

INTERIM SPENT FUEL STORAGE FACILITY (B1 PROJECT)

General data about the project

The **objective** of B1 project is:

- to build a new dry type Interim Spent Fuel Storage Facility (ISFSF) for the spent nuclear fuel, unloaded from the Units 1 and 2;
- to design, construct and install all equipment, necessary to pack the spent nuclear fuel into the special containers, to seal them and to transport them from the storage pools to the ISFSF.

During the implementation of B1 project:

- · the spent nuclear fuel from INPP will be placed into the containers;
- · the containers with the spent nuclear fuel will be transported to the ISFSF;
- · the containers with the spent nuclear fuel will be safely stored in the ISFSF. The storage period is 50 years with the possibility, if necessary, to prolong the period.

The spent nuclear fuel will be stored in 4, 5 m height and 2, 6 m diameter metal-concrete containers CONSTOR RBMK-1500/M2, which weight with the fuel is 188 t.

The new ISFSF will occupy 5, 93 hectare. The total capacity of the Storage Facility is about 17000 fuel assemblies (about 190 containers).

After putting the new ISFSF into operation:

- all spent nuclear fuel will be transported from the INPP storage pools to the dry type Storage Facility;
- the spent nuclear fuel from INPP will be safely stored according to the requirement of the Republic of Lithuania, EU standards and IAEA recommendations.

Contractor: NUKEM-GNS consortium, Germany (NUKEM Technologies is the Lead Partner). The contract was signed on January 12, 2005. The contractual commissioning term – 2009.

Project value: the initial contract price was more than Euro 171 million (including the new type CONSTOR RBMK-1500/M2 containers).

On May 14, 2009 an additional agreement was signed – the B1 project cost is about Euro 193 million (including the delivery of 190 new type CONSTOR RBMK-1500/M2 containers). The price grew up after the acceptance of the Contractor's claim on the fuel data qualifications, the change in the economic situation affected the price as well. In October 2010 the Contractor had been paid about Euro 111 million or 58 % of the total cost.

In 2009 the Contractor submitted a claim, related to the preparation of technical documentation of damaged fuel handling and the increase of the price by Euro 5 million. INPP did not agree with this claim – it was decided to address the issue about the contract changes due to this matter to the arbitral court (such a mechanism is provided in the B1 project contract). On August 31,



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2010 the arbitral court decision according to which the contractor's claim is held to be unfounded has been received.

Project implementation progress

The project is delayed almost four years.

Because of 44 months delay of B1 project INPP suffers huge losses, which mainly arise because the fuel is still stored in the reactor of the Unit 2 and pools of the both units.

The schedule of final defueling of reactor No. 2 and storage pools depends on ISFSF commissioning term.

The fuel is still being stored in the reactor No. 2, therefore the reactor safety level can not be decreased, and that means, that it is impossible to decrease the number of safety systems and their operational expenses. The defueling of the reactor will decrease significantly the number of safety systems, i.e. decrease their operational expenses, which remain high while the fuel is stored in the pools.

The delay expenses (from the term, foreseen in the contract, signed in 2005) for each unit and total expenses which are Euro 16, 3 million because of the delay, are presented in the table:

	<i>Delay</i>	<i>Additional costs per month</i>	<i>Total</i>
Unit 1			
Reactor	-	-	-
Pools	23 months	190 000 Euro	4, 4 mln. Euro
Procurement of the containers			2, 4 mln. Euro*
Unit 2			
Reactor	14, 7 months	640 000 Euro	9,5 mln Euro
Pools	-	-	-
			16, 3 mln. Euro

*** The additional containers were bought in order to defuel the Unit 1 in time.**

The civil works of the B1 Storage Facility should have been completed in March 2011 (the term was set in contract addendum)

On 9 September 2010 the trilateral meeting of the management of SE Ignalina Nuclear Power Plant, NUKEM Technologies and JSC Vėtrūna was held. The B1 project implementation process was discussed during the meeting. The B1 project Contractor and Subcontractor declared their readiness to complete the whole project in time and confirmed their commitment to complete B1 civil works by the end of 2010 (although according to the amendment of the B1 contract signed in May 2009, the completion of civil works was scheduled for August 2010). The Contractor has failed to fulfill the obligations; therefore NUKEM Technologies are constantly being required to at least stick to the Schedule provided by them at the end of 2010 and to complete B1 civil works



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in March, 2011. The object was to have been put into operation in 2009, according to the contract signed with NUKEM-GNS in 2005).

