Remediation of Chernobyl NPP Site

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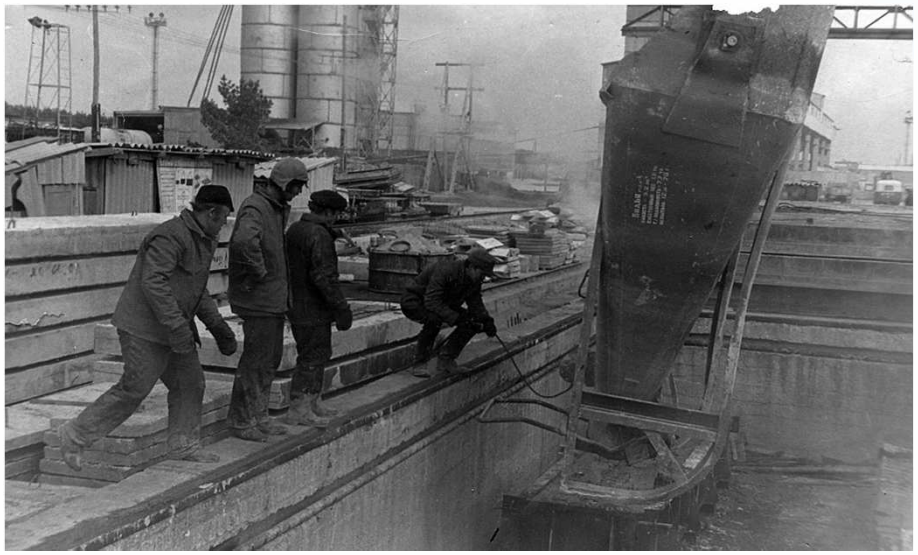
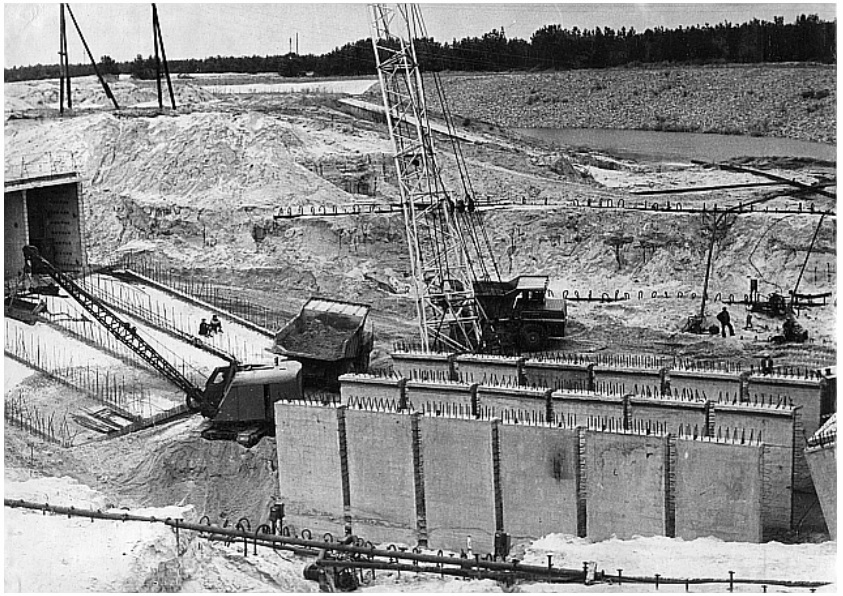
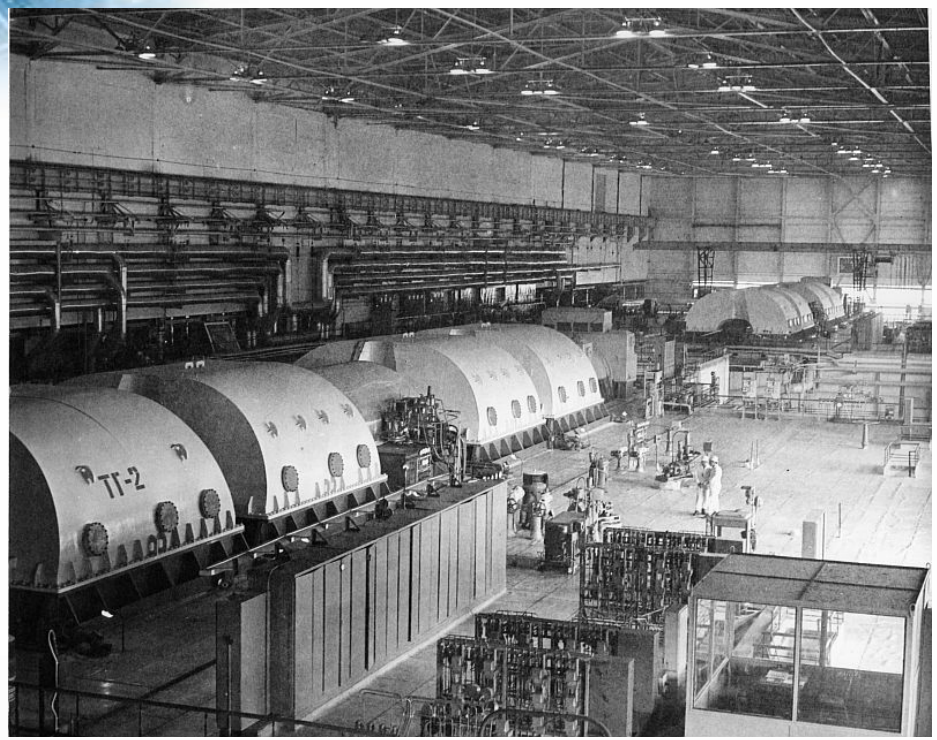
Chernobyl NPP. Construction Start





