

## **INSC Project MC3.01/13**

EC Contract N° NSI/2014/343-969

**“Training and Tutoring for experts of the NRAs and their TSOs for developing or strengthening their regulatory and technical capabilities”**

### **TASK 2**

#### **Tutoring Module**

**on**

**“Radioactive sources in medical, industrial and research related applications”**

November 21<sup>st</sup>, 2016 – January 13<sup>th</sup>, 2017

ITER – Rome (Italy)

### **Tutoring Programme**

*November 2016*

**INSC Project MC3.01/13  
EC Contract N° NSI/2014/343-969**

**TASK 2**

**“Radioactive sources in medical, industrial and research related applications”**

**Duration: 2 months - November 21<sup>st</sup>, 2016 – January 13<sup>th</sup>, 2017**

**Venue: ITER – Rome (Italy)**

Tutoring Coordinator: R. Remetti

The tutoring activity has been conceived as “on the job training” at ITER – Italy in the area of “Radioactive sources in medical, industrial and research related applications”.

It will contribute to a concrete and practical “build-up” of knowledge allowing a sustainable transfer of approaches and methods.

**Tutoring objective and expected achievements**

To work on, and practice, key safety and security aspects of applications of Radioactive Sources (RSs) in different fields (with focus on medical application) is the main objective of this tutoring.

**Tutoring content:**

The tutoring module (2 months for 2 tutees) is organized starting soon after the one week training at ITER in Rome on the same topic “Radioactive sources in medical, industrial and research related applications”.

The tutoring course will address the management of RSs in the medical field related requirements and in particular correspondent regulatory control and oversight activity. Application in industrial field will also be considered.

It will cover aspects related to management of the RSs, regulatory requirements, security aspects, authorization process, content of safety assessment and oversight, role and responsibilities of the operators and of the regulatory body.

Familiarization with EU Directive and the IAEA code of conduct on RSs will be ensured with the issues relate to implementation of the EU Directive for BSS (2013) and related impact on RSs application in medical field will be described.

The tutoring will include onsite visits to medical facilities and research/industrial facilities as far as possible.

The tutoring will include the following achievements:

- Consolidate knowledge of safety and regulatory requirements for application of RSs in medical and industrial field.
- Familiarization with authorization process, regulatory review, control and oversight.
- Direct evidence of RS application organizing technical visits.

## WEEKLY PROGRAM

Technical area & Presentation	Tutors
<b>Part I – Introduction and radiation protection</b>	
<b>1<sup>st</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Interaction of radiation with matter, shielding and detection techniques</li> <li>• Radiation protection requirements</li> <li>• Protection of workers, public and environment</li> <li>• Dose calculation</li> <li>• Concept of critical group and reference individual</li> <li>• Visit to Laboratory at “La Sapienza” University</li> </ul>	A. Madonna (ITER) R. Remetti (ITER)
<b>Part II – Use and categorization of RS</b>	
<b>2<sup>nd</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Overview of RS application</li> <li>• Categorization of Radioactive Sources</li> <li>• National Register</li> <li>• Import &amp; Export of Radioactive Sources</li> <li>• Directive 2003/122/Euratom to high-activity sealed radioactive sources (HASS)</li> </ul>	M. Dionisi (ISPRA) R. Remetti (ITER)
<b>Part III – Management of radioactive sources (RS)</b>	
<b>3<sup>rd</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Authorization on use of RS in medical and industrial field</li> <li>• Management of used RS, requirements and obligations (practical examples)</li> <li>• Responsibility of the licensee and supplier</li> <li>• Recovery of orphan sources</li> <li>• Visit to Nucleco in Casaccia (TBD)</li> </ul>	A. Farina (Nucleco) S. Rizzo (Sogin)
<b>Part IV – Medical application of RS</b>	
<b>4<sup>th</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Different medical facilities and application</li> <li>• Protection of patient</li> <li>• ALARA application</li> <li>• Role and function of RPE and RPO</li> <li>• Role of Medical Physics Expert</li> <li>• Visit to INFO</li> </ul>	R. Remetti (ITER) L. Strigari (IFO)

<b>Part V – Regulatory licensing and oversight</b>	
<b>5<sup>th</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Regulator’s role and functions</li> <li>• Authorization procedure for use of RS in Italy and Hungary</li> <li>• Regulatory inspections on medical application of RS</li> <li>• Protection from natural sources of radiation and regulatory requirements</li> <li>• The new EC Directive: main aspects and authorization procedure</li> <li>• The new EC Directive: Occupational, medical and public exposure</li> </ul>	C. Horvath (HAEA) R. Remetti (ITER) C. Salierno (ISPRA)
<b>Part V – International legal instruments</b>	
<b>6<sup>th</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Legal framework for use and application of RS</li> <li>• IAEA Role and function</li> <li>• IAEA Code of Conduct on the Safety and Security of Radioactive Sources</li> <li>• IAEA Guidance on I/E of RS</li> <li>• IAEA Standards on Transport of RM</li> </ul>	S. Trivelloni R. Remetti
<b>Part VII – RS security &amp; lessons learnt</b>	
<b>7<sup>th</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Security of RS and international requirements</li> <li>• Borders monitoring</li> <li>• Experience feedback from management of RS</li> <li>• Relevant accidents involving RS</li> <li>• NRA role in public involvement</li> </ul>	G. Sedda (ISPRA) S. Rizzo (SOGIN) K. Slavcheva (ITER)
<b>Part VIII – Finalization &amp; Reporting</b>	
<b>8<sup>th</sup> Week</b>	
<ul style="list-style-type: none"> <li>• Tutees common Report elaboration and finalization</li> </ul>	

At the end of the Tutoring Module the Tutees will elaborate a common Report containing the following:

- **INTRODUCTION**
- **TUTORING OBJECTIVE**
- **TUTORING PROGRAM**
- **ACTIVITIES PERFORMED**
- **MAIN RESULTS**
- **CONCLUSIONS**

The Tutees Report will be agreed with the tutoring coordinator.

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