Also according to the Amendment, operational acceptance of the Storage Facility is scheduled for March 2011. However, according to the work schedule, received from the Contractor at the end of 2010, it is foreseen to put the Storage Facility into operation only in January 2012. There is no change in the INPP's stand on the slippage – reasons for the delay provided by the Contractor are legally unfounded – and the Contractor is constantly being required to stick to the agreed timescales. All the slippages are strictly and precisely being registered.

The end of the defueling of the Unit 1 to the new ISFSF is planned for 2015, while the end of the defueling of the Unit 2 – for the beginning of 2016. Late term of the defueling of the Unit 2 is related to the requirement to store the nuclear fuel assemblies in a special storage pools for five years.

There are several major reasons for the delay of B1 decommissioning project. The first one – signing the work contracts and starting the implementation of the projects the Employer lacked the responsibility and high standards. Therefore the Contractor delayed to submit the technical documentation, and the quality of the submitted documents was insufficient, the long process of documents agreement in public institutions affected the situation as well. Also the complicated financing of the decommissioning projects have contributed to the delay – the agreement with the European Bank for Reconstruction and Development (EBRD) should be changed while the contract with the General Contractor implementing the B1 is signed according to the English law (that is disadvantageous for the Employer in this case). Before the signing of this contract the juridical analysis of the contracts ensuring the Employer's right had not been performed. The situation was complicated more by the lack of experience in international project management and the lack of publicity and clarity during the implementation of decommissioning projects.

Certain progress in the project implementation has been achieved only in the year 2010, after INPP management took measures to change the situation substantially:

- Project implementation control has been enhanced. The management has begun to systematically supervise work implementation as well as to require the Contractor to follow the accepted work schedule, and to precisely register any contractual mismatches or dangers to fail the implementation of the contract in time. Special attention is being paid to the quality of construction works performed and to the implementation of the requirements of the construction regulations, as the General Contractor was not always able to ensure the required labor discipline and strict implementation of the constructional requirements, presented to such objects.
- The control of equipment manufacturing, equipment acceptance and process of modification performance at the units has been improved.
- Extended meetings (of stakeholders) are being held constantly, the control of implementation of the obligations undertaken by the Contractor to mobilize all available human, technical and financial resources to eliminate all existing B1 project delays, is being performed.
- The payments are linked with the work schedules and are being made only for the accomplished works, according to the contract clauses.



- INPP hired the British law firm Taylor Wessing to analyze the B1 and B234 contracts. The findings presented by Taylor Wessing specialists help to ensure the proper further implementation of these projects and additional protection of the INPP as an Employer.
- The INPP management regularly informs the European Commission, EBRD and donor countries about the implementation of the decommissioning projects, seeks to systematically inform the society, parliamentary committees and the respective commission about these issues.

Project implementation progress since January 2010:

B1	January, 2010	January, 2011	May, 2011	September, 2011
Production of equipment	71 %	98 %	98 %	100 %
Produced containers	42	91	102	122
Factory tests	0 %	22 %	22 %	40 %
Civil works	11 %	85 %	85 %	97 %

INPP as an employer will consistently continue to protect its interests in settling commercial disputes with NUKEM Technologies.

Opinion of Taylor Wessing specialists:

- The contract documents were prepared of poor quality. There are a lot of contradictions there, because of which in many cases the provisions of the contract are ambiguous and confusing. Nevertheless, NUKEM participated in the invitation to tender according to the following documents, apparently having decided that they were sufficient enough for these projects to implement.
- From the very beginning NUKEM did not have sufficient resources to implement these projects. They lacked so much resources that in summer 2010 they had practically to stop work on the project B234 and move labour to the project B1. Thus it was an attempt to comply with the commitments made in May 2009 when the addendum to the B1 project contract was signed. For the reason that they do not have enough managers with the decision right at the construction site, the final decisions have to come from Germany, and this led to even more delays.
- It is obvious that prior its proposal NUKEM did not performed a detailed analysis of the construction site conditions, technical specifications and requirements that are regulated by the laws of the Republic of Lithuania. Therefore NUKEM failed to evaluate the task adequately and now raises unreasonable claims. For example, NUKEM designed the B2 complex with raft foundation although in this case piles had to be used. Such a decision is based on the fact that other buildings on the site have raft foundation, too. NUKEM had not even collected the information that prior the constructing those buildings with raft foundation, the soil had to be reinforced. Hence, before constructing this type of foundation for B2 facilities NUKEM had to use similar soil reinforcement technology but they did not.
- When in August 2010 Taylor Wessing was charged to analyze the contracts, both projects were delayed for several years. Employer had already agreed with Contractor's claims (the case of B1 project) and other tens of millions of euros claims (the case of B234 project) has been raised. Those responsible for the administration of these contracts have done practically nothing to restrain or prevent such delays and claims. In case of



any problem, the compromise was looked for at any cost but there were no attempts to clarify and eliminate this problem. According to the fact that this process has been continuing for more than four years, it seems that the efforts to make the process more efficient could have been expected a few years ago, but such actions have been undertaken only recently.

