

**Project Fiche – 2009 IPA Horizontal Programme
on Nuclear Safety and Radiation Protection**

1. Basic information

- 1.1 CRIS Number:** 2009/021-640
1.2 Title: Decommissioning of underground liquid transuranic waste tanks and associated piping
1.3 ELARG Statistical code: 03.64 - Nuclear safety
1.4 Location: Vinča Nuclear Institute in Serbia

Implementing arrangements:

1.5 Contracting Authority

The European Union represented by the European Commission for and on behalf of Serbia in joint management with the International Atomic Energy Agency (IAEA).

1.6 Implementing Agency

The International Atomic Energy Agency (IAEA), Technical Co-operation Department

1.7 Beneficiary

The Republic of Serbia
Institute of Nuclear Sciences
11001, Belgrade, P.O Box 522
Dr. Jovan Nedeljkovic, Director General

Financing

- 1.8 Overall cost (VAT excluded)¹:** EUR 1 000 000
1.9 EC contribution: EUR 1 000 000
1.10 Final date for contracting: No later than 31 March 2013
1.11 Final date for execution of contracts: No later than 31 March 2015
1.12 Final date for disbursements: No later than 31 March 2016

2. Overall Objective and Project Purpose

2.1 Overall Objective

To improve radioactive waste management at the Vinča Institute in line with the Community *acquis* and the best EU practices.

¹ The total cost of the project should be net of VAT and/or other taxes. Should this not be the case, the amount of VAT and the reasons why it should be considered eligible should be clearly indicated

2.2 Project purpose:

To contribute to the implementation of the Vinča Nuclear Institute Decommissioning project (VIND) through the decommissioning of underground liquid transuranic waste tanks and associated piping at the Vinca Institute.

2.3 Link with AP/NPAA/EP/SAA

Article 110 of the draft SAA with the Republic of Serbia explicitly mentions nuclear safety as one of the cooperation topics.

As short term priority for Serbia mentioned in Annex 2 of European Partnership with Serbia, continuation of dismantling of the Vinca research reactor is stated.

The Serbia 2008 progress report mentions that "Plans on management of sealed radioactive sources, environmental monitoring and radiation protection in the context of medical and industrial applications have to be further developed. An appropriate regulatory authority has still to be established. Serbia has not yet acceded to the Convention on Nuclear Safety and to the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management".

2.4 Link with MIPD

The IPA Multi-beneficiary Multi-annual indicative Planning Document (MIPD) 2009-2011², *section 2.3.3.11 - Nuclear Safety and Radiation Protection*, mentions that "in Serbia [...], the operation, refurbishment and dismantling of nuclear research reactors constitute additional sources of radiation risks that would require investment, in particular for the management of spent nuclear fuel and radioactive waste".

2.5 Link with National/Sectoral Investment Plan

- Decision of the Serbian government to decommission the RA research reactor located at the Vinča Institute and approval of the VIND programme (2002 and 2004)
- Draft of the Serbian new Law on ionising radiation protection and on nuclear safety (2006) and existing Serbian Law on Protection against Ionising Radiation (1996)
- Activity framework in the field of nuclear safety and radiation protection for the period 2008-2010 decided by the government of Serbia.

3. Description of project

3.1 Background and justification:

Operation of the RA nuclear research reactor at Vinča until 1983 has generated spent nuclear fuel and many types of radioactive waste that need to be properly managed. This is the main aim of the VIND programme that was established in 2002 based on a decision of the Serbian government to decommission the Vinča RA research reactor.

² C(2009)4518 of 16 June 2009

The VIND programme comprises a number of successive phases of implementation that are covering the period 2006-2013.

Management of spent nuclear fuel is considered as the most urgent problem to be solved and therefore the three first phases addressed the characterisation, repackaging, transport to the Russian Federation and reprocessing, storage and disposal operations. It is important to note that phase 2 (transport of spent nuclear fuel to the Russian Federation) is funded by the 2007 IPA horizontal programme on nuclear safety and radiation protection.

