

Development around the Core of Business in Construction of Nuclear Power Industry Facilities

Research Reactors

Table 3.1. Projects on Construction of Radioactive Waste and Spent Fuel Storages and Reprocessing Plants



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Country	Project
Bulgaria	Supplies of goods, work and services for construction of spent fuel and radioactive waste storages
Slovakia	Radioactive waste metal reprocessing
Russia	Construction of complex for cementation of liquid and heterogeneous medium active waste for the Federal State Unitary Enterprise Production Company FSUE PO Mayak
Russia	Extension of 120/12 building for placement of EP-500/5 electrical furnace and storage of vitrified radioactive waste for FSUE (Federal State Unitary Enterprise) PO Mayak
Russia	Preparation of EIA (Environmental Impact Appraisal) and EP (Environmental Protection) sections of project documentation for Andreeva Bay project
Russia	Designing of radioactive waste reprocessing and storage facilities for Andreeva Bay project
Iran	Designing and engineering during construction of the LRW RP
India	Designing and engineering during construction of the LRW SP

In 2012 the Integrated Company participated in construction of a research reactor in Vietnam.

Vietnam. Nuclear Science and Technology Center (NSTC)

Project description. In 2011 Russia and Vietnam concluded the Intergovernmental Agreement on Construction of the Nuclear Science and Technology Center for (NSTC) in Vietnam. ASE was appointed the project's general contractor. NSTC construction is planned for the period from 2014 to 2019.

2012 results. In 2012 the Russian party elaborated the Materials for Preliminary Feasibility Study on the Nuclear Science and Technology Center (NSTC) in the Socialist Republic of Vietnam, which

was submitted to the customer on November 21, 2012.

2013 arrangements:

Approval of a site for laboratory with non-reactor technologies;
Conclusion of the contract on FS-JOI elaboration.

Radioactive Waste and Spent Fuel Storages and Reprocessing Plants

In 2012 the Integrated Company carried out work within 8 projects on construction of storages and reprocessing plants for radioactive waste and spent fuel (see Table 3.1).

Bulgaria. Supplies of Goods, Work and Services for Construction of Spent Fuel and Radioactive Waste Storages

Project description. The project is executed within the partnership agreement concluded between the Integrated Company and Risk Engineering Ltd. (Bulgaria). Risk Engineering Ltd. is the customer of the project. NIAEP-ASE Integrated Company acts as the general contractor.

2012 results. The following work was performed: supplies of goods, work and services required for construction of spent fuel and radioactive waste storages, supplies of containers for spent fuel and radioactive waste transportation and storage and systems for transportation of containers, supplies of units, systems and plants for radioactive waste reprocessing, transportation, storage and burial, and rendering of services on NPP decommissioning, including designing, procurement of equipment (instruments and mechanisms), and deactivation and demounting services.

Slovakia. Radioactive Waste Metal Reprocessing

Project description. In March 2008 ASE signed a contract with the customer of the project, YAVIS Ltd. (Slovakia). The Integrated Company is the general contractor of the project. The contract does not stipulate for completion date.

2012 results. Import of radioactive waste metal to the territory of the Russian Federation for reprocessing is forbidden, due to this contractual work was suspended, in order to find ways for fulfillment of obligations.

Russia. Construction of Complex for Cementation of Liquid and Heterogeneous Medium Active Waste for FSUE PO Mayak

Project description. In July 2008 ASE concluded contract with the customer of the project, State Corporation ROSATOM. The Integrated Company performs work on a turnkey basis. It is planned to complete work in December 2013.

2012 results. The following work within the project was completed in 2012:

- Mounting of utility networks, heavy process equipment, ventilation and heating systems;
- Building inner finish;
- Mounting work and supply of additional equipment ordered by the customer at the end of 2011;
- Casting of foundation plates for radioactive waste storage;
- Mounting of metal structures (lining of compartments) for main construction facilities;
- Energy utilities construction;
- External lines arrangement;
- Mounting of concrete reinforcement of the process building and corrosion-resistant lining;

Erection of cast-in-situ walls and floors;
Mounting of heavy equipment.

Further plans under the project include completion of work, signing of work completion certificate, and, later on, fulfillment of obligations within the guarantee period.

Russia. Extension of 120/12 Building for Placement of EP-500/5 Electrical Furnace and Storage of Vitrified Radioactive Waste for FSUE PO Mayak

Project description. The project is executed within the intergovernmental agreement concluded between Russia and Italy and stipulating for cooperation in the field of disposal of Russian nuclear submarines decommissioned from the naval forces and safe handling of radioactive waste and spent fuel. The agreement was concluded on November 5, 2003. Work is performed on a turnkey basis. The customer of the project is State Corporation ROSATOM. Contractual work was launched in October 2010, it is planned to complete the project in December 2013. The total cost of the project amounts to 1,552,163 thousand rubles. The project is financed from federal budget resources of the Russian Federation within implementation of the Federal Target Program on Nuclear and Radiation Safety in 2008 and up to 2015.



2012 results. The following work was completed in 2012:

Extension girder construction and reinforcement for EP-500/5 placement;
Pile field driving for radioactive waste storage;
Territory improvement;
Removal of existing utility networks from the construction site.
Extension frame erection for EP-500/5 placement and radioactive waste storage;
Partial supply of process equipment.

Further plans under the project include completion of work on mounting of frame structures of the storage, completion of work on cast-in-situ structures, first-stage supply of nonstandard equipment; in the longer term: completion of work in 2015, fulfillment of obligations within the guarantee term.

