths, ¹P Hosemann

¹University of California Berkeley Department of Nuclear Engineering, Etcheverry Hall, Berkeley, CA 94709, USA

²Canadian Nuclear Laboratories Deformation Technology Branch, 20 Forest Avenue, Deep River, Ontario, K0J 1P0, Canada

³Chalk River Laboratories STN 93 Deformation Technology Branch, Chalk River, Ontario, K0J 1J0, Canada

Swept Frequency Eddy Current Technique for Pool-Side Inspection of Zr-Alloy Fuel

Assembly Members

¹G. Antonelli, ²J. Renshaw, ²R. Daum, ³B. Andersson and ⁴D. Lutz

¹CESI S.p.A. - Via Rubattino 54, 20134 Milan, Italy

²EPRI - 1300 West WT Harris Blvd., Charlotte, NC, 28262, USA

³Westinghouse Electric Sweden AB - Bränslegatan 1, Västerås, Sweden

⁴Global Nuclear Fuel - Americas - 6705 Vallecitos Rd., Pleasanton, CA, 94586, USA

Study on Micro-drilling Technology of Irradiated Fuel Pellet for Burn-up Analysis

Wei Zhu, Mingquan Feng, Xiaosong Liu

Nuclear Power Institute of China, Building 328, Huayang Changshun road, Chengdu city, Sichuan province, China

Design and manufacture of the IMGAsystem for PIE of coated fuel particles of HTR fuel element in INET

Malin Liu, Hongsheng Zhao, Youlin Shao, Bing Liu, Chunhe Tang

Institute of Nuclear and New Energy Technology, Collaborative Innovation Center of Advanced Nuclear Energy Technology, Tsinghua University, Beijing 100084 China.

12.30 – 13.30 Lunch break

13.30 - 15.00 Remote Handling

Chair : M. Wade (Spectra Tech, Inc.)

Telemanipulators - Enhancing yesterday's technology to perform today's tasks

H. Hafen, JM. Wagner, C. Reich

Wälischmiller Engineering GmbH, Schießstattweg 16, 88677 Markdorf, Germany

Innovative system of visualization in hot cells

¹F. Gobin, ²S. Kervoern

¹CEA Marcoule ; DEN/DTEC/SDTC/LTAP, 30207 Bagnols sur Cèze ; France

²GETINGE La Calhène ; 1140 rue Ampère, CS 80544, F – 13594 Aix-en-Provence ; France

Reliability improvement of the evacuation route of fuel elements of PHENIX

F. Dominjon, H. Duport, F. Laurent

Commissariat à l'Energie Atomique et aux Energies Alternatives (CEA) DEN/MAR/DEIM, Centrale PHENIX – CEA – Centre de Marcoule BP 17171 30207 Bagnols-sur-Cèze Cedex

In-Cell Remotely Operated Equipment

D. Myers

Aquila Nuclear Engineering Ltd, Hazeley Enterprise Park, Hazeley Road, Twyford Hampshire, England SO21 1QA

15.00 – 15.30 Coffee break

15.30 - 16.15 Remote Handling

Chair : Mike Wade (Spectra Tech, Inc.)

Reuse of radiated beryllium under remote handling conditions

M. Kickulies

ESS, Tunavägen 24, 221 00 Lund, Sweden

Development and installation of semi-hot cell equipment for irradiated miniaturized specimens preparation, manipulation and testing

I. Eliasova, M. Kytka, R. Kopriva

UJV Rez, a. s., Integrity and Technical Engineering Division Hlavni 130, Rez, 25068 Husinec, Czech Republic

16.15 - 17.00 Post Irradiation Examination

Chair : S. Van den Berghe

Design, Fabrication, Modification and Installation of the BONA4INL Measurement Bench

¹A. Robinson, ²Y. Parthoens, ²S. Van den Berghe, ¹R.P. Lind ¹W.P. James

¹*Idaho National Laboratory, 2525 N Fremont Ave, Idaho Falls, Idaho, 83415, USA*

²*SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol*

Keys Figures and Services at the CEA LECA-STAR Facility

D. Nozais, O. Dugne, V. Basini, M-C. Anselmet

CEA, Nuclear Energy Division, Department of Fuel Studies, CEA-Cadarache, 13108 Saint Paul lez Durance, France

18.00 - 19.30 Guide walk Leuven city

19.30 - 23.30 Conference Diner

Tuesday 29 September 2015

8.30 - 09.35 Transportation

Chair : W. Claes (SCK•CEN)

New transport regulations on fissile materials following the regulations for the Safe Transport of Radioactive Material 2012 Edition

F. Darras

AREVA TN – 1 rue des Hérons – 78 180 MONTIGNY LE BRETONNEUX – France

Use of FENOSOLTM foam in the design of new transportation packages:

¹C. Dane, ²A. Joudon

¹*ROBATEL Industries, France*

²*CEA, FRANCE*

Status of the Flying Pig

F. Hue

AREVA TN – 1 rue des Hérons – 78 180 MONTIGNY LE BRETONNEUX – France

09.35 - 10.15 Post Irradiation Examination

Chair : B. Miller (INL)

The SCK-CEN contribution to the Doel-3/Tihange-2 vessel integrity assessment. **NEW**

R. Chaouadi

SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol

Testing of concrete in Norway as radiation protection shielding

V. Andersson, J. Balak, B. C. Oberländer, J. H. Hansen

Institutt for energiteknikk, NO-2027 Kjeller, Norway

10.20 – 10.50 Coffee break

10.50 - 12.20 Post Irradiation Examination

Improvement of Fission Gas Analyzer

H. Uehara, K. Komuro, Koji Usami, Yasuo Nihei, Masahito Nakata

Department of Fukushima Technology Development, Nuclear Science Research Institute, 2-4 Shirakatashirane, Tokai-mura, Naka-gun, Ibaraki-ken, Japan

Microstructural investigation of thermally annealed post neutron irradiated RPV alloys steels.

M. Konstantinovic

SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol

Fission Gas Sampling and Fuel Pin Volume Measurements

H.J.M. Chichester, D.A. Sell

Idaho National Laboratory, 2525 N Fremont Ave, Idaho Falls, Idaho, 83415, USA

Investigation of failure of high burn up carbide fuel pin of FBTR through Post-Irradiation Examination

V. Karthik, Ran Vijay Kumar, V.V. Jayaraj, V. Anandraj, B.K. Ohja, C. Padmaprabu, A.Vijayaragavan, T. Ulaganathan, C.N. Venkiteswaran, Shaji Kurien, T. Johny, R. Divakar, Jojo Joseph, S. Venugopal and T. Jayakumar

Metallurgy and Materials Group, Indira Gandhi Centre for Atomic Research, Kalpakkam 603102, India

12.30 – 13.30 Lunch break

13.30 – 14.00 Poster session

Shielded Field Emission EPMA for the Examination of Nuclear Materials on Sections with Polished and Fracture Surfaces

R Restani, R Grabherr

Paul Scherrer Institute, 5232 Villigen PSI, Switzerland

Hot cell facility in CVR, shielding part ready

¹O. SRBA, ¹M. MIKLOŠ, ²D. MERHOUT, ³P. SVOBODA

¹*Structural and System Diagnostics, Centrum vyzkumu Rez s.r.o. (Research Centre Rez Ltd.), Rez, Czech Republic*

²*Operation management, Centrum vyzkumu Rez s.r.o. (Research Centre Rez Ltd.), Rez, Czech Republic*

³*Design department, Centrum vyzkumu Rez s.r.o. (Research Centre Rez Ltd.), Rez, Czech Republic*

Investigation on radon emission throughout Hot Cells facilities

L. Velnom, M. Uhlig, Y. Kintz, J.-P. Glatz, V.V. Rondinella

European Commission, Joint Research Centre, Institute for Transuranium Elements, Postfach 2340, 76125 Karlsruhe, Germany

Design and Restruction of Nuclear Material Mechanics Semi-hot Cell

X-P. Zhang, B. Wen, X-S. Liu, M-Q. Feng

Nuclear Power Institute of China, Chengdu, 610041

Effects of radiation and contamination on focused ion beam (FIB) system components

¹A. Aitkaliyeva, ¹J.W. Madden, ¹B. D. Miller, ¹J. I. Cole, ¹J. Gan, ²B. Van Leer

¹Idaho National Laboratory, P. O. Box 1625, M. S. 6199, Idaho Falls, ID 83415-6188

²FEI, Hillsboro, OR, 97124

Progress towards the first experiment in NNL Central Laboratory hot cell facility.

S. E. Woodbury and K. HG Clark

NNL Central Laboratory, Sellafield, CA20 1PG, UK.

Preliminary blister anneal testing results for U-Mo monolithic fuel plates

F. Rice, A. Robinson, M. Meyer and N. Lybeck

Idaho National Laboratory, 2525 N Fremont Ave, Idaho Falls, Idaho, 83415, USA

M2 hot cell dismantling/refurbishing project

M. Estas, J. Dadoumont, N. Mangelschots and W. Claes

SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol

New FEG-SEM and EPMA installed at hotlab facility SCK•CEN

J. Van Eyken, B. Vos, K. Kaers, D. Penneman, W. Van Renterghem, A. Leenaers and S. Van den Berghe

SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol

Determination of burnup of fuel samples at SCK•CEN

S. Cagno, L. Adriaensen, A. Dobney, M. Gysemans

SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol

Multi-element trace analysis of steel alloys by means of sector-field ICP-mass spectrometry

T Tindemans^{1,2}, A Dobney², D Wambeke³ and F Vanhaecke¹

¹ Department of Analytical Chemistry, Ghent University, Krijgslaan 281-S12, BE-9000 Ghent, Belgium.