Management of radioactive waste to be generated during the decommissioning and dismantling of the RA research reactor constitutes also an important radiological issue and phases 4 and 5 of the VIND programme are devoted to the transformation of an old building into a waste treatment and conditioning facility. Funding of the equipment to be installed into this facility was also part of the 2007 IPA horizontal programme on nuclear safety and radiation protection.

However proper management of radioactive waste stored at the Vinča Institute requires additional phases to be implemented over the period 2010-2011, i.e.

- Phase 6: Conditioning, packaging and storage of disused sealed radioactive sources;
- Phase 7: Conditioning and processing of improperly stored and unconditioned radioactive waste;
- Phase 8: Decommissioning of the old storage facilities for sources and radioactive waste;
- Phase 9: Dismantling of the old piping system and tanks containing radioactive liquid waste, and
- Phase 10: Radioactivity survey of the Vinča site.

Several donor countries (e.g. the USA, Czech Republic) have already expressed their intention to contribute to the funding of these activities as well as the IAEA. However the funds that are expected to be collected are still far from the needs already identified.

Therefore the aim of this project is to contribute to the VIND programme via the support to Phase 9: "Dismantling of the old piping system and tanks containing radioactive liquid waste".

From the radiological point of view, this phase proves to be quite important since some of the tanks are containing high-activity, long-lived radioactive liquid transuranic waste; they are in bad condition and may leak in the future. If so a dramatic radioactive contamination of the underground and the water table may occur.

Being part of the VIND programme, the project is also supported by the Ministry of Science and Technological Development of the Government of the Republic of Serbia providing continuity of funding.

3.2 Assessment of project impact, catalytic effect, sustainability and cross border impact

The project will reduce the risks of radioactive pollution of the environment since radioactive liquid waste in store in old tanks at the Vinča Institute will be processed and stored according to best EU practices.

It has a catalytic effect in the sense that providing funding to phase 9 of the VIND programme will enable the whole sequence of operations leading to a safer and more secure Vinča nuclear site to become effective.

3.3 Results and measurable indicators:

Results:

- Comprehensive radiological characterisation of tanks, piping and surrounding area for decommissioning performed;
- Identification of possible gaps in the regulatory framework in force regarding management of slightly contaminated materials and waste;
- Possible drafting of new regulations regarding management of slightly contaminated materials and waste;
- Revised Safety Analysis Report for the decommissioning license, including a conceptual project approach, prepared by the Vinča institute and approved by the regulatory body;
- Tendering procedure for sub-contracting the dismantling of the old piping system and tanks containing radioactive liquid waste launched;
- Sub-contractor selected to perform the work;
- Radioactive liquid waste from all tanks removed and processed;
- Tanks decontaminated for possible recycling or storage as low level waste;
- Pipes decontaminated for possible recycling or storage as low level waste;
- All radioactive waste generated during these operations properly processed, conditioned and stored in the new storage facility under construction.
- Final decommissioning report on this project completed and delivered to stakeholders.

Measurable indicators:

- A decommissioning plan established;
- A decommissioning license approved by the regulatory body;
- The three underground radioactive liquid waste tanks dismantled, removed and the corresponding areas fully rehabilitated
- At least 100 drums of conditioned radioactive waste generated during decommissioning operations

3.4 Activities

- Perform comprehensive radiological characterisation of tanks, piping and surrounding area for decommissioning;
- Assist Vinča experts in the revision of a safety analysis report (SAR), including a conceptual project approach, that should be submitted to the Serbian nuclear regulatory body. The revised SAR should in particular develop a detailed plan for personnel protection, contamination control, materials control, and traffic management (piping crosses under main site road);
- Prepare technical specifications for sub-contracting the removal and processing of radioactive liquid waste through an open tendering procedure;

