1. Basic information

1.1 Désirée Number: LI 01.18.01

1.2 Title: Support to VATESI and their TSOs during Review of the Safety Analysis Report for Ignalina NPP Unit 2

1.3 Sector: IN & EN

1.4 Location: Lithuania

2. Objectives:

2.1 Overall objective:

The Ignalina Nuclear Power Plant (INPP) consists of two RBMK-1500 reactors. The INPP-1 should be shut down before 2005. The INPP-2 is expected to operate until 2009. A definite date for the closure of this unit is still to be determined by the Lithuanian authorities. However to operate it beyond 2003, the Lithuanian licensing authority (VATESI) should provide a grant based on a Safety Analysis Report (SAR-2) that should be prepared by the INPP. In a recent past, the review of the SAR for INPP-1 (SAR-1) was carried out by VATESI with the support of Western organisations. Although part of this activity could be used for the review of SAR-2, an additional safety related analysis should be performed and complementary information should be included. Therefore in achieve the general objective of getting approval by VATESI of SAR-2, an additional support from Technical Safety Organisations (TSOs) from the EU to VATESI and to the Lithuanian TSOs appears necessary.

2.2 Project purpose:

The project aims at providing EU expertise to the Lithuanian safety authorities (VATESI) and their TSOs in order to review the SAR-2 report prepared by the INPP. This review should address a number of new licensing issues and be complementary to the Western assistance already provided through other international collaborative programmes (e.g. other PHARE and bilateral projects co-ordinated by the Licensing Assistance Project).

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. It is part of a comprehensive nuclear safety policy being implemented at the national level. The Council Report on Nuclear Safety in the Context of Enlargement of June 2001 concluded in its second general recommendations, that, "all candidate states with nuclear power plants should, as a short term priority, ensure that their nuclear safety programmes include notably the completion, including regulatory reviews and approval, of in-depth safety analysis reports". In the country-specific recommendations, the WPNS also states that Lithuania should, as a short-term priority, "complete the development of a full SAR for INPP-2 in compliance with widely applied practices within the EU, including regulatory review and approval of the report" (recommendations of type I). In this context the review of the SAR-2 would constitute an important safety improvement.
3. Description of the Project:

The project should review in detail the elements of SAR-2 that were not addressed in SAR-1:
- Radioactive waste management;
- Radiation protection;
- Properly validated and updated emergency operating procedures and underlying accident analyses, taking account of the transition already underway from event-oriented to symptom-based emergency operating procedure;
- New system analysis;
- New accident scenarios and new neutronic conditions in the core;

In addition the following elements of SAR-1 should be extended:
- Ageing monitoring and management programme;
- Structural integrity demonstration for the reactor coolant system;
- Management structure, management of safety and quality assurance.

Part of the project should be devoted to the organisation of training courses for the experts of Lithuanian TSOs.

4. Institutional framework:

The project would support the work of the Lithuanian regulatory authority (VATESI).

5. Detailed budget (in M €)

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Investment Support (IS)</th>
<th>Institution Building (IB)</th>
<th>Total Phare (IS + IB)</th>
<th>National Co-financing</th>
<th>IFI</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>-</td>
<td>1.20 M€</td>
<td>1.20 M€</td>
<td>-</td>
<td></td>
<td>1.20 M€</td>
</tr>
</tbody>
</table>

6. Implementation arrangements

The decentralised implementation scheme (DIS) with ex-ante Commission control will be followed for the project. The CFCU will be the Implementing Agency responsible for tendering, contracting, and accounting:

6.1 Implementation Agency: CFCU, Ministry of Finance
Mr. Zilvinas Pajarskas
J. Tumo-Vaizganto 8A/2
LT-2600 Vilnius
Lithuania
Phone: +370 2 68 53 67
Fax: +370 2 22 53 35
E-mail: info@cfcu.lt
6.1.1 Beneficiary organisation: VATESI
Mr. Saulius Kutas,
Sermuksniu, 3
LT-2600-Vilnius
Lithuania
Phone: +370 2 66 16 20/62 41 41
Fax: + 370 2 61 44 87
E-mail: kutas@vatesi.lt

6.1.2 Contact person: Mr. Michail Demcenko
Head of the Department of Safety Assessment
VATESI
Sermuksniu, 3
LT-2600-Vilnius
Lithuania
Phone: +370 2 66 15 80/66 15 84
Fax: + 370 2 61 44 87
E-mail: demcenko@vatesi.lt

6.2 Twinning: not applicable

6.3 Non-standard aspects: Due to the specific character of the project, a significant
part of the work under this project will have to be
contracted to Technical Safety Organisations. Non
standard aspects, in line with the "new rules for contracts
in the field of nuclear safety" COM(2000)493 final, might
arise.

