SPECIAL NUCLEAR SAFETY PROJECT FICHE

3.0 -01- 2003

1. Basic Information

1.1 CRIS Number: 632.02.03
1.2 Title: Upgrade of the testing facility for transport packages
1.3 Sector: 23064
1.4 Location: Czech Republic

2. Objectives

2.1. Overall Objective(s):
The overall objective of the project is:
- to ensure an ability of the Czech administration to take on the obligations of membership of EU.
- to follow the general recommendation Type II concerning the Safety of Other Types of Nuclear Installations and the related regulatory framework in the context of enlargement.
- to achieve during the accession period a compliance of testing procedures with Czech and international regulations and with practices in relevant EU MS organizations, so that its certificates would be internationally recognized.

2.2. Project purpose:
The main purpose of the project is:
- to meet the requirements of newly adopted national regulations as well as related international regulations or agreements and to achieve an accreditation for testing of packages for radioactive material, that will be internationally recognized
- to review the existing equipment and procedures used for testing of packages for radioactive material and, regarding its results,
- to innovate the equipment and to improve testing procedures, including comprehensive Quality Assurance /Quality Control program and relevant training of the personnel
- to provide high quality services for Czech and/or neighbouring countries organizations, on the non-profit basis.

2.3. Accession Partnership and NPAA priority
This project will create conditions for accomplishment of the medium-term priorities of the NPAA in sectorial policies and in the Accession Partnership, i.e. strengthening of the State Authority in Nuclear Safety and Radiation Protection. It is part of a comprehensive nuclear safety policy being implemented at the national level. The Council Working Party on Nuclear Safety (WPNS) mandated by the Atomic Questions Group (AQG), issued recommendations concerning the safety of other types of nuclear installations than nuclear reactors.
This project also comply with the “Protocol to European Agreement establishing an association between the Czech Republic, on one hand, and the European Communities and their Member States, on the other hand, on conformity assessment and acceptance of industrial products (PECA)” that entered into force in July 2001.
3. Description of the Project:

3.1 Background and justification:
In the year 2000, the Radioactive Waste Repository Authority (RAWRA) took over the ownership and operation of the testing facility for transport and storage packages for radioactive material, as well for some types of radioactive material of special form (MSF). The testing facility was put in operation in 1986 by its former owner (Institute for Research, Production and Utilization of Radioisotopes, that was in 1992 privatized).

The majority of the equipment is obsolete and the adopted testing procedures were developed on the basis of former regulations. RAWRA made some necessary corrections of the procedures and the State Office for Nuclear Safety (SONS) recognizes results of testing as appropriate for the internal licensing purposes. However, the SONS licence for testing will expire in 2005, and RAWRA shall submit a new application with updated documentation that will comply with newly adopted regulations. RAWRA does not have enough skilled personnel to improve operation of the testing facility by own means, and as well there are not any specialized organizations in that field in the Czech Republic that can help to solve this problem.

Activities of RAWRA are financed from the “Nuclear Account” (that is created from payments of the waste generators for disposal of their waste) and from the State Budget (expenses connected with operation and maintenance of the repository). These resources according the Atomic Act can be used only for management and disposal of radioactive waste. The income from testing activities hardly covers the regular maintenance costs but does not allow any larger reconstruction. Therefore RAWRA applies for the Phare program assistance.

3.2 Linked activities:

Phare project CZ 01.14.04 “Reconstruction of the hot cell at the Richard repository facility Czech Republic”
Study on safe management of disused sealed sources that are not acceptable for disposal at existing Czech repositories, (Ipron, 2000)
Feasibility study on a general reconstruction of the building of former irradiation facility at the Richard repository site, (Ipron, 2001).
Program on Reconstruction and Maintenance of the Repository Richard Structures and Systems, coordinated by RAWRA, financed both from the Nuclear Account (created by waste generators fees) and the State Budget.
Program on decontamination of laboratories of former irradiation facility building, used in the past for $^{238}$Ra sources production, RAWRA (end 06/2002)

