



ENV54-MetroDecom Creating Impact (WP6)

JRP ENV54 MetroDecom 2nd Workshop

EC-JRC Directorate Nuclear Safety and Security

Ispra, Italy, 11-12 October 2016

Pierino De Felice
WP6 (Impact Coordinator)
National Institute for Ionising Radiation Metrology
ENEA – Rome - Italy

pierino.defelice@enea.it



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 (Sept 2016)

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

* Represented by **Vladimir Michal** for today's workshop

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



- **18** 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 (IRAC 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
08/06/2015	Vienna	International Conference on Radionuclide Metrology and its Applications (ICRM 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)
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
10/11/2015	Teddington, UK	Conference on Applied Radiation Metrology (CARM 2015)
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)
12/04/2016	12/04/2016	Sustainable Nuclear Energy Conference 2016 (SNEC2016)
09/05/2016	Cape Town, South Africa	14th International Congress of IRPA (IRPA 2016)
23/05/2016	Madrid, Spain	Int. Conf. on Advancing the Global Implem. of Decommiss. and Envir. Remediation Progr. (ACIRP 2016)
31/05/2016	Manchester, UK	Nuclear Decommissioning Conference Europe (NDC2016)
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 (NRC9, 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)
09/10/2016	Warsaw, Poland	The European Forum to discuss Nuclear Sc. & Tech. Issues, Opportunities & Challenges (ENFORUM 2016)
07/11/2016	Vienna, Austria	IAEA International Conference on Nuclear Knowledge Management – Challenges and Approaches (NKM 2016)
21/11/2016	Vienna, Austria	IAEA International Conference on the Safety of Radioactive Waste Management (ISRW 2016)
05/12/2016	Vienna, Austria	IAEA International Conference on Nuclear Security: Commitments and Actions (NSEC 2016)
06/02/2017	Honolulu, Hawaii, USA	62nd Annual Radiobioassay and Radiochemical Measurements Conference (RRMC 2017)
01/03/2017	London, UK	4th ACI's Nuclear Decommissioning & Waste Management Summit
24/04/2017	Vienna, Austria	International Conference on Applications of Radiation Science and Technology (ICARST-2017)
15/05/2017	Buenos Aires, Argentina	International Conference on Radionuclide Metrology and its Applications (ICRM 2017)
23/10/2017	Lyon, France	Fourth International Conference on Nuclear Power Plant Life Management (NPP 2017)
		IAEA Radiation Protection and Nuclear Safety International conferences
		Conferences or workshops organised by stakeholders
	Czech Republic	18th Radiochemical Conference (RadChem 2018) April/May 2018

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

WM2016 Conference, March 6-10, 2016. Phoenix, Arizona, USA

**New High-Throughput Measurement Systems for Radioactive Wastes
Segregation and Free Release – 16166**

Jiri Suran^{*}, Petr Kovar^{*}, Jana Smoldasova^{*}, Jaroslav Solc^{*}, Lukas Skala^{**},
Dirk Arnold^{***}, Simon Jerome^{****}, Pierino de Felice^{*****}, Bent Pedersen^{*****},
Faidra Tzika^{*****}, Raf van Ammel^{*****}

- 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)



Sustainable Nuclear Energy Conference 2016

12-14 April 2016

East Midlands Conference Centre, Nottingham, UK

*Analysis of Samarium-151 in Samples
Relevant to Radiological Characterisation of
Nuclear Decommissioning Sites*

María García Miranda,
National Physical Laboratory, UK

- The conference will look at the nuclear cycle from cradle to grave with a focus on current reactor systems, future systems and fuels, advanced fuel cycles and the new challenges of decommissioning and waste management.

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

[62] Development of radiochemical analysis strategies for decommissioning activities

Dr. ZAPATA-GARCÍA, Daniel
(Physikalisch-Technische
Bundesanstalt, PTB)

Task 6.1 Knowledge Transfer

Peer reviewed publications



- At least 5 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.
- Papers topics already defined in each WP (7 publ. delivered in technical WPs + 5 publ. delivered in WP6)
- Clause 13.5 of the JRP-Contracts requires all authors of publications funded through a JRP to make their research publicly available through the EURAMET Open Access Repository.
- Keep Impact report sheet on the share point updated

Task 6.1 Knowledge Transfer

Peer reviewed publications

- 3 publications already 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. Capoqni, 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. Capoqni, 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

- At least 1 more publication is expected from ICRM-LLRMT 2016 conference

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.