- Due to the fact that these projects are publicly-funded, EBRD approach is worrying. It seems that the institution which has to take care of the control of costs and efficiency in their use, considers INPP to meet NUKEM claims regardless of their amount and find itself the ways to justify the amount claimed. Unfortunately, EBRD did not provide to INPP any useful suggestions how to reach an agreement with NUKEM of claims raised, by another way than paying for them the sum requested. There is a natural question - why is there obvious and consistent contribution to the Contractor, not to the Employer.

On 25 March, State Enterprise Ignalina NPP administration applied in written to District Prosecutor's Office of Visaginas Town for investigation of possibly criminal actions of the former INPP management and other personnel, which had an impact on the delay and grown value of the main INPP decommissioning project B1 (Interim Spent Fuel Storage Facility) during the period from 2003 to 2009. Preliminary investigation was commenced on 1 April. It is noted that in 2005 the former management of the INPP had ignored the conclusion of the independent experts commission that the consortium GNS-NUKEM tender proposal did not meet the requirements of the public procurement technical specifications.

After analyzing and assessment of the current situation, in 2010-2011 the INPP management partly replaced and recruited former Project Implementation Group (PIG) with qualified specialists who have maximum experience in the successful projects implementation. After the analysis of project documentation, the new PIG has ascertained that the contractor did not performed and does not intend to perform some works that are involved in the technical specification. Also, the contractor does not fully ensure nuclear safety requirements. The integrated B1 project implementation group has been established.

On 8 April 2011, according to the results of the project's technical preparation and works implementation analysis which was prepared by newly appointed PIG and INPP hired foreign experts, the essential projects implementation elements which are related to nuclear safety and do not comply with the technical requirements were stated (INPP has informed the contractor, European Commission, EBRD). Also, albeit not nuclear safety related but important technological divergences have been detected on the Interim Spent Fuel Storage Facility site.

In order to address the INPP raised technical problems as effectively and rationally as possible, on May 24-25 the meeting of INPP's and contractor's technical specialists and directors of the highest level was organized by the INPP. Representatives of European Commission and EBRD also participated in the meeting. In May the INPP also started negotiations with „Nukem Technologies GmbH“ and „GNS Gesellschaft für Nuclear-Service GmbH“ on the further appropriateness of the project B1 implementation. On 8 June 2011, during the IIDSF Donors Assembly meeting in London it was decided that if the dispute between the INPP raised nuclear safety issues of B1 project implementation and contractor's stance remains, an independent international expertise will be performed. Therefore, the EBRD has signed a contract with Swedish nuclear energy company SKB International AB for the assessment of the project B1 standing. During the assessment of the situation Swedish experts met with INPP leading and technical specialists as well as with GNS-Nukem leading and technical specialists of B1 project,



visited B1 construction site and spent fuel ponds halls. Final report of Swedish experts should be submitted during the next Donors' Assembly at the end of this year.

The project is funded by the Ignalina International Decommissioning Support Fund, managed by the European Bank for Reconstruction and Development.

SOLID WASTE MANAGEMENT AND STORAGE FACILITIES (B2/3/4 PROJECT)

General data about the project

The **objective** of B2/3/4 project is to build a new INPP Solid Waste Management and Storage Facilities (**SWMSF**).

The facilities will process the solid radioactive waste generated prior to Unit 2 final shutdown (turn of 2009) as well as the waste formed due to INPP decommissioning.

Solid radioactive waste generated as a result of INPP operation at present is being stored in the interim concrete storage facilities on the territory of the power plant.

The project includes two independent components to be implemented simultaneously: B2 (New Solid Waste Retrieval Facilities Design and Construction) and B3/4 (New Solid Waste Management and Storage Facilities Design and Construction).

The commissioning of the new facilities will enable to introduce at INPP the new solid radioactive waste management and storage system which will comply with new requirements of the Laws of the Republic of Lithuania, European Union standards and IAEA recommendations.