3.3 Results:
The results of the project should ensure the full scale operation of the testing facility in accordance to the recent Czech regulations and the best EU practices. The results should be summarized as follows:
- technical specifications for the upgrade of the testing facility equipment and testing procedures developed and agreed
- new testing procedures manual book prepared
- QA/QC program procedures adopted
- RAWRA staff trained
- reconstructed existing and installed new testing equipment
- an accreditation of the testing facility by relevant Czech or international accreditation organization obtained.
3.4. **Activities:**

The work programme of the project should comprise the following items:

1. **Technical assistance**
   - Review of the existing equipment and practices and their comparison with regulatory requirements and relevant practices used in EU;
   - Determination of testing objectives;
   - Development of technical specifications for the upgrade of the testing facility equipment;
   - Development of testing procedures and QA/QC program;
   - Preparation of a detailed work programme including equipment procurement and program implementation;
   - Review of the plan by stakeholders (State Office for Nuclear Safety, Czech Metrological Institute, etc.);
   - Training of personnel;
   - Preparation of documents for testing facility authorization;
   - Demonstration of new testing procedures.

2. **Investments:**
   - Reconstruction of existing and procurement and installation of new equipment;

4. **Institutional Framework**

The project would support the work of the state organization Radioactive Waste Repository Authority (RAWRA) which is related to the licensing and control activities of the State Office for Nuclear Safety.

5. **Detailed Budget (in M €)**

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Phare</th>
<th>Total Phare (I+1B)</th>
<th>National Cofinancing*</th>
<th>IFI*</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Investment Support</td>
<td>Institution Building</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Technical Assistance</td>
<td>0.25</td>
<td>0.25</td>
<td>0.25</td>
<td></td>
<td>0.25</td>
</tr>
<tr>
<td>Investment</td>
<td>0.25</td>
<td>0.25</td>
<td>0.1</td>
<td></td>
<td>0.35</td>
</tr>
<tr>
<td>Total</td>
<td>0.25</td>
<td>0.50</td>
<td>0.1</td>
<td></td>
<td>0.60</td>
</tr>
</tbody>
</table>

The co-financing of the equipment refurbishing and procurement will be ensured from the State Budget; RAWRA will include the resources in its plan and budget for the year 2004. The annual plan and budget of RAWRA (as a state organization) is subject to the approval by the Government.

6. **Implementation Arrangements**

The CFCU will be the Implementing Agency responsible for tendering, contracting, and accounting:

6.1. **Implementing Agency:**
CFCU - Mr. Jan Slavíček
Letenská 15 / CZ - 118 10 PRAHA 1
Final Beneficiary:
RAWRA, Dlazdena 6, 110 00 Prague 1,
Director: Mr. Vitezslav Duda, MBA
Telephone: + 420 2 214 215 26

Technical co-ordination: Mr. Miroslav Kucerka
Telephone: + 420 2 214 215 28 /Fax: + 420 2 214 215 44 /E-mail: kucerka@rawra.cz

6.2. Twinning: N/A

6.3. Non-standard aspects: N/A

6.4. Contracts:
   (1) Technical assistance contract – 0,25 M
   (2) Supply of Equipment – 0,25 M€
   (3)

7. Implementation Schedule

7.1 Start of tendering/call for tender: 2Q/2003
7.2 Start of project activity: 4Q./2003
7.3 Project completion: 1Q/2005

8. General criteria

8.1. Catalytic effect:
The proposed project will help RAWRA to speed up reaching the adequate level of the
testing facility operation and provided services, so that the authorization during the
accession period can be obtained.

8.2. Additionality: N/A

8.3. Project readiness:
RAWRA developed a general program on reconstruction of the repository Richard site
structures and the proposed project will be a part of it. All supporting actions will be put in
the annual plan and budget of RAWRA.

8.4. Sustainability:
The project purpose is to ensure that RAWRA operation will be fully comparable with
relevant organizations in EU. The project shall establish the initial high standard of
practice from the beginning of Czech membership in EU and will be in the future
maintained and developed from RAWRA own resources. The higher standard of services
could enable to increase their number, especially for neighboring countries and improve
their self-financing. The better testing procedures will ensure higher safety and reliability
of tested radioactive material packages or radioactive material of special form, which will
represent lower risk to the environment damage in case of accident or malfunction.