² Radiochemical Analysis and Processes, Belgian Nuclear Research Centre SCK•CEN, Boeretang 200, BE-2400 Mol, Belgium

³ Faculty of Applied Engineering, University of Antwerp, Salesianenlaan 30, BE-2660 Hoboken, Belgium

On the determination of trace elements in lead-bismuth eutectic by means of sector-field ICP-mass spectrometry

T Tindemans^{1,2}, A Dobney², D Wambeke³ and F Vanhaecke¹

¹ Department of Analytical Chemistry, Ghent University, Krijgslaan 281-S12, BE-9000 Ghent, Belgium.

² Radiochemical Analysis and Processes, Belgian Nuclear Research Centre SCK•CEN, Boeretang 200, BE-2400 Mol, Belgium

³ Faculty of Applied Engineering, University of Antwerp, Salesianenlaan 30, BE-2660 Hoboken, Belgium

14.00 - 15.00 Accountancy

Chair : F. Vanderlinden (SCK•CEN)

Operation of the Analytical Services H.A. Laboratory and Dispensary.

P.Watson

B229, Sellafield, Seascale, Cumbria, CA20 1 PG

Changing workload for Highly Active Analysis

A. Lee

B229, Sellafield, Seascale, Cumbria, CA20 1 PG

Testing of the new integrated sample and order management software at PSI HOTLAB

¹M. Streit, ²C. Kost, ²M. Kiel, ²D. Salomon

¹*Paul Scherrer Institut, 5232 Villigen PSI, Switzerland*

²*IQS Ltd, 4800 Zofingen, Switzerland*

15.00 – 15.30 Coffee break

15.30 - 17.15 Post Irradiation Examination

Chair : V. Andersson (IFE)

Post Irradiation Evaluation at the UK's Windscale Laboratory

M. Barker, T. Shaw, M. Adam, G. Black, A. MacKew, S. Morgan, N. Rutherford and F. Woodman

The UK's National Nuclear Laboratory, Sellafield, Cumbria, CA20 1PG, United Kingdom

Metallography and microanalysis of Qinshan NPP spent fuel rods in CIAE Hot Cells

J.Qian, W.Bian, X.Wang

China Institute of Atomic Energy, P. O. Box 275-57, Beijing 102413, China

Experimental characterization of degraded/molten nuclear fuel at JRC-ITU

V.V. Rondinella, D. Bottomley, P. Pöml, S. Bremier, M. Laurie, D. Serrano-Purroy, D. Papaioannou

European Commission, Joint Research Centre, Institute for Transuranium Elements, Postfach 2340, 76125 Karlsruhe, Germany

PIE Technique for high density U₃Si₂ fuel plate

B. Briyatmoko, Supardjo, A. Rozak, Dadang, Suhardyo, A. Wardani, Susworo, Purwanta

BATAN, Indonesia

Determination of hydrogen concentration in Zirconium alloys by differential scanning calorimetry (DSC)

M. Mincu, R. Marinescu

Institute for Nuclear Research Campului Str., Nr. 1, POB 78, 115400 - Mioveni, Arges, Romania

Wednesday 30 September 2015

8.30 - 09.55 Post Irradiation Examination

Chair : N. Snis (Studsvik Nuclear AB)

Status of Post-Irradiation Examinations at the Irradiated Materials Characterization Laboratory

B. D. Miller, C. Knight, K. Wright, A. Aitkaliyeva, D. Blanton, and J. Madden

Idaho National Laboratory, 2525 N. Fremont Ave, Idaho Falls, Idaho, 83401, United States of America

TEM investigation of neutron irradiated and electron beam exposed tungsten

W. Van Renterghem, I. Uytendhouwen

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Post irradiation examination of high burn up PHWR fuels

R.S. Shriwastaw, Purna Mishra, Priti K. Shah, J.S.Dubey, V.P. Jathar, H.N. Singh, B.N. Rath, K. M. Pandit, Anil Bhandekar, Ashwini Kumar, J.L.Singh, G.K. Mallik, Sunil Kumar, ¹P. N. Prasad and Arun Kumar

Post Irradiation Examination Division, Bhabha Atomic Research Centre, Trombay, Mumbai, India

¹Nuclear Power Corporation of India Limited, Anushaktinagar, Mumbai, India

Examination of UK Advanced Gas-cooled Reactor Fuel Cladding (Ex-reactor and Ex-storage)

S. Morgan, D. Hambley, R. Foster, N. Rutherford, M. Adam, M. Barker, F. Woodman

National Nuclear Laboratory, Windscale Lab, Sellafield, Seascale, CA20 1PG, UK

Sellafield Ltd

09.55 - 10.15 Infrastructure

Chair : L. Freeman (Premier Technology Inc.)