During the commissioning of new SWMSF:

- Radioactive waste retrieval from the existing interim storage facilities
- Transportation of them to the new build facilities
- Waste sorting and its compliance with the new classification system
- Waste processing (fragmentation, incineration, compaction)
- Packaging of the processed waste to the containers and placing them to the new storage facilities for their interim storage in expectation of construction of the final landfill facilities (storage period up to 50 years)

Contractor: NUKEM Technologies (Germany). The contract was signed on 30 November 2005. Contractual commissioning period – December 2009.

Contract value: the initial cost of the contract was 414 mln. Lt (122 mln. Euro): B2 – 113 mln. Lt and B3/4 – 301 mln. Lt. The current contract price – 428 mln. Lt. The project price increased 13 687 923,86 Lt, due to the arbitrator decision to transfer boundaries of B3,4 (8 435 799,10 Lt), as well as due to the project amendments coherent with INPP (5 252 124,80 Lt).

Project implementation progress:



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B2 is delayed 53 months, B3/4 — 44 months. **The main reasons** of the decommissioning project delay are the same as in B1 case - signing the work contracts and starting the implementation of the projects the Employer lacked the responsibility and high standards, therefore the Contractor delayed to submit the technical documentation. A great influence was made by the complicated order of the decommissioning project financing – contract with the European Bank for Reconstruction and Development (EBRD) is being alternated. The situation becomes even complicated due to the lack of experience in the international project management, publicity and transparency during decommissioning project implementation. Particularly, project implementation process was delayed because of:

- insufficient quality of technical documentation provided by Contractor and staff resources,
- delivery volume changes, provisions changes,
- prolonged process of approval of technical design documentation,
- delay in the licensing process (because of the complexity of the process and prolonged process of approval of technical project documentation by State Nuclear Power Safety Inspectorate (VATESI) and Visaginas municipality).

Yet in the first half of 2010 the contractor submitted an additional claim and demanded to increase the cost of the project additionally for 307 million LTL. INPP management assessed the analogous situation at the project B1, where in May 2009 the additional agreement was signed which not only did not accelerated the progress of the project but also did not resolve any technical and commercial problems, and flatly refused to sign analogous amendment for the project B2/3/4 contract until all the components of the claim will be thoroughly analyzed, legally justified by the contractor, the real value of the claim will be stated and INPP will receive a guarantee concerning further implementation of the planned project, compliant with INPP technical requirements. In August 2011 INPP required the contractor to provide explanations for increasing delay of the project implementation; however, no adequate explanations have been received so far.

Since the signing of the contract until 1 January 2010 the contractor was paid 163 million LTL or 38 percent of the total amount of the total price of the project. Until 30 August 2011 the contractor was paid 49 percent of the contractual funds (payments were made only for the performed works).

Major project implementation stages:

- **B2 (1 part):**
 - Technical project (preliminary safety analysis report and technical project documentation);
 - B2-RU1 (removal module 1) approved by INPP on 16 November, 2009. (it is planned to receive the permission to build on 30 March, 2011),
 - commissioning (2013-11-22);
 - B2-RU2 (removal module 2) / RU3 (removal module 3) submitted for VATESI approval in July, 2010 (permission to modificate (2011-04-30) and permission to commission (2014-04-10).
 - **B34 (2 part):** permission to build was received on 10 September, 2009. At the moment construction of the complex B34 continues. Completion of the construction of the complex B34 is planned in December, 2012.



Current situation

INPP management constantly requires from NUKEM Technologies GmbH to follow construction Schedule. Extended meetings (of stakeholders) are being held constantly to control how the implementation of the obligations undertaken by the Contractor to mobilize all available human, technical and financial resources to eliminate all existing project delays, is being performed.

In May, 2010 INPP launched an international open invitation to tender on the evaluation of the implementation of the main INPP decommissioning projects B1 and B234 and related consulting services. On 11 August INPP hired the international law firm named Taylor Wessing for these services. INPP management expects that the results of B1 and B234 projects contract evaluation, provided by Taylor Wessing will help to ensure further implementation of the projects.

Progress of the project according to the data collected in January, 2011

B2/3/4	January 2010	January 2011	May 2011	September 2011
Civil works B3/4	6 %	52 %	59 %	70 %
Production and purchase of equipment B2	0 %	25 %	51 %	65 %
Production and purchase of equipment B3/4	47 %	87 %	90 %	100 %

The project is funded by the Ignalina International Decommissioning Support Fund, managed by the European Bank for Reconstruction and Development.



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