Commissioning



Turbine Hall.
View of Turbine-Generators TG-1,2

Development of installed ChNPP capacities:

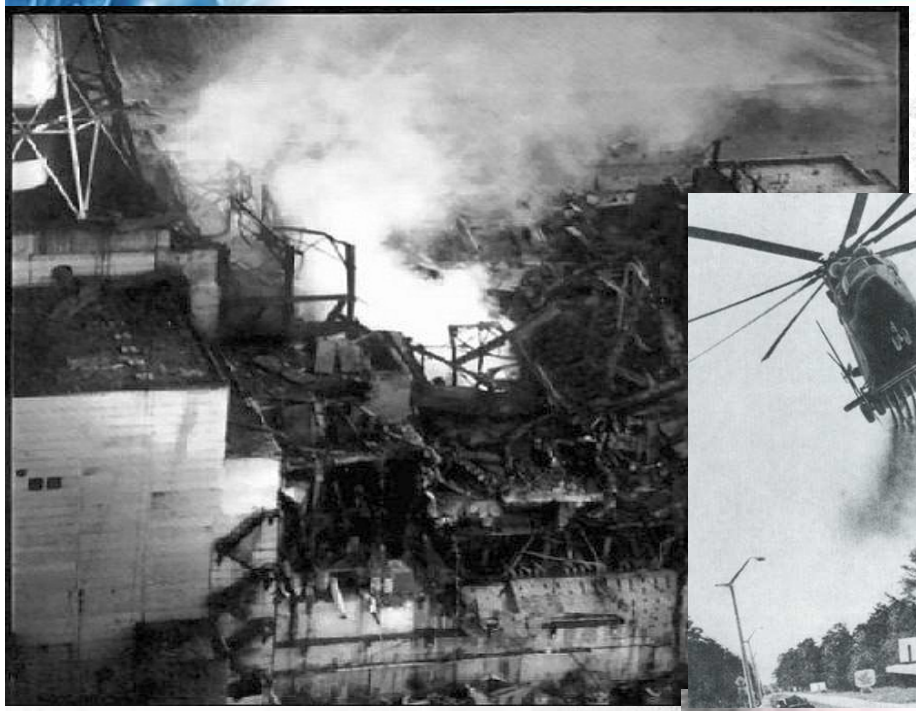
- September 26, 1977 – Unit 1 commissioned.
- December 21, 1978 – Unit 2 commissioned.
- December 3, 1981– Unit 3 commissioned.
- December 21, 1983 – Unit 4 commissioned.