6.4 Contract: One PHARE contract

7. Conditionality and sequencing

VATESI will prepare the Terms of Reference (ToR) possibly with the support of external
experts, with final approval together with the Commission. The definition of these terms of
reference has to be closely co-ordinated with those of the further projects funded under this
programme and relating to the function of VATESI in reviewing the SAR-2.

The project will be sequenced as follows:

1 Q. 2002: start of implementation procedures, choice of contract letting procedure,
completion of a detailed Technical Project Description Sheet, also the ToR.

2 Q. 2002: letting of contract and final negotiation of Technical Annex (with ex-ante
control by the Commission). Start of work.

4 Q. 2002: End of training courses organised by Western organisations for technical
experts Lithuanian TSOs

2 Q. 2003: End of advice from Western organisations in front of completion of the
review by the Lithuanian TSOs

3 Q. 2003: Finalisation of the Review report for SAR-2 by VATESI.
1. Basic information

1.1 Désirée Number: LI 01.18.02

1.2 Title: Assistance programme to VATESI and its Technical Safety Organisations (TSOs) in structural dynamics analysis

1.3 Sector: IN & EN

1.4 Location: Lithuania

2. Objectives:

2.1 Overall objective:

In the Safety Analysis Report (SAR) prepared for Ignalina Nuclear Power Plant Unit 1 (INPP-1), there are recommendations concerning the topics to be further investigated when establishing the SAR-2 for Unit 2. One recommendation deals with the analysis of the structural dynamics of buildings and components of the INPP. The preparation of the SAR-2 and subsequently its reviewing by the Lithuanian regulatory authorities (VATESI) are requiring a high level of Lithuanian expertise in this particular domain. To acquire this expertise, support from the Technical Safety Organisations (TSOs) of the EU proves to be necessary.

2.2 Project purpose:

The project aims at providing EU expertise to the Lithuanian safety authority (VATESI) and its TSOs in order to increase their capabilities of using methodologies and codes for structural dynamic analysis of concrete and metallic structures. This expertise should address several types of dynamic loading, giving due regard to the probability of their occurrence: seismic qualification of the whole INPP buildings (including the soil, equipment, the piping system) and consequences of explosions and shock waves, (including the impact of missiles or aeroplane crashes), in particular on the reactor hall, as well as regular dynamic loading. The expertise should also address operational and transient dynamic loads on components in the primary system regarding implication for their integrity (crack growth). As a result of this increased expertise, VATESI should be in a better position for reviewing SAR-2, and for issuing National Guides and methodologies in this area.

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. It is part of a comprehensive nuclear safety policy being implemented at the national level. The Council Report on Nuclear Safety in the Context of Enlargement of June 2001 concluded in the second general recommendations, that, "all candidate states with nuclear power plants should, as a short term priority, ensure that their nuclear safety programmes include notably the completion, including regulatory reviews and approval, of in-depth safety analysis reports". In the country-specific recommendations, the Report also states that Lithuania should, as a short-term priority, "complete the development of a full SAR for INPP-2 in compliance with widely applied practices within the EU, including regulatory review and approval of the report" (recommendations of type 1). In this context the in-depth reviewing of the SAR-2 and the
production of guidelines in the field dynamic structural analysis would constitute an important safety improvement.

3. Description of the Project:

The project should comprise the following tasks:

- Analysis of the current situation regarding structural dynamic analysis in Lithuania;
- Transfer of EU methodology and related software to VATESI concerning the seismic analysis of buildings and equipment;
- Transfer of EU methodology and related software to VATESI concerning the analysis of explosion waves and missile effects on buildings and equipment;
- Transfer of EU methodology and related software to VATESI concerning the analysis of dynamic loads on primary system components;
- Selection of the structural dynamic analysis approaches to be followed by Lithuania;
- Development of draft National Guides for structural dynamic analysis of buildings and equipment.

