



ENV54-MetroDecom Creating Impact (WP6)

Metrology for Decommissioning Nuclear Facilities (MetroDECOM) First Workshop

25/11/2015
Hotel Atom, Trebic
Czech Republic

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Work Package 6: Creating Impact Overview



- WP6 Key aim: ensure that the JRP impact and benefits will be realised.
- Assuring results from each work package will be disseminated:
 - To external bodies involved in the R&D in Nuclear Decommissioning (site characterization, measurement instruments, new measurement technology, improved traceable measurements, reference materials, get feedback and inputs).
 - Between the JRP partners (efficient and complimentary work, improvement of European competence and measurement capabilities, collaborative environment).
- The JRP results will be shared with the wider metrological community, stakeholders and end users.

- Task 6.1 Knowledge Transfer (ENEA, all JRP-Partners)
 - Stakeholder Committee
 - JRP website
 - Presentations at key conferences
 - Peer reviewed publications
 - Good Practice Guides
 - Press release publications
 - Standardization and technical committees
 - Workshops
- Task 6.2 Training (ENEA, all JRP-Partners)
 - Training course
 - Summer school
 - Scientific visits
- Task 6.3 Exploitation (ENEA, all JRP-Partners)

Task 6.1 Knowledge Transfer Stakeholder Committee (SC)



- To advice and help to direct the work in the JRP.
- Members from JRP-Partners countries, other European and non-European countries.
- Set-up (at least 5 members).
- Consisting primarily from:
 - national nuclear authorities,
 - regulators and policy makers (CEC, IAEA, IRPA),
 - radiation protection authorities,
 - standardisation bodies (CEN, CENELEC, IEC, ISO),
 - scientific associations,
 - metrological bodies,
 - measuring instruments manufacturers,
 - nuclear decommissioning operators,
 - international organisations (IAEA, ICRM, EC-JRC, ICRP, ICRU, IRPA, EURAMET TC-IR, CCRI, WANO).
- Membership expected to grow during the JRP course (10 members from 8 countries).

Task 6.1 Knowledge Transfer

SC - Members



Stakeholder Committee Members (March 2015)

1	Battistina Bianchilli	NUCLECO - Italy
2	Fery Vanhemelryck	ELECTRABEL - Belgium
3	Karel Svoboda	Institute for nuclear research - Czech Republic
4	Lara Duro	Amphos 21
5	Laurence Petit	ANDRA - France
6	Miroslav Voytchev	IRSN - France
7	Nabil Mena / Patrick Chard	CANBERRA - France
8	Petr Kopecky	Nuclear Power Plant Dukovany - Czech Republic
9	Richard Hunter	LLWR – United Kingdom
10	Sabrina Romani	SOGIN - Italy
11	Vladan Ljubenov	IAEA - Austria

Task 6.1 Knowledge Transfer Website



- Webpage to report open information on
 - JRP meetings,
 - reports,
 - published papers,
 - participation in conferences
 - any other relevant special news from the JRP.
- Set-up and maintained by CMI.
- Updated every 3 months.
- Private members area for internal information exchange on NPL's SharePoint.
- Video conference system for the purpose of knowledge transfer.

D6.1.9 Video conference system setup (ENEA) completed



- ENEA Video conference system
- ADOBE Connect environment
- Available for all partners (not necessary ENEA to attend)
- Need only lap-top with microphone/web-cam/internet
- No need to move to video conference rooms
- No need of dedicated software
- Full meeting-room simulation (audio, video, documents, presentations, remote PC handling,...)
- Controlled access
- <http://connect.portici.enea.it/europeanproject>
 - Enter as a Guest
 - passcode: metrofission (two times)

Task 6.1 Knowledge Transfer Presentations at key conferences



- 12 presentations already given at conferences with manuscripts submitted for inclusion in conference proceedings.
- Further relevant conferences identified during the JRP lifetime.
- Target leading international conferences (attended in green):
- Updated Conference list on the sharepoint (WP6 folder)

MetroDECOM Target leading international conferences (attended in green)