- This sub-contract(s) should include the following activities:
 - Remove and condition all transuranic and chemical liquid waste from each tank;
 - The contractor shall condition any contaminated waste generated or used during liquid waste conditioning process and tank decontamination (conditioned waste to be turned over to Vinča for characterisation, safe storage in the new storage facility);
 - Identify the methods to be used to remove and condition the chemically and radiologically contaminated tanks, or stabilize them in place;
 - If the tanks are removed, then they will also be cut/sized and conditioned, and the associated contaminated materials will be conditioned by the contractor and then turned over to Vinča for safe storage;
 - Survey all underground piping from RA reactor to underground transuranic waste tanks (piping should be assumed to contain transuranic waste unless determined otherwise by direct measurement at time of removal. The objective of the survey is to determine the exact location of the piping, where it crosses any roadways, where it connects to the RA reactor, and where it will be capped);
 - Remove and condition all underground piping from RA reactor to underground transuranic waste tanks; characterize all piping; decontaminate piping as necessary to downgrade waste classification from transuranic waste to LLW;
 - Condition any contaminated waste and materials generated or used piping removal and decontamination process (conditioned waste from all piping removal activities to be turned over to Vinča for characterization, safe storage in the new storage facility);
 - All excavations for tank removal and piping removal to be filled with clean soil, unless otherwise approved by the Serbian Regulatory Authority;
 - Remediation, as necessary, of the adjacent areas (out to approximately 10m from existing tanks and 5m from piping), including disposition of clean/exempt materials and conditioning and storage of LLW;
 - Environmental monitoring, post-decommissioning final radiological characterisation and approval of regulatory body for release for industrial use.

3.5 Conditionality and sequencing:

The implementation of this project requires the establishment and functioning of a regulatory body in charge of nuclear issues in Serbia since part of the project will consist of drafting a Safety Analysis Report to be reviewed and approved by this body.

3.6 Linked activities:

All the other phases of the VIND programme.

3.7 Lessons learned

Since 2004 the implementation of the VIND programme under the coordination of the IAEA is proceeding according to the time schedule. However, the latest developments of this programme showed that supplementary technical expertise would be required for the monitoring taking into account the increasing number of projects being implemented and their high technical complexity.

4. Indicative Budget (amounts in EUR)

			SOURCES OF FUNDING									
			TOTAL EXP.RE	IPA EU CONTRIBUTION		NATIONAL CONTRIBUTION					PRIVATE CONTRIBUTION	
ACTIVITIES	IB (1)	INV (1)	EUR (a)=(b)+(c)+(d)	EUR (b)	%(2)	Total EUR (c)=(x)+(y)+(z)	%(2)	Central EUR (x)	Regional/Local EUR (y)	IFIs EUR (z)	EUR (d)	%(2)
Activity 1		x	1 000 000	1 000 000	100							-
Contribution Agreement with IAEA		x	1 000 000	1 000 000	100							-
TOTAL IB												
TOTAL INV			1 000 000	1 000 000	100							
TOTAL PROJECT			1 000 000	1 000 000	100							

Amounts net of VAT

- (1) In the Activity row use "X" to identify whether IB or INV
- (2) Expressed in % of the **Total** Expenditure (column (a))

Co-financing from the Serbian government, IAEA and other contributors

As discussed in preceding paragraphs, this project is intended to support the Vinča Institute Nuclear Decommissioning (VIND) programme, which is Serbia's priority nuclear safety and radiation protection support programme. For more than 40 years, Serbia was the central collection centre for all disused sealed sources and radioactive waste from the former Yugoslavia, including countries, which are now EU Member States. These sealed sources and wastes are found in rooms and degraded storage facilities located all over Vinča. Only a few of the thousands of disused sealed sources and the thousands of waste containers have ever been conditioned, and the conditioning methods for those few items do not meet current international standards. Construction of proper waste processing facilities, secure storage facilities, and source conditioning facility, as well as conditioning and storage of the resultant wastes and sources, is estimated to cost more than EUR 8 million.

VIND is also intended to repatriate more than 8000 highly enriched and low enriched spent fuel elements to Russia from the RA Research Reactor. The total cost of the repackaging, transport, spent fuel reprocessing, and disposal of the resultant waste will exceed EUR 36 million.

Finally, decommissioning of the RA Research Reactor and degraded support facilities, including site-wide radiological characterization, remediation or resolution of identified sources of radiation and contamination, and upgrading the capabilities of the radiation protection programme, is estimated to cost an additional EUR 25 million or more.

