



INTERNATIONAL ATOMIC ENERGY AGENCY

Technical Meeting on “Hot Cell Post-Irradiation Examination and Pool-Side Inspection of Nuclear Fuel”

23–27 May 2011, Smolenice, Slovakia

AGENDA

Monday May 23, 2011

09:00 – 11:00 Registration

Opening session

11:00 – 11:20 Opening address, local host/TM chair

11:20 – 11:40 V. Inozemtsev (IAEA), IAEA update

11:40 – 12:00 A. Leenaers (SCK•CEN), HOTLAB update

12:00 – 13:30 *Lunch break*

Session Inspection

Session chairs: F. Flachet (ELECTRABEL) and R. Zajac (VUJE)

13:30 – 14:00 Gamma spectrometric measurement of burnup-calculation part, V. Chrapčiak, VUJE, Slovak Republic

14:00 – 14:30 Visual inspection and metrology as follow-up of CCs and FEs of a new design for Atucha I NPP, G. Ruggirello, CNEA, Argentina

14:30 – 15:00 Gamma spectrometry for burnup determination of spent fuel assemblies at the Paks NPP, I. Almási, Institute of Isotopes, Hungarian Academy of Sciences, Hungary

15:00 – 15:30 *Coffee break*

15:30 – 16:00 The role of CVR in the fuel inspection at Temelin NPP, M. Mikloš, NRI Řež, Czech Republic

16:00 – 16:30 Verification of the fissile material in spent fuel assemblies of the Paks NPP, Z. Hlavathy, Institute of Isotopes, Hungarian Academy of Sciences, Hungary

16:30 – 17:00 The pool-side inspection of post-irradiation fuel assembly in Qinshan NPP, S. Wang, Qinshan Nuclear Power Company Ltd., China

18:00 Wine and cheese party

Tuesday May 24, 2011

Session *Hot laboratories' experience and capacity (Overviews)*

Session chairs: A. Leenaers (SCK•CEN) and M. Wade (Merrick Company)

09:00 – 09:30 IAEA Address, A. Bychkov, Deputy Director General, Head of Department of Nuclear Energy, IAEA

09:30 – 10:00 The role of a UK post irradiation examination facility in the treatment and disposal of problematic and poorly characterized nuclear fuels, J.D Wright, NNL Sellafield, UK

10:00 – 10:30 Current status of the refurbishment of five semi-hot cells at NRI Řež, R. Kopriva, NRI Řež, Czech Republic

10:30 – 11:00 *Coffee break*

11:00 – 11:30 Hot cell post irradiation examination at JRC-ITU, V. Rondinella, JRC-ITU, EC

11:30 – 12:00 Post irradiation examination of fuel and core structural materials irradiated in FBTR, C.N. Venkiteswaran, IGCAR, India

12:00 – 12:30 Activities and status of PIE for nuclear fuel in NPIC, M. Feng, Nuclear Power Institute of China, China

12:30 – 14:00 *Lunch break*

Session *Hot laboratories' experience and capacity (Advanced technologies)*

Session chairs: D. Bottomley (JRC-ITU) and P. Thijssen (NRG)

14:00 – 14:30 Post irradiation examination capabilities at the Idaho National Laboratory (INL), [Presentation was a movie], A.B. Robinson, INL, USA

14:30 – 15:00 In cell mechanistic fuel failure examination system (MFFES), A.B. Robinson, INL, USA

15:00 – 15:30 Installation of a scanning electron microscope in an alpha tight hot cell, J.A. Vreeling, NRG, Netherlands

15:30 – 16:00 *Coffee break*

16:00 – 16:30 First results and lessons learned from the HFEF containment box upgrade, A.B. Robinson, INL, USA

16:30 – 17:00 Development and design considerations for a suite of new post irradiation examination hot-cell to be constructed at McMaster University, J. Luxat, McMaster University, Canada

Wednesday May 25, 2011

09:00 – 16:00 *Technical visit to the Interim Spent Fuel Storage Facility (ISFSF) in the NPP Jaslovské Bohunice*

Thursday May 26, 2011

Session PIE methods and results (Methods)

Session chairs: C. Verdeau (CEA) and D. Gavillet (PSI)