4. Institutional framework:

The project would support the work of the Lithuanian regulatory authority (VATESI).

5. Detailed budget (in M €)

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Investment Support (IS)</th>
<th>Institution Building (IB)</th>
<th>Total Phare (IS + IB)</th>
<th>National Co-financing</th>
<th>IFI</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>1M €</td>
<td>1.00 M €</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1.00 M €</td>
</tr>
</tbody>
</table>

6. Implementation arrangements

The decentralised implementation scheme (DIS) with ex-ante Commission control will be followed for the project. The CFCU will be the Implementing Agency responsible for tendering, contracting, and accounting:

6.1 Implementation Agency: CFCU, Ministry of Finance
Mr. Zilvinas Pajarskas
J. Tumo-Vaizganto 8A/2
LT-2600 Vilnius
Lithuania
Phone: +370 2 68 53 67
Fax: +370 2 22 53 35
E-mail: info@cfcu.lt
6.1.1 Beneficiary organisation: VATESI
Mr. Saulius Kutas
Sermuksniu, 3
LT-2600-Vilnius
Lithuania
Phone: +370 2 66 15 90/62 41 41
Fax: + 370 2 61 44 87
E-mail: kutas@vatesi.lt

6.1.2 Contact person: Mr. Vidas Paulikas
VATESI
Sermuksniu, 3
LT-2600-Vilnius
Lithuania
Phone: +370 2 66 15 95
Fax: + 370 2 61 44 87
E-mail: vidas@vatesi.lt

6.2 Twinning: not applicable

6.3 Non-standard aspects: Due to the specific character of the project, a significant part of the work under this project will have to be contracted to Technical Safety Organisations. Non standard aspects, in line with the "new rules for contracts in the field of nuclear safety" COM(2000)493 final, might arise.

6.4 Contract: One PHARE contract

7. Conditionality and sequencing

VATESI possibly with the support of external experts will prepare the Terms of Reference (ToR), with final approval together with the Commission. The definition of these terms of reference has to be closely co-ordinated with those of the further projects funded under this programme and relating to the function of VATESI in reviewing the SAR-2.

Codes to be considered for this project should comply with prevailing practices for similar analyses prevailing in the European Union.

The project will be sequenced as follows:

1 Q. 2002: start of implementation procedures, choice of contract letting procedure, completion of a detailed Technical Project Description Sheet, also the ToR.
4 Q. 2002: End of the support concerning seismic analysis;
1 Q. 2003: End of the support concerning analysis of explosion waves and missile effects;
1 Q. 2003: End of the support concerning analysis of dynamic effects on primary system components;
2 Q. 2003: Delivery of software and training courses;
4 Q. 2003: Issuing of a draft national guide for structural dynamic analysis of buildings and equipment.
SPECIAL NUCLEAR SAFETY PROJECT FICHE

1. Basic information

1.1 Désirée Number: LI 01.18.03

1.2 Title: Support to VATESI for important tasks relevant to the licensing activities of Ignalina Nuclear Power Plant

1.3 Sector: IN & EN

1.4 Location: Lithuania

2. Objectives:

2.1 Overall objective:

This project is actually a logical continuation of the ongoing Phare project n° LI9806.016 that is expected to be completed by the end of October 2001. It should give additional input for the reviewing of the Safety Analysis Report for Ignalina Nuclear Power Plant unit 2 (SAR-2). The preparation of the SAR-2 is underway and its subsequent review by the Lithuanian regulatory authorities (VATESI) is requiring a high level of Lithuanian expertise in this particular domain. To acquire this expertise, support from the Technical Safety Organisations (TSOs) of the EU proves to be necessary.

2.2 Project purpose:

The project aims at providing EU expertise to the Lithuanian safety authority (VATESI) and its TSOs on the assessment of a number of critical safety issues identified in the above-mentioned project for INPP-2 that requires new or deepened review efforts compared to the previous SAR-1 review. The project should focus on design-basis accidents, severe accidents analysis codes, ENIQ methodology, and control of EQ requirements. It should include the purchase of the necessary software and of some equipment. The project must be closely coordinated with other EC-funded projects (e.g. support to VATESI for the reviewing of the SAR-2).