Accident

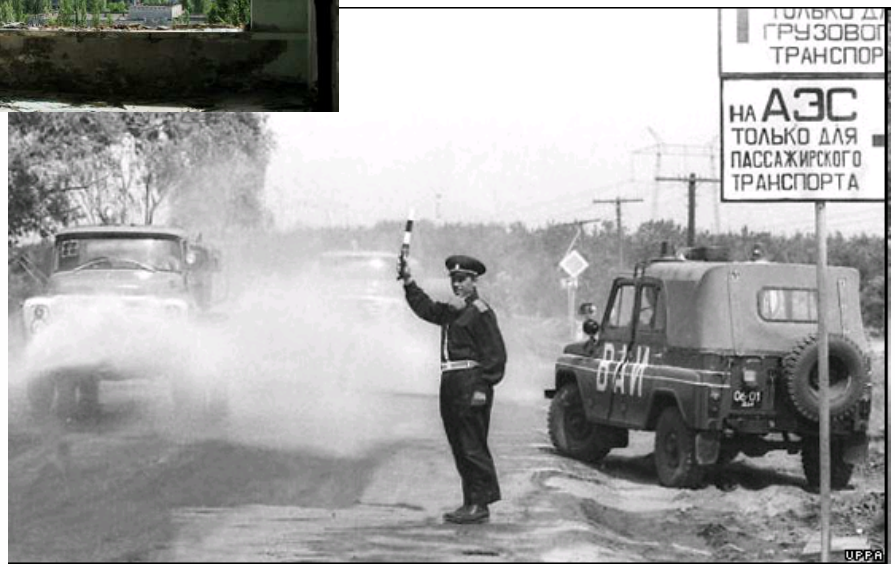
Accident at Chernobyl NPP Unit No.4 occurred on April, 26, 1986, at 01 o'clock 23 min. 40 sec. (Moscow time).

It was possible to stop active release of radioactive substances from the destroyed reactor only at the end of May 1986.