The VIND programme has been in progress since 2004 and has received more than EUR 16 million in contributions through 2008 from sources other than the EC; this includes nearly EUR 9 million in support from the Serbian Ministry of Science. An additional EUR 14 million is currently foreseen for 2009-11. The EC has also committed to a EUR 5.46 million through a Contribution Agreement with IAEA (IPA 2008/149-555).

A summary of the VIND funding approvals is included in the following table. It should be noted that funding for decommissioning activities, sealed sources, and waste management decline sharply in 2009-11, as the government, IAEA, and other contributors are shifting their financial resources toward spent fuel repatriation. However, it is still anticipated that the Ministry of Science and Technological Development will contribute more than EUR 1 million annually in domestic or donor funding to VIND activities, mostly in terms of local labour resources.

Existing VIND Funding Approvals

Spent Fuel Repatriation Project (EUR)/ Phases 1, 2 and 3 of the programme			
	2004-08 Funding	2009-11 Funding	Total
European Commission	885 000	3 545 000	4 430 000³
IAEA	1 910 152	526 667	2 436 819
Nuclear Threat Initiative (NGO)	2 578 820	-	2 578 820
USA	550 000	4 000 000	4 550 000
Czech Republic	250 000	500 000	750 000
Russia *	-	-	-
Total	6 173 972	8 571 667	14 745 639

* IAEA is negotiating with Russia additional funding of more than EUR 7 million.

Sealed Sources and Waste Management (including Nuclear Security) (EUR)/ Phases 4 to 7 of the programme			
	2004-08 Funding	2009-11 Funding	Total
European Commission	715 000	315 000	1 030 000⁴
IAEA	1 065 724	200 000	1 265 724
Nuclear Threat Initiative (NGO)	334 333	-	334 333
USA	566 667	300 000	866 667
UK	40 000	40 000	80 000
Slovenia	30 000	40 000	70 000
Total	2 751 724	895 000	3 646 724

Decommissioning (EUR)/ Phases 8 to 10 of the programme			
	2004-08 Funding	2009-11 Funding	Total
European Commission	-	-	-
Nuclear Threat Initiative (NGO)	125 671	-	125 671
IAEA	314 618	-	314 618
USA	6 833	-	6 833
Total	447 122	-	447 122

Serbia Funding from Ministry of Science (EUR)	
	2004-08 Funding
2004	500 000
2005	800 000
2006	1 100 000
2007	2 500 000
2008	4 000 000
Total	8 900 000

³ Under the 2007 IPA horizontal programme on nuclear safety and radiation protection

⁴ Idem

5. Indicative Implementation Schedule (periods broken down per quarter)

Contracts	Start of Tendering	Signature of Contract	Project Completion
Contribution Agreement with IAEA	Not applicable	Q2 2012	Q2 2014

6. Cross cutting issues**6.1 Equal Opportunity:**

The project will benefit both women and men through improvements in environmental protection and safety. On all activities, both men and women will have equal opportunities to compete for contracts and to work on any related activities.

6.2 Environment

This project will improve radiological conditions within the Vinca site and the surrounding environments by reducing the potential for release of radioactivity via groundwater, airborne activity, or malicious intent. All radioactive materials, sources, etc. will be removed from areas of little control and placed in proper storage, including extensive radiological characterization and conditioning; this will ensure graded levels of security and radiological controls so as to reduce the impact on the environment, workers and the general public.

6.3 Minorities

On all activities, minorities will have equal opportunities to compete for contracts and to work on any related activities.