No.	Type of dissemination activity (event, trade journal, exhibition, etc.)	Title of event / trade journal / exhibition / etc.	Date (Month and Year) of event / trade journal / exhibition / etc.	Location (country) of event / publication etc. (if appropriate)	JRP-Participants involved (please provide organisation name /acronym)
1	Press release	Road to Nowhere/Protons for Breakfast Blog	September 21, 2015	United Kingdom	Michael de Podesta/NPL
2	Communication with the public	Metrology for Decommissioning Nuclear Facilities (MetroDECOM Project)	October 2016	Italy	Pierino De Felice/ENEA

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 committees

No.	Type of regulatory body	Name of standardisation Body (CEN, ISO, IEC, etc.)	Name and number of Technical Committee (or equivalent)	Name and number of working group, sub-committee (or equivalent)	Type of engagement	Date (Month and Year) of meeting
1	International standards development organisation	IAEA	Mr Vladan Ljubenov, Division of Radiation, Transport and Waste Safety, Department of Nuclear Safety and Security, IAEA, Vienna International Centre	IAEA Decommissioning Safety Standards and Supporting Publications (Safety Reports, TECDOCs)	presentation of JRP activities/ research results	First MetroDECOM Workshop 25/11/2015, Trebic, Czech Republic
2	European standards development organisation	JRC-Ispra	PhD Tatjana Bogucarska and Bent Pedersen, Scientific and Technical Support Officer, European Commission JRC, Institute for Transuranium Elements, Ispra, Italy	EU Directives and Recommendations	presentation of JRP activities/ research results	First MetroDECOM Workshop 25/11/2015, Trebic, Czech Republic
3	Regulatory/regulation-making/policy-making body	Nuclear Energy Agency	Expert Group on Fukushima Waste Management and Decommissioning R&D (EGRWME)		presentation of JRP activities/ research results	27-28 November 2014, Paris, France

- Mr Vladan Ljubenov is IAEA Waste Safety Specialist, actively involved in development of IAEA Nuclear Decommissioning Standards
- PdD Tatiana and Dr Bent Pedersen are Scientific and Technical Support Officer, European Commission, JRC, Institute for Transuranium Elements, Ispra, Italy

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 specialised 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



- JRC and NPL will organise a one, or two days training course held in conjunction with the third workshop, near the end of the JRP (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 will be provided.
- Representatives of measurement systems manufacturers invited.
- Publicity ensured through the JRP website and at EURAMET TC-IR meeting.

Task 6.2 Training Summer school



- JRC and ENEA will provide at least 2 lectures at the International Summer School on “Operational Issues in Radioactive Waste Management and Nuclear Decommissioning” (www.RadioactiveWasteManagement.org) periodically organised by the JRC.

Task 6.2 Additional Training

- Outside the JRP Protocol, in occasion of JRP meetings

No.	Type of training and audience e.g. course, one-to-one, etc. for JRP participants (internal) or non-JRP audience (external)	Title of training	Date (Month and Year) of training	Location (country) of training
1	One-to-one training for JRP-Consortium	GPM/PMB meeting	Sep 12, 2014	Czech Republic
2	One-to-one training for JRP-Consortium	GPM/PMB meeting	March 4-5, 2015	United Kingdom
3	One-to-one training for JRP-Consortium	GPM/PMB meeting	Sep 15-17, 2015	Finland
4	One-to-one training for external (non-JRP) audience	Metrology for decommissioning nuclear facilities	February 17, 2016	Belgium
5	Training course/workshop for external (non-JRP) audience	Development of optical alpha detection in GIFT-CBRN and MetroDECOM projects – Present status and future outlook	December 9, 2015	Germany

Task 6.2 Training Scientific visits



- ENEA will assure at least 3 short-term technical visits of JRP-Partner scientists to other JRP-Partners.
- Aim: facilitate training and knowledge transfer between JRP-Partners.
- CMI and JRP-Partners will apply for early-stage researchers mobility grants.

No	Purpose of technical visit	Date & place of technical visit	Numer of days	Deliverable number related	JRP-Participants involved
				(if appropriate)	
1	Development of surface contamination standards and measurement methods	ENEA 12-16th October 2015	5	WP1	Doru Stanga, Marco Capogni

Task 6.3 Exploitation

- To ensure results of the JRP are exploited to the benefit of end-users.
- Knowledge generated consists of:
 - open knowledge that any interested party will have access to and benefit from and which will be disseminated freely;
 - specific knowledge developed by JRP-Participants.
- The IP outputs available to JRP-Partners, agreed and handled as part of the CA.
- Description of activities:
 - Potential for commercialization of results carefully investigated and exploitation plan produced at the Kick-off Meeting.
 - Plan updated as necessary.
- Potential licensing discussed during all JRP meetings and reported on the JRP website.

Task 6.3 Exploitation

- End user uptake & exploitation to note:

No.	Description of uptake /use of project outputs by the end-user or users (see the 'Examples' Sheet for examples of uptake and exploitation activities)	Organisation(s) name	Relevant contact person (name)
1	Free Release Measurement Facility	Envinet	Jiri Suran
2	Thermometry measurements instruments in decommissioning sites	ANDRA	
3	Thermometry measurements instruments in decommissioning sites	EDF	
4	iPIX systems	Canberra	
5	Radioactive gas monitoring in decommissioning sites	LabLogic	

Thank you