8.5. Compliance with state aids provisions: N/A

9. Conditionality and sequencing

The co-funding of the project by the Czech authorities (RAWRA) must be secured. A decision
should be taken in autumn 2003.
The project will be sequenced as follows:

2Q 2003 Technical assistance

2 Q. 2003: start of preparation and completion of a final Technical Project Description Sheet/ToR, procurement procedure,

4 Q. 2003: approval of the project implementation plan and contract signature. Start of work.

1 Q. 2004 approval of technical specifications for the upgrade of the testing facility equipment;

2 Q. 2004 approval of the plan for the testing facility upgrade

4 Q. 2004 end of the testing procedures development

1 Q. 2005 beginning of the testing facility demonstration operation and training of the personnel

1 Q. 2005 accreditation of the testing facility by the Czech Office for Standards, Metrology and Testing.

Investments:

4 Q. 2003 selection of a contractor for the testing facility reconstruction and equipment delivery

1 Q. 2004 contract signature and start of the reconstruction and equipment delivery

3 Q. 2004 completion of the reconstruction

ANNEXES TO PROJECT FICHE

1. Logical framework matrix
2. Detailed implementation chart
3. Contracting and disbursement schedule
4. List of main equipment used for testing of MSF and radioactive material packages
5. Relevant Czech laws concerning nuclear energy utilization, environmental protection, etc.
6. State Office for Nuclear Safety specific regulations
Log Frame Matrix

Project: Upgrade of the testing facility for transport packages

<table>
<thead>
<tr>
<th>Programme</th>
<th>632.02.03</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contracting period expires:</td>
<td>30.11.2004</td>
</tr>
<tr>
<td>Disbursement period expires:</td>
<td>30.11.2005</td>
</tr>
<tr>
<td>Total Budget:</td>
<td>0.6 MEUR</td>
</tr>
<tr>
<td>Phare contribution:</td>
<td>0.5 MEUR</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Overall objective</th>
<th>Objectively verifiable indicators</th>
<th>Sources of verification</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To ensure an ability to take on the obligations of membership in EU, including adherence to the aims of political, economic and monetary union</td>
<td>• acknowledgment by the European Commission in harmonization practice</td>
<td>European Commission Regular Report</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Project purpose</th>
<th>Objectively verifiable indicators</th>
<th>Sources of verification</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• To follow the general recommendation Type II as regards other type of nuclear installations, by ensuring RAWRA’s ability to fulfil its obligations given by recent Czech nuclear legislation as well as achieve compliance of its performance with EU best practices</td>
<td>• RAWRA with enhanced capability to fulfil obligations defined in the Atomic Act (N° 18/1997)</td>
<td>• Reports notably those published by the State Office for Nuclear Safety</td>
<td>• Other recommendations within the Report on the context of enlargement implemented as well</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Results</th>
<th>Objectively verifiable indicators</th>
<th>Sources of verification</th>
<th>Assumptions</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Approved testing facility refurbishment plan</td>
<td>• International recognition of the certificate delivered by RAWRA after testing transport packages in the refurbished facility</td>
<td>• New internal RAWRA documentation</td>
<td>Other capabilities of RAWRA reinforced by parallel projects (Phare project entitled &quot;Reconstruction of the hot cell at the Richard repository facility&quot; programmed in 2001 under reference CZ 0114.04)</td>
</tr>
<tr>
<td>Activities</td>
<td>Means</td>
<td>Assumptions</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>- Review of the existing equipment and practices and their comparison with regulatory requirements and relevant practices used in EU;</td>
<td>Technical Assistance (0.25 M Euros) Selected engineering organization for the technical solution development and the testing facility upgrade realization</td>
<td>- Recruit adequate staff; both contractor and subcontractor</td>
<td></td>
</tr>
<tr>
<td>- Determination of testing objectives;</td>
<td></td>
<td>- Ensure active cooperation with the Czech authorities</td>
<td></td>
</tr>
<tr>
<td>- Development of technical specifications for the upgrade of the testing facility equipment;</td>
<td>Investment (0.25 M Euros) Reconstruction of existing equipment and installation of a new equipment</td>
<td>- Co-financing available</td>
<td></td>
</tr>
<tr>
<td>- Development of testing procedures and QA/QC program;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Preparation of a detailed reconstruction plan;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Review of the plan by stakeholders (State Office for Nuclear Safety, Czech Metrological Institute, etc.);</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Reconstruction of existing and procurement and installation of new equipment;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Training of personnel;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Preparation of documents for testing facility authorization;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- Demonstration of new testing procedures</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Preconditions**