Start date	Place	Conference
23/06/2014	Geneva	4th European Regional IRPA Congress
31/08/2014	Porto	20 th European Conference on Thermophysical Properties (ECTP 2014)
17/09/2014	Barcelona	3rd International Conference on Radioecology and Environmental Radioactivity 2014
20/10/2014	Vienna	Symposium on International Safeguards
05/03/2015	Germany	International workshop on opportunities and challenges in mid-infrared laser-based gas sensing
10/03/2015	France	Guided optics and sensor systems (GO2S 2015)
15/03/2015	Phoenix	International Waste Management Symposium (WM 2015)
17/03/2015	Finland	Physics Days 2015
26/03/2015	Finland	Sensors and sensing from silicon to cloud (Sense '15)
12/04/2015	Hawaii, USA	10th International Conference on the Methods and Applications of Radioanalytical Chemistry (ICRAM 2015)
20/04/2015	Lisbon	Advancements in Nuclear Instrumentation Measurement Methods and their Applications (ANIM 2015)
25/05/2015	Kyoto	15th International Congress of Radiation Research (ICRR 2015)
02/06/2015	Finland	Northern Optics & Photonics 2015
16/06/2015	USA	11th International User Meeting and Summer School on Cavity Enhanced Spectroscopy
21/06/2015	Boulder, USA	19th Symposium on Thermophysical Properties
26/06/2015	Germany	European Conference on Lasers and Electro-Optics (CLEO/Europe 2015)
08/09/2015	Vienna	International Conference on Radionuclide Metrology and its Applications (ICRM 2015)
21/09/2015	Paris, France	17th International Congress of Metrology (CIM 2015)
25/10/2015	Iowa City, USA	61st Annual Radiobioassay & Radiochemical Measurements Conference (RRMC 2015)
10/11/2015	Slovakia	IAEA Labonet meeting
17/11/2015	France	Séminaire CETAMA Echantillonnage et caractérisation III «Du prélèvement à l'analyse»
06/03/2016	Phoenix, USA	Waste Management Conference (WM 2016)
09/05/2016	Cape Town, South Africa	14th International Congress of IRPA (IRPA 2016)
23/06/2016	Limassol, Cyprus	4th International Conference on Sustainable Solid Waste Management (CYPRUS 2016)
26/06/2016	Zakopane, Poland	13rd Symposium on Temperature and Thermal Measurements in Industry and Science (TEMP 2016)
29/08/2016	Helsinki	9th International Conference on Nuclear and Radiochemistry (Helsinki, 2016)
11/09/2016	Bruges	Int. Conference on Nuclear Data for Science and Techn. (ND2016)
26/09/2016	Seattle, USA	ICRM-Low Level Radioactivity Measurement Techniques Conference (ICRM-LLRMT 2016)
	Argentina	International Conference on Radionuclide Metrology and its Applications (ICRM 2017)
	USA	Annual Radiobioassay and Radiochemical Measurement Conferences (RRMC 2016)
	USA	Annual Radiobioassay and Radiochemical Measurement Conferences (RRMC 2017)
		IAEA Radiation Protection and Nuclear Safety International conferences
		Conferences or workshops organised by stakeholders;
		Conferences of ACI's Nuclear Decommissioning & Waste Management.

Task 6.1 Knowledge Transfer

Presentations at key conferences (new)



WM2016 CONFERENCE
MARCH 6 - 10, 2016
PHOENIX CONVENTION
CENTER

WHY
ATTEND?

LIVE
TECHNICAL
PROGRAM

LOG
IN
HERE

REGISTER

PRESENT

EXHIBIT

- Premier international conference for the management of radioactive material and related topics.
- Non-profit organization dedicated to education and opportunity in waste management.
- Forum for cost-effective and environmentally responsible solutions to the safe management and disposition of radioactive waste and radioactive materials.