ANNEXES

- I- Log frame in Standard Format
- II- Amounts (in EUR) contracted and disbursed per quarter over the full duration of the project
- III- Description of Institutional Framework
- IV- Related laws, regulations and strategic documents
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ANNEX I: Logical framework matrix in standard format

LOGFRAME PLANNING MATRIX FOR Project Fiche	Programme name and number – IPA Horizontal Programme on Nuclear Safety and Radiation Protection – 2009/021-640	
Decommissioning of underground liquid transuranic waste tanks and associated piping at the Vinča Institute of Nuclear Sciences, Belgrade, Serbia	Contracting period expires – No later than 31 March 2013.	Disbursement period expires – No later than 31 March 2016
	Total budget : EUR 1 000 000	IPA budget: EUR 1 000 000

Overall objective	Objectively verifiable indicators	Sources of Verification	
To improve radioactive waste management at the Vinča Institute in line with the Community <i>acquis</i> and the best EU practices.	Underground liquid waste tanks removed or stabilized; all wastes processed and stored; area released for industrial use	Final project report accepted by Regulatory Body; CWID waste inventory report	
Project purpose	Objectively verifiable indicators	Sources of Verification	Assumptions
To contribute to the implementation of the Vinča Nuclear Institute Decommissioning project (VIND) through the decommissioning of underground liquid transuranic waste tanks and associated piping at the Vinca Institute.	Underground waste tanks removed or stabilized; area remediated as applicable	Final project report accepted by Regulatory Body	Waste can be removed and processed; tanks and piping can be stabilized in situ
Results	Objectively verifiable indicators	Sources of Verification	Assumptions
3.1 - A detailed conceptual design, implementation plan, personnel health and safety plan, radiological characterization, and safety analysis report incorporated into a revised decommissioning plan have been submitted to the regulatory authority for a revised decommissioning license; the license revision for decommissioning of underground liquid transuranic waste tanks has been approved by the regulatory authority.	<ul style="list-style-type: none"> A decommissioning plan established; A decommissioning license approved by the regulatory body; 		
3.2 Identification of possible gaps in the regulatory framework in force regarding management of slightly contaminated materials and waste; Possible drafting of new regulations regarding management of slightly contaminated materials and waste;			
3.3 - The underground liquid transuranic waste tanks have been removed along with the associated piping; and all associated waste has been treated, conditioned and placed in storage.	At least 100 drums of conditioned radioactive waste generated during decommissioning operations	Progress reports Verification missions	
3.4 - Area adjacent to underground liquid waste tanks and associated piping remediated for industrial use; final area radiological characterization performed; and site approved for industrial use by regulatory authority; final decommissioning report completed and issued to stakeholders.	The three underground radioactive liquid waste tanks dismantled, removed and the corresponding areas fully rehabilitated	Final report	
Activities	Means	Costs	Assumptions
All the following activities should be contracted through a Contribution Agreement with the IAEA. The number of contracts identified so far is only indicative	CA with IAEA	EUR 1 000 000	
3.1.1 - Perform comprehensive radiological characterisation of tanks, piping and surrounding area for decommissioning.	Subcontract		
3.1.2 - Assist in completing, submitting and obtaining approval of the revision of the site decommissioning safety analysis report (SAR), including a conceptual project approach, that should be submitted to the Serbian nuclear regulatory body. The revised SAR should in particular develop a detailed plan for personnel protection, contamination control, materials control, and traffic management (piping crosses under main site road).	Subcontract		Decommissioning draft SAR available in editable format; draft decommissioning plan for RA reactor available in editable format
3.1.3 - SAR and decommissioning plan approved by the regulatory authority; decommissioning license amended for decommissioning of underground liquid waste tanks.	Subcontract; expert mission		