The US Nuclear Science User Facilities

J. Rory Kennedy

Idaho National Laboratory, P.O. Box 1625, Idaho Falls, Idaho, U.S.A.

10.20 – 10.50 Coffee break

10.50 - 12.20 Infrastructure

Construction of a gas-mixing and analysis facility for fission gas release and analysis studies.

E. Fontana, D. Bottomley, V.V. Rondinella

European Commission, Joint Research Centre, Institute for Transuranium Elements, Postfach 2340, 76125 Karlsruhe, Germany

New alpha-laboratory at IFE Kjeller, Norway, for experimental MOX pellet and fuel rod production for Halden reactor tests

B.C.Oberländer, H.J.Kleemann, M.Sobieska

Institutt for energiteknikk, NO-2027 Kjeller, Norway

The CANS Post-Irradiation Examination Facility at McMaster University

¹J. Luxat, ¹I. Love, ²V. Walker, ²F. Granadino, ²J. Buckle

¹McMaster University, Hamilton, Ontario, Canada

²Merrick and Company, Aurora, Colorado, USA

Current status of the ESS Active Cells Facility

M. Göhran, L. Åström, S. Vareskic, P. Erterius

European Spallation Source ESS AB, P.O. Box 176, S-22100 Lund, Sweden

12.20 – 13.30 Lunch break

13.30 - 15.00 Infrastructure

Chair :J. Buckle (Merrick & Company)

Development of Engineering Scale Pyroprocessing Facility – PRIDE

I. Cho, J. Han, S. Yu, D. Ryu, J. Lee, S. Kim, B. Park, K. Kim, D. Ahn

Korea Atomic Energy Research Institute 1045 Daedeok-daero, Yuseong-gu, Daejeon 305-353, Republic of Korea

BR2-LHMA – an unrivaled combo for your nuclear material testing needs . NEW

S. Van Dyck, S. Van den Berghe

SCK•CEN, The Belgian Nuclear Research Centre, Boeretang 200, 2400 Mol

An update on the new VTT hot cell

¹W. Karlsen, ²F. Butze

¹VTT Technical Research Centre of Finland Ltd., wade.karlsen@vtt.fi, Finland

²Isotope Technologies Dresden GmbH, frank.butze@isotope-td.de, Germany

Hot cell facility in CVR, shielding part ready

¹O. Srba, ¹M. Mikloš, ²D. Merhout, ³P. Svoboda

¹Structural and System Diagnostics, Centrum vyzkumu Rez s.r.o. (Research Centre Rez Ltd.), Rez, Czech Republic

²Operation management, Centrum vyzkumu Rez s.r.o. (Research Centre Rez Ltd.), Rez, Czech Republic

³Design department, Centrum vyzkumu Rez s.r.o. (Research Centre Rez Ltd.), Rez, Czech Republic

15.00 – 15.30 Coffee break

15.30 - 16.30 Infrastructure

Chair : J. Dexter

Decontamination hot cell

M. Kartaman, B. Briyatmoko, Sungkono, A. Gogo, Basiran, Dadang, Suhardyo, A. Wardani, Susworo, Purwanta

BATAN, Indonesia

System Architecture and Operational Concept for PIECE (PIE Cells at ESS)

¹Y. Lee, ¹M. Göhran, ^{1,2}M. Hartl, ²M. Everett

¹Target Division, European Spallation Source ESS-AB, Box 176, 22363 Lund, Sweden

²Science Division, European Spallation Source ESS-AB, Box 176, 22363 Lund, Sweden

Refurbishing ACPF for pyroprocessing technology development at KAERI

K. Kim, B. Park, S. Yu, I. Cho, D. Ahn

Korea Atomic Energy Research Institute, 989-111 Daedeok-daero, Yuseong-gu, Daejeon 305-353, Republic of Korea

16.30 – 17.00 Closing session

J. Dexter, President American Glovebox Society

A. Leenaers, chair working group Hot Laboratories and Remote Handling

V. V. Rondinella, Head, Safety of Irradiated Nuclear Materials, European Commission, Joint Research Centre, Institute for Transuranium Elements (ITU)

18.00 – 20.00 Visit to AB Inbev brewery (Stella Artois)

Thursday 01 October 2015

SCK•CEN visit