Task 6.1 Knowledge Transfer Presentations at key conferences (new)



ICRM-LLRMT 2016
September 26-30, 2016
Motif Hotel
Seattle, WA (USA)

- Radiochemical Techniques
- Applications
- Radiometrics
- Non-radiometric Measurements
- Radioactive Noble Gases
- Quality
- Special Topics: Metrology of NORM and Monitoring Networks

Task 6.1 Knowledge Transfer

Peer reviewed publications



- At least 12 publications submitted to peer-reviewed scientific journals.
- Target journals:
 - Applied Radiation and Isotopes,
 - Radiation Measurements,
 - Radiation Protection and Dosimetry
 - Journal of Radioanalytical and Nuclear Chemistry
 - Metrologia.

Task 6.1 Knowledge Transfer

Peer reviewed publications

- 3 publications submitted to peer-reviewed scientific journals.

No.	Type of publication	Author(s)	Title of publication (i.e. article / paper / report / book chapter etc.)	Title of journal (book etc.)	JRP-Participants involved (this list should only include organisations that are authors. Please provide organisation name/acronym)	Publications status
1	Article in peer-reviewed journal	Mikael Hult, Heiko Stroh, Gerd Marissens, Faidra Tzika, Guillaume Lutter, Jiri Suran, Petr Kovar, Lukas Skala, Jaromír Sud	Distribution of radionuclides in an iron calibration standard for a free release measurement facility	Applied Radiation and Isotopes	JRC, CMI, ENVINET	Submitted
2	Article in peer-reviewed journal	D. Stanga?, P. De Felice, J. Keightley, M. Capogni, E. Ionescu	Modeling the transmission of beta rays through thin foils in planar geometry	Applied Radiation and Isotopes	IFIN-HH, ENEA, NPL	Submitted
3	Article in peer-reviewed journal	D. Stanga?, P. De Felice, J. Keightley, M. Capogni, M.R. Ioan	A Novel Method for the Activity Measurement of Large-Area Beta Reference Sources	Applied Radiation and Isotopes	IFIN-HH, ENEA, NPL	Submitted

Task 6.1 Knowledge Transfer

Good Practice Guides



- New methods disseminated to facilitate best practice amongst:
 - JRP-Partners,
 - end user communities,
 - other European NMIs.
- The following Good Practice Guides will be produced:
 - a) Measurement of surface activity and mapping the contamination (IFIN-HH, ENEA) (D1.1.15);
 - b) Radionuclide Scaling Factors, based on ISO 21238:2007 (NPL, CMI, ENEA,), (D1.4.6);
 - c) Segregation measurement of solid waste (JRC, CMI, PTB) (D2.3.4);
 - d) Free release measurement (JRC) (D3.1.7).

Task 6.1 Knowledge Transfer

Press release publications



- CMI, with support from JRP-Partners, will submit 4 articles for publication to trade journals to disseminate beyond the specialist in ionising radiation measurement.
- The press releases will be available on the JRP website.

Task 6.1 Knowledge Transfer

Standardization and technical committees



- Information on JRP progress and results disseminated to a range of standards bodies and committees and feedback sought.
- Input (via presentations) to at least 6 Working Groups of Standards Committees.
- Written reports submitted for consideration by WG members.
- Further on-going work of national and international standardisation committees reviewed to identify the standards under development related to the JRP.
- New links sought within EU Parliament members to contribute to EU Directives and other documents.
- New work items or revision of existing standards proposed based on JRP Guidelines and findings.
- **Useful contact in the SC: Miroslav Voytchev, IRSN - France**

Task 6.1 Knowledge Transfer

Standardization and technical comm. – EU, EC



Standards Committee Technical Committee WG	JRP-Participants involved	Likely area of impact / activities undertaken by JRP-Participants related to standard/committee
EU-EC	CMI, JRC, ENEA	<p>Directive 96/29/EURATOM - Basic Safety Standards for the protection of the health of workers and the general public against the dangers arising from ionising radiation.</p> <p>Council Directive, COM (2012) 242 - Basic Safety Standards for protection against the dangers arising from exposure to ionising radiation.</p> <p>Directive 2011/70/EURATOM - Community framework for the responsible and safe management of spent fuel and radioactive waste.</p> <p>Commission Recommendation 2006/851/EURATOM - Management of financial resources for the decommissioning of nuclear installations, spent fuel and radioactive waste.</p>