Accident Elimination



Evacuation of Population of Prypiat and Nearest Inhabited Settlements



ChNPP Site Concreting, Dust Suppression

Decontamination and Dust Fixation of Surrounding Area

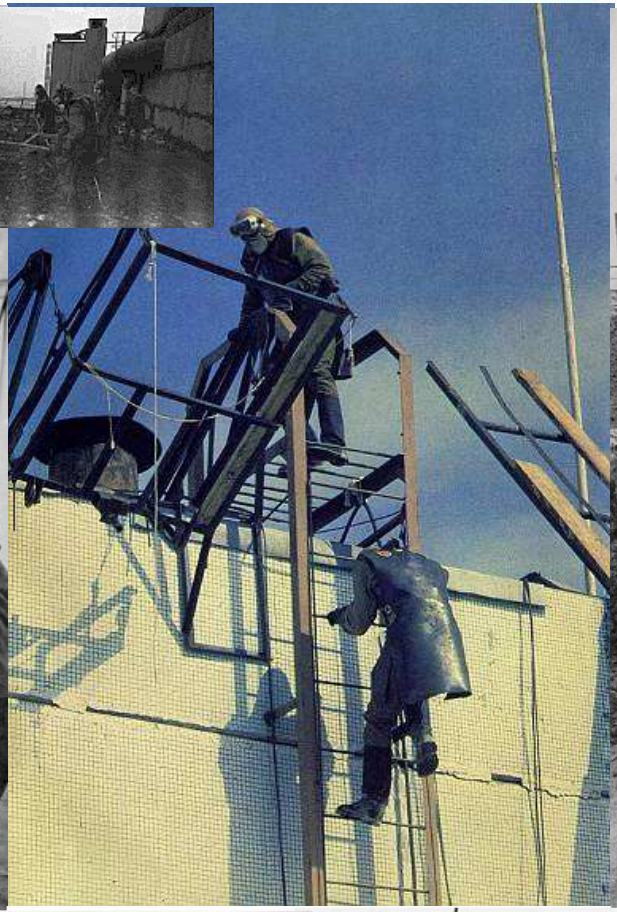
RAW Temporary Storage Facilities

Activities on Reducing Precipitations

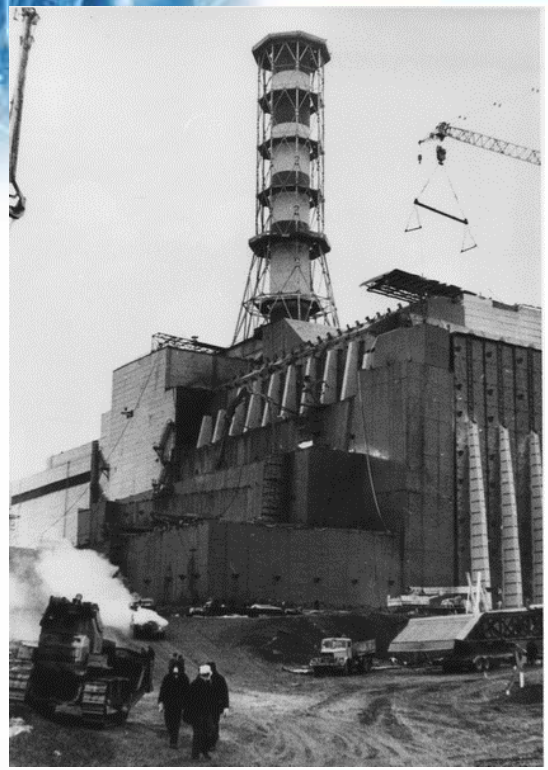
Aviation machinery used to run the clouds above the exclusion zone.

Forest Planting (Reforestation) and Grass Planting (Grassing) of the Near Area

Cleaning of ChNPP Roof



Shelter Object Erection



In the middle of May 1986 the Governmental Commission made a Decision on long-term preservation of the destroyed Power Unit 4.

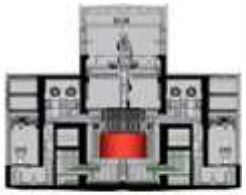
The construction lasted for 206 days and nights from June to November, 1986. About 90 thousand builders participated directly in it. On November 30, 1986, the State Acceptance Commission accepted the preserved Chernobyl NPP Unit 4 for maintenance.

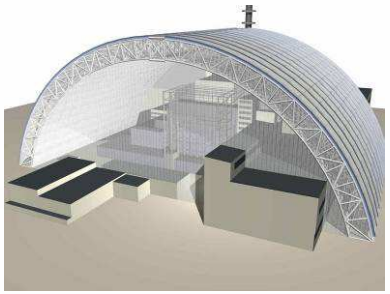
ChNPP Units Decommissioning

SSE “Chernobyl NPP” was established for comprehensive solution of problems of Chernobyl NPP Units decommissioning and Shelter Object transformation into an ecologically safe system.
The enterprise statute was registered on June 11, 2001.

On March 22, 2002, the State Nuclear Regulation Committee of Ukraine issued to the Chernobyl NPP a License for performing all types of activity on shutdown and decommissioning.