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. It is part of a comprehensive nuclear safety policy being implemented at the national level. The Council Report on Nuclear Safety in the Context of Enlargement of June 2001 concluded in the second general recommendations, that, "all candidate states with nuclear power plants should, as a short term priority, ensure that their nuclear safety programmes include notably the completion, including regulatory reviews and approval, of in-depth safety analysis reports". In the country-specific recommendations, the WPNS also states that Lithuania should, as a short-term priority, "complete the development of a full SAR for INPP-2 in compliance with widely applied practices within the EU, including regulatory review and approval of the report" (recommendations of type I). In this context any additional action that could increase the capabilities of VATESI to review SAR-2 would certainly be worth being supported.

3. Description of the Project:

The work programme of this project should implement the following tasks:
- Qualification of equipment that is important for the safety of INPP-2;
• Implementation of the ENIQ methodology (should be associated with the development of a Lithuanian infrastructure coping with the tasks when the methodology should be implemented);
• Licensing analysis and evaluation of design-basis accidents (should be complementary to the review of SAR-2 project);
• Severe accidents analysis, evaluation and management principles (development of additional competence).

More technical detail can be found in the attached Project Description Sheet as received from the Beneficiary.

4. Institutional framework:

The project will support the work of the Lithuanian regulatory authority (VATESI).

5. Detailed budget (in M €)

<table>
<thead>
<tr>
<th>Project Components</th>
<th>Investment Support (IS)</th>
<th>Institution Building (IB)</th>
<th>Total Phare (IS + IB)</th>
<th>National Co-financing</th>
<th>IFI</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOTAL</td>
<td>0.50 M €</td>
<td>0.50 M €</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.50 M €</td>
</tr>
</tbody>
</table>

6. Implementation arrangements

The decentralised implementation scheme (DIS) with ex-ante Commission control will be followed for the project. The CFCU will be the Implementing Agency responsible for tendering, contracting, and accounting:

6.1 Implementation Agency: CFCU, Ministry of Finance
Mr. Zilvinas Pajarskas
J. Tumo-Vaizganto 8A/2
LT-2600 Vilnius
Lithuania
Phone: +370 2 68 53 67
Fax: +370 2 22 53 35
E-mail: info@cfcu.lt

6.1.1 Beneficiary organisation: VATESI
Mr. Saulius Kutas
Sermuksniu, 3
LT-2600-Vilnius
Lithuania
Phone: +370 2 66 15 90/62 41 41
Fax: +370 2 61 44 87
E-mail: kutas@vatesi.lt
6.1.2 Contact person: Mr. Vidas Paulikas
VATESI
Sermuksniu, 3
LT-2600-Vilnius
Lithuania
Phone: +370 2 66 15 95
Fax: + 370 2 61 44 87
E-mail: vidas@vatesi.lt

6.2 Twinning: not applicable

6.3 Non-standard aspects: Due to the specific character of the project, a significant part of the work under this project will have to be contracted to Technical Safety Organisations. Non standard aspects, in line with the "new rules for contracts in the field of nuclear safety" COM(2000)493 final, might arise.

6.4 Contract: Two Phare contracts should be placed, one for supply and another for technical assistance

7. Implementation schedule

7.1 Start of administrative procedure to place the contract: 1 Q. 2002

7.2 Start of project activity: 2 Q. 2002

7.3 Project completion: 2 Q. 2003

8. Conditionality and sequencing

VATESI will prepare the Terms of Reference (ToR) possibly with the support of external experts, with final approval together with the Commission. The definition of these terms of reference has to be closely co-ordinated with those of the further projects funded under this programme and relating to the function of VATESI in reviewing the SAR-2.

The project will be sequenced as follows:

1 Q. 2002: start of implementation procedures, choice of contract letting procedure, completion of a detailed Technical Project Description Sheet, also the ToR.


3 Q. 2002: End of the support concerning EQ;

3 Q. 2002: End of the support concerning ENIQ methodology;

2 Q. 2003: End of the support concerning licensing analysis and evaluation of design-basis accidents;

2 Q. 2003 End of the support concerning severe accidents analysis.