Task 6.1 Knowledge Transfer

Standardization and technical comm. – ISO



Standards Committee Technical Committee WG	JRP-Participants involved	Likely area of impact / activities undertaken by JRP-Participants related to standard/committee
ISO/TC85	CEA, ENEA, JRC, PTB	<p>ISO 21238:2007 - Scaling factor method to determine the radioactivity of low- and intermediate-level radioactive waste packages generated at nuclear power plants.</p> <p>ISO/CD 7503-1, Measurement of radioactivity - Measurement and evaluation of surface contamination -- Part 1: General principles.</p> <p>ISO 7503-1:1988, Evaluation of surface contamination -- Part 1: Beta-emitters (maximum beta energy greater than 0,15 MeV) and alpha-emitters.</p> <p>ISO/CD 7503-2, Measurement of radioactivity - Measurement and evaluation of surface contamination -- Part 2: Test method using wipe-test samples.</p> <p>ISO 7503-2:1988, Evaluation of surface contamination -- Part 2: Tritium surface contamination.</p> <p>ISO 7503-3:1996, Evaluation of surface contamination -- Part 3: Isomeric transition and electron capture emitters, low energy beta-emitters (E betamax less than 0,15 MeV).</p> <p>ISO/CD 7503-3, Measurement of radioactivity - Measurement and evaluation of surface contamination -- Part 3: Apparatus calibration.</p> <p>ISO/CD 8769, Reference sources -- Calibration of surface contamination monitors -- Alpha, beta and photon emitters.</p> <p>ISO 8769:2010, Reference sources -- Calibration of surface contamination monitors -- Alpha, beta and photon emitters.</p> <p>ISO 11932:1996 - Activity measurements of solid materials considered for recycling, re-use or disposal as non-radioactive waste.</p>

Task 6.1 Knowledge Transfer

Standardization and technical comm. – IEC



Standards Committee Technical Committee WG	JRP- Participants involved	Likely area of impact / activities undertaken by JRP-Participants related to standard/committee
IEC/TC45: Nuclear instrumentation and CENNELEC/TC 45	ENEA, JRC, PTB	<p>The following Standards and projects are relevant to the JRP objectives:</p> <p>IEC 60325: 2002-06-13 - Radiation protection instrumentation - Alpha, beta and alpha/beta (beta energy >60 keV) contamination meters and monitors.</p> <p>IEC 60532: 2010-08-31 - Radiation protection instrumentation - Installed dose rate meters, warning assemblies and monitors - X and gamma radiation of energy between 50 keV and 7 MeV.</p> <p>IEC 60846-1: 2009-04-07 - Radiation protection instrumentation - Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation - Part 1: Portable workplace and environmental meters and monitors.</p> <p>IEC 60846-2: 2007-07-10 - Radiation protection instrumentation - Ambient and/or directional dose equivalent (rate) meters and/or monitors for beta, X and gamma radiation - Part 2: High range beta and photon dose and dose rate portable instruments for emergency radiation protection purposes.</p> <p>IEC 61275: 2013-05-24 - Radiation protection instrumentation - Measurement of discrete radionuclides in the environment - In situ photon spectrometry system using a germanium detector.</p> <p>IEC 62438: 2010-03-18 - Radiation protection instrumentation - Mobile instrumentation for the measurement of photon and neutron radiation in the environment.</p> <p>IEC/TR 62461: 2006-12-14 - Radiation protection instrumentation - Determination of uncertainty in measurement.</p> <p>IEC 61239: 1993-07-29 - Nuclear instrumentation - Portable gamma radiation meters and spectrometers used for prospecting - Definitions, requirements and calibration.</p>