- Prepared TOR (RAWRA)
- Allocated financial resources for co-financing by RAWRA
- Signed contract on the testing facility upgrade project
- Approved project documentation for its utilization
- Preparedness of RAWRA structures for the equipment reconstruction or installation
Detailed Implementation Chart for the Project

<table>
<thead>
<tr>
<th>Action</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td>Start of tendering / Call for proposals</td>
<td>JFMAM</td>
<td>JASOND</td>
<td>JFMAM</td>
<td>JASOND</td>
<td>JFMAM</td>
</tr>
<tr>
<td>Start of project implementation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Project completion</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
ANNEX 3

Contracting and Disbursement Schedule by Quarter for full Duration of the Project

Cumulative Quarterly Contracting Schedule (M€)

<table>
<thead>
<tr>
<th>Quarter / Year</th>
<th>4Q/02</th>
<th>1Q/03</th>
<th>2Q/03</th>
<th>3Q/03</th>
<th>4Q/03</th>
<th>1Q/04</th>
<th>2Q/04</th>
<th>3Q/04</th>
<th>4Q/04</th>
<th>1Q/05</th>
<th>2Q/05</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade of the testing facility for transport packages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.25</td>
<td></td>
<td>0.25</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.50</td>
</tr>
</tbody>
</table>

Cumulative Quarterly Disbursement Schedule (M€)

<table>
<thead>
<tr>
<th>Quarter / Year</th>
<th>4Q/02</th>
<th>1Q/03</th>
<th>2Q/03</th>
<th>3Q/03</th>
<th>4Q/03</th>
<th>1Q/04</th>
<th>2Q/04</th>
<th>3Q/04</th>
<th>4Q/04</th>
<th>1Q/05</th>
<th>2Q/05</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upgrade of the testing facility for transport packages</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.10</td>
<td>0.20</td>
<td>0.30</td>
<td>0.40</td>
<td>0.45</td>
<td>0.5</td>
<td></td>
<td>0.50</td>
</tr>
</tbody>
</table>
List of main equipment used for testing of MSF and radioactive material packages *

<table>
<thead>
<tr>
<th>Specification</th>
<th>In operation from</th>
<th>Type</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermometer</td>
<td>1996</td>
<td>M3850D</td>
<td>Measurement of temperature (-40 to +1200 °C)</td>
</tr>
<tr>
<td>Hyperbaric vessel</td>
<td>1997</td>
<td></td>
<td>Under water integrity tests of MSF or packages (-100 to +300 kPa)</td>
</tr>
<tr>
<td>Ionizing radiation measuring device</td>
<td>1999</td>
<td>FH40G10</td>
<td>Measurement of dose rate, 10 nSv/h to 1Sv/h</td>
</tr>
<tr>
<td>Vacuum chamber Horyzont</td>
<td>1976</td>
<td>SPT 200</td>
<td>Test of integrity MSF and small packages, -100 to 0 kPa</td>
</tr>
<tr>
<td>Electric furnace (small)</td>
<td>1978</td>
<td></td>
<td>Heat resistance test of MSF 20 – 1200 °C</td>
</tr>
<tr>
<td>Steel bar</td>
<td>1988</td>
<td></td>
<td>Penetration test D32mm, mass 6 kg</td>
</tr>
<tr>
<td>Steel bar</td>
<td>1994</td>
<td></td>
<td>Penetration test of MSF D 25mm, mass 1.4 kg</td>
</tr>
<tr>
<td>Thermocouples</td>
<td>1996</td>
<td>Type K</td>
<td>Measurement of temperature D 4 mm and D 2 mm</td>
</tr>
<tr>
<td>Drop test tower</td>
<td>1985</td>
<td></td>
<td>Drop tests of packages up to 35 t</td>
</tr>
<tr>
<td>Electronic stop watch</td>
<td>1997</td>
<td>ST 8370</td>
<td></td>
</tr>
<tr>
<td>Tensor scale</td>
<td>2000</td>
<td>FT 1500 V.11</td>
<td>Weighing of packages 0 - 1500 kg</td>
</tr>
<tr>
<td>Electric furnace (medium)</td>
<td>1983</td>
<td>RNO</td>
<td>Heat resistance test of small packages 20 – 1200 °C</td>
</tr>
</tbody>
</table>