Cost for ChNPP Decommissioning

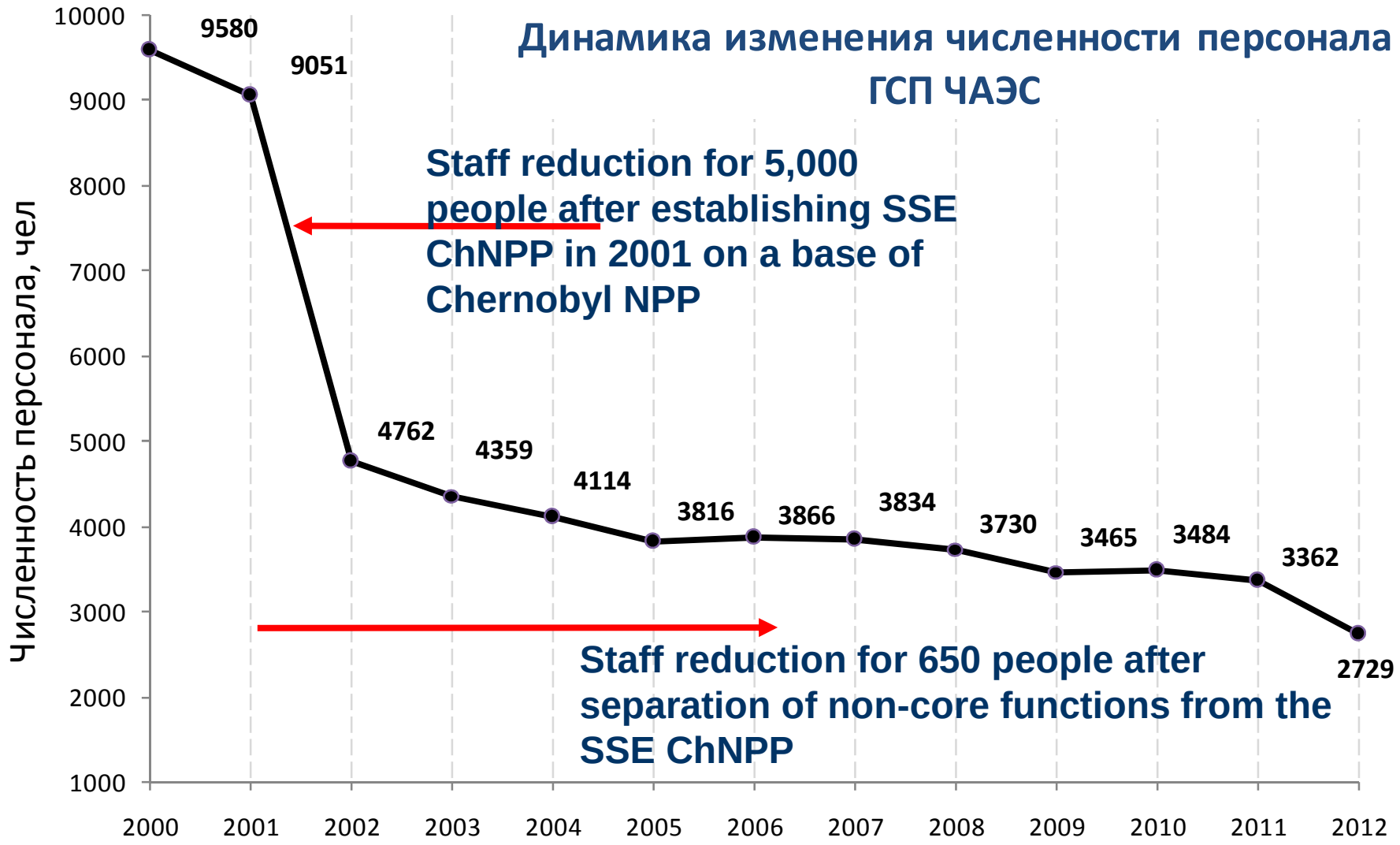




Preliminary estimation of aggregate costs for ChNPP decommissioning is 19 678 mln. UAH or 3 935.6 mln. US$ (according to average exchange rate 5 UAH/1$ as of 2007).

CSF amount is 1.54 billion euros.
At the moment there are no reliable cost estimations for SO transformation into ESS, their amount – tens of US$ billions.

Social Problems

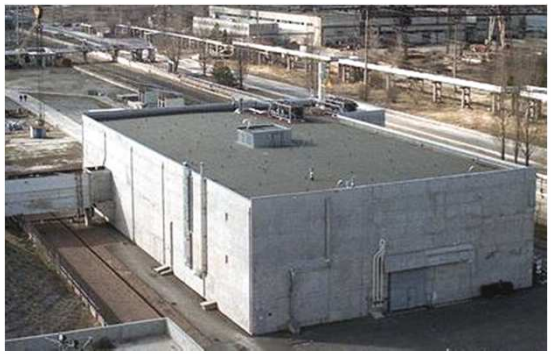


Establishment of Chernobyl NPP Decommissioning Infrastructure

Industrial Complex for Solid Radioactive Waste Management – construction was completed, activities on preparation for testing and commissioning are underway.

Liquid Radioactive Waste Treatment Plant – construction activities were completed, “cold” tests are in progress, the scheduled commissioning – 2013.