3.2.1 - Prepare technical specifications for sub-contracting the removal and processing of radioactive liquid waste through an open tendering procedure; initiate tender offer to include activities 3.2.2 through 3.2.11; optionally may include 3.2.12; bids to identify the methods to be used to remove, treat, condition, package, transport liquid waste from the chemically and radiologically contaminated tanks.	Expert		
3.2.2 - Develop MS Project schedule.	Expert		
3.2.3 - Remove and condition all transuranic and chemical liquid waste from each tank.	Subcontract		FSAR and decommissioning plan approved by regulatory body
3.2.4 - Decontaminate each tank to downgrade waste classification from transuranic waste to low level waste (LLW).	Subcontract		
3.2.5 - Characterize and process any contaminated waste and materials generated or used during liquid waste conditioning process and tank decontamination (treated and conditioned waste to be turned over to Vinča for safe storage in the Waste Storage Facility).	Subcontract		Waste storage facility available
3.2.6 - Remove, cut/size and condition three contaminated tanks and associated contaminated materials (conditioned waste to be turned over to Vinča for safe storage in the new storage facility).	Subcontract		
3.2.7 - Remove one potentially clean tank; verify as clean or decontaminate as necessary (turn over clean tank and any associated clean materials to Vinca for storage, salvage or reuse).	Subcontract		
3.2.8 - Survey all underground piping from RA reactor to underground transuranic waste tanks. (Piping should be assumed to contain transuranic waste unless determined otherwise by direct measurement at time of removal. The objective of the survey is to determine the exact location of the piping, where it crosses any roadways, where it connects to the RA reactor, and where it will be capped).	Subcontract		
3.2.9 - Remove and condition all underground piping from RA reactor to underground transuranic waste tanks; characterize all piping; decontaminate piping as necessary to downgrade waste classification from transuranic waste to LLW.	Subcontract		Waste storage facility available
3.2.10 - Condition any contaminated waste and materials generated, including all piping removed and decontamination process waste. (Conditioned waste from all piping removal activities to be turned over to Vinca for characterization, safe storage in the Waste Storage Facility).	Subcontract		Waste storage facility available
3.2.11 - All excavations for tank removal and piping removal to be filled with clean soil.	Subcontract		
3.2.12 - Initiate tender offer, issue contract, and implement the sample and analysis plan.	Subcontract		
3.2.13 - Fellowships and training in support of decommissioning activities for underground liquid waste tanks.	Fellowship		
3.3.1 - Tender offer for, and remediation of, the adjacent areas (out to approximately 10m horizontal measure from existing tanks and 5m from piping), including disposition of clean/exempt materials and conditioning and storage of LLW.	Subcontract		
3.3.2 - Tender offer for and implementation of final radiological characterization and preparation for long term environmental stabilization and control for continued industrial use.	Subcontract		
3.3.3 - Assistance in developing final decommissioning and area remediation report for submission to the Ministry of Science, Ministry of Environment, Vinca Institute, EU and other stakeholders.	Subcontract		

3.3.4 - Other expert and staff travel for progress assessment, on site assistance, problem resolution, verification of achievement of performance indicators. (Applies to all activities.)	Expert mission		
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ANNEX II: Amounts (EUR) contracted and disbursed per quarter over the full duration of the project

Contracted	Q2 2012	Q3 2012	Q4 2012	Q1 2013	Q2 2013	Q3 2013	Q4 2013	Q1 2014	Q2 2014
Contribution Agreement with IAEA	1 000 000								
Cumulated	1 000 000	1 000 000	1 000 000	1 000 000	1 000 000	1 000 000	1 000 000	1 000 000	1 000 000
Disbursed									
Contribution Agreement with IAEA	400 000				200 000		200 000		200 000
Cumulated	400 000	400 000	400 000	400 000	600 000	600 000	800 000	800 000	1 000 000

ANNEX III: Description of Institutional Framework

The responsibilities for the fields related to the peaceful use of nuclear energy (health, the environment, science and technology, nuclear safety and radiation protection, agriculture, transport, etc) rest with several ministries.

The Ministry of Science and Technological Development (MSTD) is responsible for R&D in the nuclear sector, for nuclear safety, nuclear materials and radioactive waste management in the country. Under the Ministry's competence and financing are the R&D, including the Vinča Institute of Nuclear Sciences, the Institute of Technology of Nuclear and Other Mineral Raw Materials (ITNMS), the Institute of Geology, the Institute of Nuclear Energy Application in Agriculture (INEP) and others. The Ministry ensures that the law on the nuclear safety and the related regulations are carried out and provides the financial resources for the activities. The MSTD is responsible for bilateral and multilateral international scientific-technical cooperation of Serbia, including the cooperation with the IAEA.

The Ministry for Environment and Spatial Planning (MESP) is responsible and leading in radiation protection and monitoring of the environment, emergency planning etc.