* List of equipment will be updated at the beginning of the project
### Relevant Czech laws concerning nuclear energy utilization, environmental protection

i. **Act No. 18/1997 Coll., on the peaceful utilization of nuclear energy and ionizing radiation (Atomic Act) and on alterations and amendments of some acts, as amended by the Act 13/2002 Coll.:**

Basic law regulating the utilization of nuclear energy and ionizing radiation together with conditions for performance of activities related to nuclear energy utilization and practices resulting in radiation exposure, including special requirements ensuring civil liability in case of a nuclear damage, conditions for safe disposal of radioactive wastes and performance of the state administration and supervision within the process of nuclear energy utilization, during practices resulting in radiation exposure and over nuclear items.

ii. **Act No. 50/1976 Coll. on land planning and construction regulations (Building Act) as amended by Act No. 83/1998 Coll.:**

Regulates protection of the environment and other special interests in connection with the siting and construction of nuclear installations and workplaces with significant or very significant sources of ionizing radiation.

iii. **Act No. 17/1992 Coll., on the environment:**

Liability in the protection of the environment, Environmental impact assessment of human activities, EIA of activities overlapping country borders.

iv. **Act No. 244/1992 Coll., on the environmental impact assessment:**

Regulation of the assessment of the impacts of constructions, their changes and changes in their use (buildings, activities, technologies, concepts of developments and programs and products) on the environment.

v. **Act No. 111/1994 Coll., on the road transportation**


vii. **Act No. 505/1990 Coll. on Metrology**

### Other laws:

viii. **Act No. 44/1988 Coll., on the protection and utilization of mineral resources (Mining Act)**

ix. **Act No. 61/1998 Coll., on mining activities, explosives and the State Mining Administration as amended.**

x. **Act No. 123/1998 Coll., on the right on information on the environment:**

xi. **Act No. 148/1998 Coll., on the protection of secret matter and on alterations of some acts.**
State Office for Nuclear Safety specific regulations

 Majority of these regulations will be amended or replaced according new wording of the Atomic Act adopted in January 2002


 b. Decree No. 142/1997 Coll., on type-approval of packaging assemblies for transportation, storage and disposal of radioactive sources and nuclear materials.

 c. Decree No. 143/1997 Coll., on transportation and shipment of special nuclear materials and special radioactive sources.

 d. Decree No. 146/1997 Coll., regulating activities directly affecting nuclear safety and activities particularly important from the radiation protection viewpoint, requirements on professional training, validation of professional qualification and grant authorization to selected personnel, and documentation to be approved to permit training of selected personnel.

 e. Decree No. 214/1997 Coll., on quality assurance during activities related to the utilization of nuclear energy and activities resulting in radiation exposure.

 f. Decree No. 215/1997 Coll., on the criteria for siting nuclear facilities and workplaces with very significant sources of ionizing radiation.

 g. Decree No. 219/1997 Coll., on details of emergency preparedness of nuclear facilities and workplaces with sources of ionizing radiation.

 h. Decree No. 195/1999 Coll., on basic design criteria for nuclear installations with respect to nuclear safety, radiation protection and emergency preparedness.

 i. Decree No. 196/1999 Coll., on decommissioning of nuclear installations and workplaces with significant or very significant sources of ionizing radiation.