Task 6.1 Knowledge Transfer

Standardiz. and technical comm. - CEN/IAEA



Standards Committee Technical Committee WG	JRP-Participants involved	Likely area of impact / activities undertaken by JRP-Participants related to standard/committee
CEN	CMI, JRC	CEN/TR 16176:2011 - Characterisation of waste - Screening methods for elemental composition by X-ray fluorescence spectrometry for on-site verification.
IAEA	CMI, JRC	<p>The following Standards and projects are relevant to the JRP objectives:</p> <p>IAEA Joint convention on the safety of spent fuel management and on the safety of radioactive waste management.</p> <p>IAEA Safety Standards Series No. NS-G-2.7, Radiation protection and radiation waste management in the operation of nuclear power plants Safety Guide, 2002.</p> <p>IAEA Safety Standards Series No. GSR Part 5, Predisposal management of radioactive waste, 2009.</p> <p>IAEA Safety Standards Series No. SSR-5, Disposal of radioactive waste, 2011.</p> <p>IAEA Safety Standards Series No. GS-G-3.3, The management system for the processing, handling and storage of radioactive waste, 2008.</p> <p>IAEA Safety Standards Series No. WS-G-2.5, Predisposal management of low and intermediate level radioactive waste Safety Guide, 2009.</p> <p>IAEA TECDOC-1537, Strategy and Methodology for Radioactive Waste Characterisation, 2007.</p>

Task 6.1 Knowledge Transfer

Standardization and technical comm. - Others



Standards Committee Technical Committee WG	JRP-Participants involved	Likely area of impact / activities undertaken by JRP-Participants related to standard/committee
EURAMET Technical Committee - Ionising Radiation	CMI, CEA, ENEA, IFIN-HH, JRC, LNE, NPL, PTB	JRP results will be presented annually
BIPM CCRI	CMI, CEA, ENEA, IFIN-HH, JRC, LNE, NPL, PTB	JRP results will be presented annually
ICRM Gamma Spectrometry WG	ENEA, PTB	JRP results will be presented annually
ICRM Alpha Spectrometry WG	JRC, ENEA, PTB	JRP results will be presented annually
ICRM Low Level WG	JRC, ENEA, PTB	JRP results will be presented annually

Task 6.1 Knowledge Transfer Workshops



- At least 3 one-day specialized workshops, outside the General Project Meetings.
- Aim: Create awareness among users and stakeholders, get feedback, present specific problems and results.
- The workshops: information exchange platform between JRP-Partners, stakeholders, including the JRP SC and end-users.
- Target audience: representatives from national, European and international stakeholders and end-user communities.
- The workshops will be advertised through the JRP website, oral announcements, distribution of flyers at conferences and meetings, e-mails.
- Feedback from outside the JRP-Consortium will help to optimise the JRP work continuously.

Task 6.1 Knowledge Transfer Workshops - Sequence



- First workshop, following kick-off meeting. JRP information about main objectives, discuss initial needs and ideas with stakeholders. Target number of attendees: 10-20.
- Second workshop open to all stakeholders and representatives of NMIs and DIs from EU and candidate countries not participating in the JRP. Preliminary results and feedback. Target number of attendees: 20-30.
- Third workshop in association with a one-day training course using contacts throughout European networks concerned with decommissioning programmes. Measurement procedures for decommissioning operators. Final presentation of the JRP results and feedback on possible future technical developments and ways to extend the JRP impact over the JRP duration. Target number of attendees: 20-30.

Task 6.2 Training



• TRAINING COURSE

- One/two days training course in conjunction with the third workshop (Aug 17) to disseminate final JRP results to end users.
- Course targeted at decommissioning network operators, focus on:
 - novel instrumentation,
 - protocols and measurement procedures developed by the JRP.
- Training material provided
- Representatives of measurement systems manufacturers invited
- Publicity ensured through the JRP website

• SUMMER SCHOOL

- Two lectures at the International Summer School on “Operational Issues in Radioactive Waste Management and Nuclear Decommissioning” periodically organized by the JRC

• SCIENTIFIC VISITS

- Short-term technical visits between JRP-Partner scientists
- Aim: facilitate training and knowledge transfer between JRP-Partners

Thank you