In force is the Law on Protection against Ionizing Radiation that was enacted in 1996 (46/96). It establishes measures for the protection against ionising radiation, as well as nuclear safety measures, liability for nuclear damages, supervision and authorization, penalties. Based on the Law on Protection against Ionizing Radiation, there are 11 regulations related to protection against ionizing radiation and for the safety of radiation sources and 5 regulation related on nuclear safety and security.

Currently, there is no effectively independent Serbian regulatory body for radiation and nuclear safety. Law 46/96 does not make provision for the establishment of a regulatory body, although it makes reference to the 'competent Ministry'. Currently, in accordance with the *Law on Ministries*, the MSTD and MEPS are identified as the competent Ministries.

A temporary regulatory body called the 'Regulatory Commission on Radiation and Nuclear Safety' has been established by the MSTD to administer the decommissioning of the research

reactor at the Vinca Institute, the shipment of spent nuclear fuel to the original Russian supplier, and the treatment of radioactive waste.

The Vinca Institute of Nuclear Sciences was founded in 1948. It is the main institute involved in research and applications in nuclear science (since 1968 multidisciplinary, not only nuclear) and covers a wide range of scientific and engineering fields; 800 employees, out of which 400 is research staff, organized in 16 laboratories (actually departments) from Nuclear Physics, Theoretical Physics and Physics of Condensed Matter, Radiation and Environmental Protection, Nuclear Engineering to Multidisciplinary Research and Engineering which are, to a large extent, independent.

The Radiation and Environmental Protection Laboratory covers: environmental radioactivity control, ionization radiation dosimetry, metrology analyses, radiation protection, radioactive waste arrangement and decontamination, reactor dosimetry, instrumentation servicing and operative dosimetry. The Nuclear Engineering Laboratory covers: reactor physics, safety and control of nuclear reactors, nuclear engineering and radiation protection. Together with the Reactor Department, it is responsible for two research reactors: RA (shut down for decommissioning) and RB (zero power, requiring upgrading).

The RA research reactor went into operation in 1959 and has been shut down since 1984 due to fuel corrosion problems and for the refurbishment of the reactor control and safety system. Since the date, it stays with a partially loaded core containing 480 fuel slugs with 80% enriched uranium. In addition, 6656 spent fuel slugs with 2% enriched uranium and 884 slugs with 80% enrichment are located in a spent fuel storage pool containing about 200 tons of stagnant water of poor quality to minimize the corrosion process.

ANNEX IV: Related Laws, Regulations and Strategic Documents

Project-Specific Documents

- Decision of the Serbian government to decommission the RA research reactor located at the Vinča Institute and approval of the VIND programme (2002 and 2004)
- Draft of the Serbian new Law on ionising radiation protection and on nuclear safety (2006) and existing Serbian Law on Protection against Ionising Radiation (1996)
- Article 110 of the draft SAA
- Nuclear Safety and Radiation Protection action of the Multi-beneficiary MIPD 2009-2011

International Conventions and Treaties

Serbia is a party to the following instruments under the IAEA's auspices

- Agreement on the Privileges and Immunities of the IAEA
- Vienna Convention on Civil Liability for Nuclear Damage
- Convention on Physical Protection of Nuclear Material
- Convention on Early Notification of a Nuclear Accident
- Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency

Serbia has signed but has not yet ratified the Optional Protocol Concerning the Compulsory Settlement of Disputes to the Vienna Convention on Civil Liability for Nuclear Damage.

As a party to the Treaty on the Non-Proliferation of Nuclear Weapons, Serbia has a Comprehensive Safeguards Agreements with the IAEA for the Application of Safeguards in connection with the Treaty on Non-Proliferation of Nuclear Weapons.

ANNEX V: Details per EC funded contract

This project will be supported through a Contribution agreement with the IAEA to be concluded during Q2 2012.

The Contribution agreement will be concluded with the IAEA in accordance with the terms of the Financial and Administrative Framework Agreement (FAFA) between the European Community and the United Nations, signed on 29 April 2003, to which the IAEA has adhered on 17 September 2004.