Complex on Manufacturing Steel Drums and Reinforced Concrete Containers for RAW Storage/Disposal – facility was commissioned.



Establishment of Chernobyl NPP Decommissioning Infrastructure

Interim Storage Facility for Spent Fuel (ISF-2)

- design for ISF-2 completion was approved;
- detailed design stage has been started;
- physical activities at the site will be commenced in 2013;
- ISF-2 planned commissioning – 2015.

Upgrades to Industrial Capacities on Long-Length Waste Cutting

- Technical design passed the expert review at SSTC NRS.
- Detailed engineering, procurement of equipment and materials are underway.
- Project completion date – 2013.

Management of Spent Nuclear Fuel (SNF)

Release of Power Units from nuclear fuel is a primary factor, which defines duration of the shutdown stage.

In August 2010 Unit 3 was completely released from fuel.

In November 2011 a Decision on placing all conditioned SNF from Units 1, 2 at ISF-1 was agreed upon with the State Nuclear Regulatory Inspectorate of Ukraine.

Works on SNF transfer from Units 1 and 2 into the 5th compartment of ISF-1 SP were commenced in December 2011.

As of today all conditioned fuel was transferred from Unit 2 into ISF-1. 20.5 unconditioned SFAs remain.

Unit 1 is planned to be released from conditioned SNF in 2013.

Dismantling

Starting from 2004 the ChNPP has performed dismantling activities by own forces, mainly at external objects.
From 2011 to accelerate the dismantling contracting organizations are involved into the works.

The dismantling of Power Unit 1 Turbine Hall equipment (13,900 tons of metal in total) is scheduled for 2012-2015.
The activities on dismantling of equipment and structure elements, fragmentation, transportation for decontamination and release from regulatory control have been started.

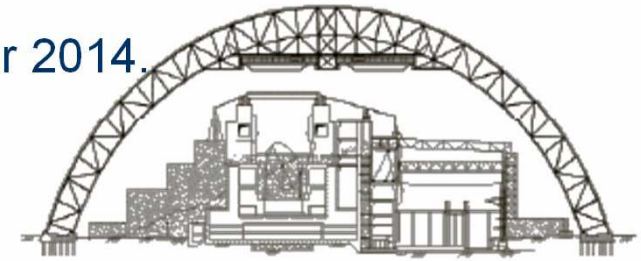
Shelter Implementation Plan

Basic stages:

- stabilization;
- construction of the confinement and preparation for FCM and HLW retrieval;
- retrieval of FCM and long-lived RAW, their conditioning with subsequent storage and disposal in accordance with effective standards.

Milestones of NSC creation:

- Contract conclusion – August 10, 2007.
- Contract work commencement - October 29, 2007.
- Foundation construction completion – May 2013.
- Assembling of the main Arch structure – November 2014.
- NSC commissioning – October 2015.



Construction of New Ventilation Stack (NVS)

NVS assembling was completed, including works on installation of external equipment and elimination of comments. Works on the NVS commissioning are underway. Contract work completion – 2012.

Contract SIP-09-1-003 “Design of Dismantling, Design Supervision for Dismantling Activities and Dismantling of ChNPP Generation II Ventilation Stack” was signed on April 23, 2012.

Construction of New Safe Confinement (NSC)

Foundation activities in the confinement erection area were completed in November 2011. In total, 396 piles 1 m in diameter and 25 m in length were driven. Weight of the piles is about 5,000 tons.

Concreting of foundations in erection and transport areas of the Arch is in progress.

On November 24, 2012, the first lift of the Eastern part of the Arch 5,300 tons in weight for 22 meters was performed at the Chernobyl NPP Shelter site. The lifting beams are under dismantling.

Conclusion

There are no many sites in the world, where such large-scale and unique activities, as at ChNPP, are performed.

The Chernobyl NPP personnel have mastered new types of activity and have accumulated experience on elimination and containment of accident consequences, NPP decommissioning under the conditions of the severest industrial accident.

We are open for any proposals on interaction and cooperation, as well as ready to share our experience and demonstrate our procedures and achievements.