Russia. Preparation of EIA and EP Sections of Project Documentation for Andreeva Bay Project

Project description. The Project is executed within the intergovernmental agreement concluded between Russia and Italy and stipulating for cooperation in the field of disposal of Russian nuclear submarines decommissioned from the naval forces and safe handling of radioactive waste and spent fuel. In 2010 for performance of work under the project ASE and the Federal State Unitary Enterprise Federal Nuclear and Radiation Safety Center (FSUE FNRSC) signed contract on elaboration of EIA and EP sections of project documentation. The customer of the project is FSUE FNRSC. It is planned to complete the project in June 2013. The scope of responsibility of the Integrated Company includes coordination of the Russian subcontractors during designing, supply and construction of radioactive waste reprocessing and storage plants at the Andreeva Bay facility.

2012 results. The project documentation including EIA and EP sections for radioactive waste reprocessing and temporary storage plants was elaborated in the reporting year.

Further plans under the project include completion of work, fulfillment of obligations within the guarantee term.

Russia. Designing of Radioactive Waste Reprocessing and Storage Facilities for Andreeva Bay Project

Project description. The goal of the project consists in establishment of infrastructure for radioactive waste disposal in the territory of the former technical base of naval forces. In February 2011 the contract was concluded between ASE and Ansaldo Nucleare (Italy) on elaboration of the Andreeva Bay project documentation. The project is executed within the intergovernmental agreement concluded between Russia and Italy and stipulating for cooperation in the field of disposal of Russian nuclear submarines decommissioned from the naval forces and safe handling of radioactive waste and spent fuel. The customer of the project is Ansaldo Nucleare. It is planned to complete the work in June 2013. The scope of responsibility of the Integrated Company includes coordination of the Russian subcontractors during designing, supply and construction of radioactive waste reprocessing and storage plants at the Andreeva Bay facility.

2012 results. In 2012 the project documentation including EIA and EP sections was elaborated for radioactive waste reprocessing and temporary storage plants at the Andreeva Bay facility.

Further plans under the project include completion of work, fulfillment of obligations within the guarantee term.

Iran. Designing and Engineering during Construction of the LRW Reprocessing Plant (LRW RP)

Project description. Since 2008 the Integrated Company has performed design elaboration and field supervision of equipment manufacturing for the LRW reprocessing plant (LRW RP) within the frames of the contract on construction of the Bushehr NPP first generating unit. The customer of the project is the Nuclear Power Production and Development Company of Iran, the general contractor is NIAEP-ASE Integrated Company.

2012 results. In the reporting year the Integrated Company completed mounting and start-up operations on establishment of the LRW reprocessing plant. We proceeded with LRW RP commissioning and launching of operation under design conditions.

Further plans under the project include LRW RP commissioning, field supervision of integrated testing and commissioning, correction of maintenance and construction documentation according to the results of start-up operations, field supervision of LRW casks manufacturing, staff training, and

fulfillment of obligations within the guarantee term.

India. Designing and Engineering during Construction of LRW Solidification Plant

Project description. Since August 2008 the Integrated Company has elaborated design of the liquid radioactive waste solidification plant (LRW SP) and performed field supervision of equipment manufacturing within the contract on construction of Kudankulam NPP generating units 1 and 2. Work is carrying out under the internal order within fulfillment of obligations under the contract on construction of Kudankulam NPP generating units 1 and 2. The project customer is Atomic Energy Corporation of India, LTD. It is planned to complete the project in 2013.

2012 results. The Integrated Company has carried out mounting, start-up and commissioning of the cementation plant (CP), concentrating facility (CF) units, and CP and CF I&C systems.

Further plans under the project include commissioning of LRW SP, field supervision over mounting, start-up, integrated testing and commissioning, correction of maintenance and construction documentation according to start-up results, and staff training.

International Cooperation in the Field of Radioactive Waste and Spent Fuel Handling

Working group was established, including specialists of ASE, Nukem Technologies (Germany) and the Russian Federal Nuclear Center – the Russian Research Institute of Experimental Physics (RFNC – VNIIEF), for consolidation of efforts in introduction of joint concept on arrangement of centralized long-term storage of the Russian nuclear power stations' spent fuel assembly at FSUE GKH with application of cask storage technologies.

In June 2011 ASE and RFNC – VNIIEF signed the agreement on strategic partnership in the field of spent nuclear fuel handling. OJSC State Specialized Planning Institute (SSPI), OJSC SverdNIKhimmash, NUKEM Technologies, ASE and NIAEP concluded the agreement on cooperation during turnkey execution of projects in the field of decommissioning of nuclear and radiation dangerous facilities (DNRDF), and spent fuel and radioactive waste handling. Cooperation is aimed at competitive growth, accumulation of competencies and creation of opportunity for distribution of experience in Russia, as well as further entrance to the global market. The partners have experience and competence in the following fields:

OJSC SSPI – performance of project and construction operations for the needs of the nuclear industry of Russia;

OJSC SverdNIKhimmash – elaboration, manufacturing and supply of equipment for nuclear power plants and fuel cycle facilities;

NUKEM Technologies – technologies and equipment for DNRDF and spent fuel and radioactive waste handling;

ASE – construction of nuclear power plants with reactors of Russian design and turnkey construction of nuclear facilities and units on the basis of EPCM model;

NIAEP – construction and commissioning of nuclear power plants in Russia and abroad.