- 09:00 – 09:30 Eddy current detection of cladding defects due to fuel pellet imperfections, D. Papaioannou, JRC-ITU, EC
- 09:30 – 10:00 Advanced techniques for the mechanical characterization of irradiated nuclear fuel, W. De Weerd, JRC-ITU, EC
- 10:00 – 10:30 Non-destructive fission gas release determination of irradiated experimented fuel rods using gamma spectrometry, H. Jenssen, OECD Halden Reactor Project, Norway
- 10:30 – 11:00 *Coffee break*
- 11:00 – 11:30 Post-irradiation examination of the 5–75 MWd/kgU burnup VVER fuel rods by the pulsed eddy current method, S.S. Sagalov, SCC-RIAR, Russian Federation
- 11:30 – 12:00 Capability and features of the diffraction of backscatter electrons methods for reactor materials investigation, Y. Goncharenko, SCC-RIAR, Russian Federation
- 12:00 – 13:30 *Lunch break*

Session PIE methods and results (Results)

Session chairs: J.Y Blanc (CEA) and Y. Goncharenko (SCC-RIAR)

- 13:30 – 14:00 Defective fuel examination using coulometric titration and analytical electron microscopy at Chalk River laboratories, Z. He, AECL, Canada
- 14:00 – 14:30 Post irradiation examination of thoria-plutonia mixed oxide fuel in Indian hot cells, J.L. Singh, BARC, India
- 14:30 – 15:00 Destructive examination of experimental CANDU fuel elements irradiated in TRIGA-SSR reactor, S.I. Ionescu, INR Pitesti, Romania
- 15:00 – 15:30 The main results of investigation of modified dispersion LEU U-Mo fuel tested in the MIR reactor, V.V. Iakovlev, SCC-RIAR, Russian Federation
- 15:30 – 16:00 *Coffee break*
- 16:00 – 16:30 Examination of an irradiated fuel pin segment by laser scanning profilometry, gamma spectrometry and neutron radiography, H. Wiese, PSI, Switzerland
- 16:30 - 17:00 Post irradiation examination of the fuel rods operated in WWER-1000 mixed cores, M.V. Tretyakov, NSC KIPT, Ukraine
- 17:00 - 17:30 The development of xenon diffusivity measurement for irradiated ceramic fuels with low burnup, H.-m. Kim, KAERI, Republic of Korea

Friday May 27, 2011

Session Irradiated fuel and radwaste management

Session chairs: A. Bevilacqua (IAEA) and P. Marty (CEA)

- 09:00 – 09:30 Estimation of hydrogen production rates from radiolysable material in contact with various irradiated fuels, D. Bottomley, JRC-ITU, EC
- 09:30 – 10:00 CEA strategy for civil spent fuels, J.-Y. Blanc, CEA, France
- 10:00 – 10:30 BEFAST and SPAR from 1981 to present: Thirty years of spent fuel behaviour, performance and research, A. Bevilacqua, IAEA
- 10:30 – 11:00 *Coffee break*
- 11:00 – 11:30 Development of a set-up for the detection of failed fuels in TAPS BWR spent fuels storage bay, J.L. Singh, BARC, India
- 11:30 – 12:00 Establishment of the disassembling technique of the driver fuel assembly irradiated in JOYO, S. Ichikawa, JAEA, Japan
- 12:00 – 12:30 Re-assembling procedure of the fuel assemblies for the nuclear power ship "Mutsu", H. Matsui, JAEA, Japan
- 12:30 – 13:30 *Lunch break*

Closing session

- 13:30 – 15:00 Chair summaries
- 15:00 – 15.30 Closing statements

Posters

- The HOTLAB cask: update, A.J.G. Leenaers, SCK•CEN HOTLAB, Belgium
- Status of the joint IAEA HOTLAB post irradiation examination facilities database (PIEDB), A. Aqrawi, IAEA
- Solid waste sampling using specific tools in a shielded cell called ALCESTE, A. Le Cocguen, CEA, France
- New irradiation device at the BKR, R. Székely, KFKI, Hungary
- TNI's activities for the research reactors and laboratories, V. Laloy, AREVA TN International, France
- Determination of hydrides in an irradiated tube section after mechanical testing, R. Zubler, PSI, Switzerland
- Main business areas of GNS (Gesellschaft für Nuklear-Service mbH), A. Jussofie, GNS, Germany